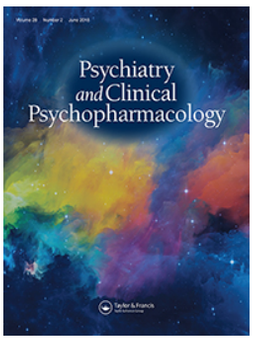

Psychiatry and Clinical Psychopharmacology

ISSN: 2475-0573 (Print) 2475-0581 (Online) Journal homepage: https://www.tandfonline.com/loi/tbcp21

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To cite this article: Mustafa Yildiz, Rahsan Erim, Haldun Soygur, Umit Tural, Fatma Kiras & Emrah Gules (2018) Development and validation of the Subjective Recovery Assessment Scale for patients with schizophrenia, Psychiatry and Clinical Psychopharmacology, 28:2, 163-169, DOI: 10.1080/24750573.2017.1405579

To link to this article: https://doi.org/10.1080/24750573.2017.1405579

Published online: 28 Nov 2017.

PSYCHIATRY AND CLINICAL PSYCHOPHARMACOLOGY, 2018
VOL. 28, NO. 2, 163–169
https://doi.org/10.1080/24750573.2017.1405579

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Development and validation of the Subjective Recovery Assessment Scale for patients with schizophrenia

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ABSTRACT

OBJECTIVE: Studies investigating the recovery from schizophrenia revealed two concepts of recovery; one is clinical recovery, and the other is personal or subjective recovery. Both states of recovery require specific assessment tools and therapeutic approaches. While current measures of clinical recovery can be used upon consensus all over the world, measures of subjective recovery which are based on cultural and individual values are yet to be investigated. The aim of this study was to develop and validate the Subjective Recovery Assessment Scale (SubRAS) for patients with schizophrenia.

METHODS: The SubRAS consisting of 17-item was prepared using related literature with focus group interviews. Internal consistency reliability was assessed by Cronbach's alpha coefficients, and test–retest reliability was assessed. Exploratory factor analyses and correlations with Global Assessment of Functioning (GAF), The Heinrichs-Carpenter Quality of Life Scale (QLS), Positive and Negative Syndrome Scale (PANSS), and Clinical Global Impression – Severity (CGI-S) were used to examine the factor-based validity and construct validity of the SubRAS.

RESULTS: The participants consisted of 127 patients with schizophrenia ($n = 110$) and schizoaffective disorder ($n = 17$), with 63.6% being male and a mean age of 41.2 years. Cronbach's alpha coefficient of the scale was calculated as 0.98 while item-total score correlation coefficients were measured between 0.83 and 0.94. Test–retest reliability ($r = .98$) was very satisfactory. As for construct validity, a one-factor solution was obtained that could explain 83.0% of the variance. The scale showed a high correlation with the GAF ($r = .82$), the QLS ($r = .76$), PANSS ($r = -.74$), and CGI-S ($r = -.74$).

CONCLUSIONS: SubRAS is a valid and reliable instrument that can be utilized for patients with schizophrenia to assess their subjective recovery states. It is a culture-sensitive self-assessment instrument and easy to use for Turkish patients with schizophrenia.

ARTICLE HISTORY
Received 11 October 2017
Accepted 10 November 2017

KEYWORDS
Schizophrenia; Subjective Recovery Assessment Scale (SubRAS); reliability; validity

Introduction

Definitions of recovery from schizophrenia have developed over time. However, there is little consensus on what recovery means in relation to mental illness [1,2]. In general, recovery has been characterized as a set of outcomes or as a set of processes. Recovery as outcome refers to termination of symptoms of illness, and return to normal functioning, such as self-care, employment, and social relations, whereas recovery as a process refers to termination of despair, having meaningful goals, revival of hope, purpose in life, and more positive experiences regardless of the presence of recurring symptoms [3,4]. Clinical-oriented definitions were centred upon a period of remission from core symptoms of schizophrenia [5]. As this conceptualization did not fit well for prolonged conditions, different definitions of recovery have been proposed which involve a return to community functioning, such as employment, independent living, and social relations [6,7]. However, these definitions have also been criticized because they often do not account for the subjective aspects of recovery, such as changes in how recovering persons think about themselves personally and make meaning in life [8,9].

