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# The complex relationship between self-reported 'personal recovery' and clinical recovery in schizophrenia

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## Abstract

Self-reported ‘personal recovery’ and clinical recovery in schizophrenia (SRPR and CR, respectively) reflect different perspectives in schizophrenia outcome, not necessarily concordant with each other and usually representing the consumer's or the therapist's point of view.

By means of a cluster analysis on SRPR-related variables, we identified three clusters. The first and third cluster included subjects with the best and the poorest clinical outcome respectively. The second cluster was characterized by better insight, higher levels of depression and stigma, lowest self-esteem and personal strength, and highest emotional coping. The first cluster showed positive features of recovery, while the third cluster showed negative features. The second cluster, with the most positive insight, showed a more complex pattern, a somewhat ‘paradoxical’ mixture of positive and negative personal and clinical features of recovery.

The present results suggest the need for a characterization of persons with schizophrenia along SRPR and CR dimensions to design individualized and integrated treatment programs aimed to improve insight and coping strategies, reduce stigma, and shape recovery styles.

## 1. Introduction

Recovery from schizophrenia is a recent concept that antagonize the well-rooted belief of the impossibility to heal from a mental illness (Liberman and Kopelowicz, 2002, Torgalsbøen, 2005). Although this concept gained acceptance as an important domain in health care, a lack of consensus in its definition has lead to some confusion in the literature with several conceptualizations of recovery dimensions being proposed, e.g. service-based, clinical or objective recovery vs. user-based, personal vs. objective recovery.

The main hypotheses driving the study of recovery derive from two different perspectives: the clinical and the subjective one.

From the clinical perspective, recovery is an objective element, with return to a previous condition of health. Outcomes include symptomatology/hospitalization reduction and medication use, with particular regard to the pharmacotherapy adherence.

From the subjective perspective, recovery is driven by people's lives, peer support and subjective experiences of mental illness and recovery. The subjective perspective challenges the notion of enduring mental illness. Treatment can be considered as putatively helpful, but not an absolute requirement (Bellack, 2006). It defines self-appraised sense of wellness (i.e. self-reported ‘personal recovery’), representing a consumer's point of view of outcome not necessarily being concordant with the classical medical model (Ahmed et al., 2011, Roe et al., 2011, Hofer et al., 2016, Bellack, 2006). This view has been contrasted with a clinical recovery, mainly based on the severity of symptoms that practitioners consider as indicative of change.

In spite of their differences, the two perspectives have lead to conceptions of recovery that should be complementary rather than opposite (Bellack, 2006), and should be considered of equal weight and importance for the assessment of the final functional outcome (Torgalsbøen, 2005).

Subjective or personal resources have been observed to mediate the impact of symptoms and cognitive impairment on real-life functioning in subjects with schizophrenia and their first-degree relatives (Galderisi et al., 2014, Galderisi et al., 2016, Rossi et al., 2016), suggesting that the two domains of recovery are complementary rather than incompatible (Roe et al., 2011).

In fact, real-life functioning of people with schizophrenia depends on a number of variables, some related to the disorder, to personal resources, or to the context in which the person lives (Galderisi et al., 2014). Several studies reported that persons with comparable severity of psychopathology may differ in their real-life functioning because of differences in personal resources (Hultman et al., 1997, Macdonald et al., 1998, Ritsner and Ratner, 2006).

Hence, a call for a unifying definition of recovery, and its underlying factors has been proposed. As a matter of facts there is no single definition for recovery although there is an emerging temptation of a "reductionist approach" in creating a concise definition and evaluation. In fact, more than definitions, a further study of the issues underlying recovery and what they would mean in practice is essential (Shepherd et al., 2008).

Resilience, coping abilities, recovery style, strategies used to interact with services and therapists, as well as stigma, are constructs encompassing several aspects of personal resources that have been associated with a positive outcome in schizophrenia (Torgalsbøen, 2012, Hofer et al., 2016, Xu et al., 2013).

Research concerning the relationship between self-reported 'personal recovery' (SRPR) and clinical recovery (CR) reported inconsistent findings. Different studies found a significant correlation between personal recovery and severity of symptoms (Corrigan et al., 2004, Resnick et al., 2004, Jørgensen et al., 2015), although such finding has not been replicated elsewhere (Roe et al., 2011).

A further analysis of the relationship between self-reported 'personal recovery' and clinical recovery may help to identify the variables that influence outcome.

In this report, we investigate how SRPR identify different groups of persons with schizophrenia and which clinical variables characterize these groups. We predicted that clustering participants in three groups on the basis of SRPR would identify specific patterns of associations. The three group solution was retained as the modal value on the basis of studies using clustering methods to stratify schizophrenia (Marquand et al., 2016). Furthermore, we planned to compare the identified clusters according to CR.

## 2. Methods

### 2.1. Subjects

In the study of the Italian Network for Research on Psychoses, participants were recruited from people living in the community and consecutively seen at the outpatient units of 26 Italian university psychiatric clinics and/or mental health departments (Galderisi et al., 2014). Inclusion criteria were; (a) diagnosis of schizophrenia according to DSM-IV using the Structured Clinical Interview for DSM-IV—Patient version (SCID-I-P); (b) age between 18 and 66 years. Exclusion criteria were: (a) a history of head trauma with loss of consciousness; (b) moderate to severe mental retardation or of neurological diseases; (c) alcohol and/or substance abuse in the last 6 months; (d) current pregnancy or lactation; (e) inability to provide an informed consent; (f) symptom exacerbation, treatment modifications, hospitalization in the last 3 months.

All participants to the study signed a written informed consent to participate after receiving a comprehensive explanation of the study procedures and goals. Approval of the study protocol was obtained from the local ethics committees.

### 2.2. Procedures

Recruitment took place from March 2012 to September 2013. Data on age of onset, course of the disease and treatments, using all available sources of information were obtained. For research training procedure see Galderisi et al., 2014.

### 2.3. Study variables

#### 2.3.1. Self-reported 'personal recovery' (SRPR).

(a) Resilience was assessed using the Resilience Scale for Adults (RSA) (Friborg et al., 2003, Capanna et al., 2015). (b) The Self-Esteem Rating Scale (Self-Esteem-RS) (Nugent, 1993) was used to assess self-esteem. (c) Recovery style was measured with the Recovery Style Questionnaire (RSQ; Drayton et al., 1998, Poloni et al., 2010). (d) The Brief Cope was used for the assessment of dispositional as well as situational coping efforts. Problem-focused versus emotion-focused coping strategies were considered (Carver, 1997, Sica et al., 1997). (e) The Internalized Stigma of Mental Illness (ISMI) (Ritsher and Phelan, 2004, Boyd et al., 2014) was used to evaluate the experience of stigma and internalized self-rejection.

### 2.3.2. Clinical recovery (CR)

(a) Psychotic symptoms were assessed by means of the Positive and Negative Syndrome Scale (PANSS) 30-item rating scale (Kay et al., 1987). (b) Depressive symptoms were evaluated using the Calgary Depression Scale for Schizophrenia (CDSS) (Addington et al., 1993; http://www.ucalgary.ca/cdss/). (c) Psychosocial functioning was measured using the Personal and Social Performance (PSP) scale (Morosini et al., 2000, Nasrallah et