On the one hand, recovery concept reflects the clinical improvement, on the other it emphasizes the personal recovering, meaning the individual adaptation process to the treats by the disorder and its negative consequences [10]. Even if the patients with schizophrenia clinically recovered from the disease, they can still have some impairments which make their quality of life less satisfactory [11]. Nevertheless, patients can be successfully integrated into community life, and they can be described that they are in the recovery process, with a renewed sense of hope and meaning in life, focusing on goals and aspirations rather than symptoms and limitations. In this context, recovery can be conceptualized as both recovering from debilitating effects of the illness and being on the road to recovery [8,12]. The concept of being in recovery is a complex and dynamic

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process that refers to developing a new meaning and purpose in life as an individual with severe mental illness grows beyond the catastrophic effects of the disease [13–15]. It has been demonstrated that subjective or personal resources mediate the impact of symptoms and cognitive impairment on real-life functioning in patients with schizophrenia [16,17]. From this point of view, recovery is seen becoming more deeply and fully human rather than becoming normal with complete symptom cessation [18]. People with schizophrenia generally consider recovery as a journey of small steps that occurs even in the presence of symptoms, characterized by a growing sense of agency and autonomy, as well as greater participation in everyday activities, employment, education, and community life [19].

There are some self-report instruments to measure the level or state of recovery or the process of recovery in patients with severe mental illnesses (SMI), which has been proven to be valid and reliable [10]. For example, Consumer Recovery Outcome System [20], Illness Management and Recovery Scale [21], Mental Health Recovery Measure [22], Psychosis Recovery Inventory [23], Recovery Assessment Scale [24,25], Recovery Process Inventory [26], Stages of Recovery Instrument [27], and the Questionnaire about the Process of Recovery [28]. Most of them consisted of around 20–50 items. 5-point Likert-type rating is generally used (1 = strongly disagree to 5 = strongly agree), in which higher levels indicate better recovery level. Common features of the scales include hope for the future, goal and success orientation, personal responsibility, positive sense of identity, finding meaning and purpose in life, self-empowerment, self-confidence, overall well-being, new potentials, daily function, knowledge about mental illness and services, coping with clinical symptoms, treatment satisfaction, attitudes to illness, attitudes to treatment, quality of life, relations with others, reliance on others, and life satisfaction.

Despite the above-mentioned and other scales not mentioned here, there is still no subjective measurement for the assessment of recovery accepted by all cultures. The recovery process is such individual journey that cannot be generalized to all persons with SMI even in the same cultural context. As it is difficult to find a proper scale for the assessment of subjective recovery, it is recommended that every culture should develop its own measurement scale. As we know, no scale to assess the subjective recovery is available in Turkey. The aim of this study is to develop a Subjective Recovery Assessment Scale (SubRAS) which is to be culture-sensitive, and to examine its validity and reliability.

Methods

Patients

A total of 127 people with schizophrenia and schizoaffective disorder attending the Community Mental Health Center of Balıkesir ($n = 100$) and Psychosocial Rehabilitation Unit of Kocaeli University ($n = 27$) in Turkey were assessed. All participants were receiving ongoing outpatient treatment and in a post-acute or stable phase of their disorder regardless of the symptomatic level. The inclusion criteria were a diagnosis of schizophrenia and schizoaffective disorder according to DSM-IV-R [29] criteria based on clinical interview and age of 18–65 years old. Patients with neurological problems, having electro convulsive therapy in the last 6 months, with mental retardation, and currently alcohol or drug dependent ones were excluded. Ethical approval for this study was obtained from the Kocaeli University Clinical Research Ethic Committee (KOÜ KAEK 2014/212). All the participants gave their informed consent for participation in the study.

Assessment

The participants were assessed with the following scales in an assessment taking around one and half an hour interview. A subsample ($n = 25$) of the total patients was randomly selected and asked to complete the same SubRAS between 2 and 3 weeks later to examine test–retest reliability.

Subjective Recovery Assessment Scale

To form the scale, the authors (MY and HS) had an interview with a focus group constituted by patients with schizophrenia and schizoaffective disorders ($n = 15$) and their family members ($n = 18$) on the meaning of recovery for them. Some statements taken from the Recovery Assessment Scale, Stages of Recovery Instrument, and the Questionnaire about the Process of Recovery [24,27,28] were discussed with the patients and family members, afterward a 24-item scale was formed. Items were reevaluated for their clarity to avoid many alternative interpretations, and their length and reading to avoid non-comprehensibility. The scale included statements using, as much as possible, the original words of those evaluated in this group in line with the literature. The scale was designed as a Likert-type response and the response categories were: 1 = not relevant, 2 = slightly relevant, 3 = moderately relevant, 4 = generally relevant, and 5 = highly relevant. Before administering the scale for the purpose of validation, the questionnaire was administered to a total of 15 people with schizophrenia (with different levels of education) to assess clarity and comprehensibility of the instrument. After reviewing the results, some items were excluded from the list for different reasons. These were: I have a desire to succeed (because of its similarity with items 2 and 3, in Table 3), I have my own plan for how to stay or become well (because of the different understandings), I know how to ask for help and from where when I am in trouble (because of

the similarity to the item 6, in Table 3), Journey of my illness and treatment made me feel grown up and mature (because of the difficulty of understanding), Symptoms of my illness rarely interfere with my life (because of the difficult comprehensibility), I can take responsibility and fulfil them (because of the different interpretations), Even though I may still have problems, and I value myself as a person of worth (because of the difficulty of understanding). All items were reviewed again by the study group, and the final scale consisted of 17 items (Table 3, and appendix Turkish ÖzİDÖ).

Positive and Negative Syndrome Scale

The Positive and Negative Syndrome Scale (PANSS) [30] is a clinician-administered 30-item semi-structured interview consisting of 7 items assessing positive symptoms, 7 items assessing negative symptoms and 16 items assessing global psychopathology. All items are scored between 1 (not present) and 7 (severe). The reliability and validity of the Turkish version have been confirmed [31]. PANSS raters were the experienced clinicians (RE, FK, and EG).

Clinical Global Impression – Severity

The scale for severity of illness refers to the clinician's global impression of the patient on the day of assessment, and scored between 1 and 7. The scale scores rise as the severity of illness increases [32].

Global Assessment of Functioning

The Global Assessment of Functioning (GAF) is included in the axis V of DSM-IV [29]. The scale ranges from 0 to 100, with higher scores indicating better functioning.

The Heinrichs-Carpenter Quality of Life Scale

It is a 21-item scale that assesses quality of life in persons with schizophrenia [33]. Information is gathered through a semi-structured interview and applied to obtain a score for each item on a 7-point scale ranging from 0 (severely impaired quality of life) to 6 (high level of quality of life) with higher scores indicating better quality of life. The Quality of Life Scale (QLS) assesses four domains: intrapsychic foundations, interpersonal relations, instrumental role, and common objects and activities. The reliability and validity of the Turkish version of the scale have been confirmed [34].

Statistical analysis

Descriptive and statistical analyses were carried out with the SPSS 20. For the examination of structure validity, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's tests of sphericity were utilized to check preliminary assumptions of factor analysis. The factor analysis was done by using principal components analyses and Varimax Rotation with the Kaiser normalization method. Corrected item-total correlations, Cronbach's alpha, and Cronbach's alpha if item deleted were calculated to assess the internal consistency of the scale. Pearson or Spearman correlation depends on the distributional features of the variables that were used for the assessment of concurrent validity and test–retest validity. Level of significance was set at a p-value of$\leq$.05.

Results

The sample consisted of 127 patients with schizophrenia ($n = 110$) and schizoaffective disorder ($n = 17$) according to DSM-IV [29], diagnosed by experienced psychiatrists in a community mental health centre and psychosocial rehabilitation unit. Most of the sample was male, single, unemployed and lived with their families. Patients' mean age was 41.17 ± 11.33 years and mean level of education was 8.33 ± 3.52 years. Table 1 shows the sociodemographic characteristics of the sample.

Reliability of the SubRAS

Internal consistency reliability

In the internal consistency analysis, Cronbach's alpha internal consistency coefficient of the scale was calculated as $\alpha = 0.987$ for the overall SubRAS. Data concerning the item-total correlations and Cronbach's Alpha coefficients calculated for each item through an if item deleted technique can be found in Table 2. Item-total score correlation coefficients were between 0.83 and 0.94, and all were statistically significant ($p < .001$).

Test–retest reliability

In the test–retest reliability analysis, the data related to 25 individuals were analysed through the Spearman correlation test in a three-week interval. The test–retest reliability coefficient of the scale was $r = .981$ ($p < .001$).

Table 1. Patients' characteristics (schizophrenia = 110, schizoaffective disorder = 17).

Characteristics	
Age (mean, SS, range)	41.17 ± 11.33 (20–65)
Education (mean, SS, range)	8.33 ± 3.52 (4–16)
Onset of illness (mean, SS, range)	23.10 ± 7.38 (11–45)
Illness duration (year) (mean, SS, range)	17.87 ± 9.73 (1–42)
Number of hospitalization (mean, SS, range)	4.53 ± 6.78 (0–30)
Male (number, %)	81 (63.8)
Single (number, %)	93 (73.2)
Living with family (number, %)	112 (88.2)
Unemployment (number, %)	99 (78.0)
Suicide attempt (number, %)	22 (17.3)
Smoking (number, %)	59 (46.5)
Poor family support (number, %)	26 (20.5)

Table 2. Item and reliability analyses results of the SubRAS.

Items	Scale mean if item deleted	Corrected item-total correlation	Alpha if item deleted
1	40.8031	.876	.987
2	40.8819	.909	.986
3	40.8346	.913	.986
4	41.0472	.882	.986
5	41.0472	.828	.987
6	40.9843	.920	.986
7	40.9921	.913	.986
8	40.9764	.927	.986
9	41.0472	.928	.986
10	40.9370	.895	.986
11	40.7402	.896	.986
12	40.9685	.935	.986
13	40.9291	.914	.986
14	41.0709	.898	.986
15	41.4331	.862	.987
16	41.2913	.868	.987
17	41.0866	.919	.986

Validity of the SubRAS

Construct validity

The KMO test indicated excellent sampling adequacy, and Bartlett's test of sphericity has indicated (KMO = 0.959, df = 136, $p < .001$) that a factor analysis may be useful for the data. Explanatory factor analysis showed a single factor structure with an eigenvalue of 14.12, explaining 83.04% of total variance. Factor loadings of the items were between 0.83 and 0.94 (Table 3).

Convergent and divergent validity

In the convergent and divergent validity analysis, the correlations between the SubRAS and PANSS, Clinical Global Impression – Severity (CGI-S), GAF, and QLS total scores were examined. The total score of the SubRAS significantly and positively correlated with the scores of the GAF and QLS sub and total scores (Table 4). The total score of the SubRAS significantly and negatively correlated with CGI-S, and PANSS sub and total scores. Table 4 shows the correlation coefficients.

Table 3. Factor analysis and factor loadings of the SubRAS ($n = 127$). Factor matrix.[a]

	SubRAS items	Correlation coefficient
1	I have hopes for my future	.918
2	I have goals that I want to achieve	.882
3	I believe that I can achieve my goals	.915
4	I obtain new areas of interest	.887
5	I have people that I can rely on apart from my family	.834
6	I ask for help from others when I need	.925
7	I have self-confidence	.920
8	I can deal with difficult situations in my life	.934
9	People around me usually trust me	.934
10	I am a person who is called and regarded by others	.902
11	I do my best for the treatment of my illness	.901
12	I can cope with symptoms of my illness	.942
13	I have positive relations with other people	.921
14	I see myself as a member of society	.904
15	I engage in social activities	.867
16	I spend my leisure time with useful activities	.874
17	I can perform my duties (as a worker, a student, a civil servant, a housewife etc.) that I am supposed to do	.926
	Eigenvalue	14.12
	Variance (%)	83.04

Note: Extraction Method: Principal Component Analysis.
[a]One component extracted.

Table 4. Correlations of SubRAS scores with PANSS, CGI-S, GAF, and QLS component scores ($N = 127$).

Scales	SubRAS	
	Correlation coef.	*p*-Value
PANSS positive	−.618	<.001
PANSS negative	−.770	<.001
PANSS general psychopathology	−.645	<.001
PANSS total	−.739	<.001
CGI-S	−.740	<.001
GAF	.820	<.001
QLS total	.757	<.001
QLS-intrapsychic foundations	.759	<.001
QLS-interpersonal relations	.771	<.001
QLS-instrumental role	.595	<.001
QLS-common objects and activities	.738	<.001

Discussion

This study confirmed the reliability and validity of the 17-item SubRAS for the patients with schizophrenia living in the community in Turkey. The scale had good internal consistency and test–retest reliability over a 3-week period. Comparison of the GAF and the QLS with the total score of the SubRAS provided convergent validity data. This finding is important, since the GAF and the QLS are clinician-rated scales, whereas SubRAS is a self-administered scale. All subscales of the QLS were strongly and positively correlated with the SubRAS total score which reflects that the patients' self-assessment of their subjective recovery states are highly satisfactory. Similarly, the total score of the SubRAS was strongly and negatively correlated with the PANSS total, positive, negative, and general psychopathology scores, and CGI-S scores, demonstrated construct validity of the scale. It is noteworthy that the correlation between the total SubRAS score and the QLS-instrumental role, and PANSS positive subscale scores was not as much as other correlations. This may reflect that the patients' subjective recovery concepts are less related to their positive symptoms and instrumental skills when compared to other domains. The factor analysis yielded a one-factor solution in the total sample. This finding once more emphasized the importance of cultural and deeply individual values which were compromised in the recovery understanding [35]. The word recovery in Turkish (iyileshme) has already the meaning of being in recovery. Any person who has a feeling of recovering consider him/herself as being in recovery, such as much better, more functional, more healed, more improved, more confident, and more empowered. And, a recovery understanding has a bit optimistic connotation as well. Studies on recovery have found that two-, four- or five-factor structures of recovery [25,27,28,36,37]. Nevertheless, when the scales were adapted for other language or cultures, their number of factor can change

depending on individuals' recovery understanding or cultural systems of value and meaning. Negative correlations between recovery and psychiatric symptoms are consistent with previous studies [24,25]. Although, the recovery concept is distinguished from psychiatric symptoms by some authors [14], it is still possible that the recovery process is affected by symptom severity, that is why some authors propose symptom management as a component of recovery [8,12].

Traditional clinical measures, while providing important information to clinicians, do not give any idea about the patients' subjective feeling of recovery. Recovery measures provide valuable information meaningful for the patients which may enrich the assessment process, and nurture the therapeutic relationship by suggesting areas for discussion and goal-setting to both clinician and the patient. In the same way, the SubRAS representing the person's feeling of recovery in practice has a potential to open a discussion about treatment goals between the clinician and patient in the road to recovery. This kind of assessment of recovery may be conceptualized to involve a patient articulating the meaning of their own life, and thinking about their dimensions of recovery. With increasing demands for outcome evaluation of rehabilitative interventions for patients with SMI, besides the measurements assessing clinical outcomes, especially self-reported recovery scales seem to be beneficial instruments for the clinicians. Being able to assess their own recovery level can help the patients to evaluate treatment outcome as well. Assessment of the current recovery state of the patient by themselves can be used as a collaborative endeavour for the treatment of the illness and enhancing functionality. Both concepts of recovery are useful for the assessment of the patient with SMI to design new therapeutic and rehabilitative approaches. Therefore, assessment tools for recovery should include clinical, functional, and subjective components of recovery concept.

The advantages of this scale can be summarized as: it was originally conceptualized and expressed by the patients and their caregivers using literature on this subject. All items of the scale were very understandable and comprehensible by the Turkish patients for self-rating. This is a short scale, do not have too much items, easy to point it, and it takes around 5–10 minutes to complete. This scale gives an opportunity for the clinicians to measure the subjective recovery experiences of their patients in research and clinical practice. We need a prospective and longitudinal research to test of the SubRAS' sensitivity to change in clinical and functional outcome over time.

Limitations of the study

We have some limitations of this study: The PANSS and other scales were administered by different clinical rates, nevertheless they were experienced clinicians. The sample size was relatively small and the majority of the sample was male. Study should be carried out in a larger sample representing both sexes, and different diagnostic groups of the patients with severe mental disorders.

Acknowledgements

We would like to thank all participants who took part in the study.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix

The SubRAS/Öznel İyileşmeyi Değerlendirme Ölçeği (ÖzİDÖ).

	Hastalığınızın tedavisi ile birlikte iyileşme durumunuzu değerlendirmek amacıyla aşağıda bazı ifadeler verilmiştir. Lütfen bunlarla ilgili olarak size en uygun olan seçeneği işaretleyiniz	Bana hiç uymaz	Biraz uyar	Orta derecede uyar	Genellikle uyar	Tam uyar
1	Geleceğimle ilgili umutlarım var					
2	Ulaşmak istediğim hedeflerim var					
3	Hedeflerimi gerçekleştirebileceğime inanıyorum					
4	Yeni ilgi alanları ediniyorum					
5	Çevremde ailem dışında da güvenebileceğim insanlar var					
6	Gereksinim duyduğumda çevremden yardım istiyorum					
7	Kendime güveniyorum					
8	Karşılaştığım zor durumlarla başa çıkabiliyorum					
9	Çevremdeki insanlar bana güveniyor					
10	Çevrem tarafından aranan ve önemsenen birisiyim					
11	Hastalığımın tedavisi için elimden geleni yapıyorum					
12	Hastalığımın belirtileriyle başa çıkabiliyorum					
13	Başka kişilerle olumlu ilişkiler kuruyorum					
14	Kendimi toplumun bir üyesi olarak görüyorum					
15	Sosyal etkinliklere katılıyorum					
16	Boş zamanlarımı faydalı bir şekilde değerlendiriyorum					
17	Benden beklenen görevleri (öğrenci, işçi, memur, ev hanımı gibi) yerine getiriyorum					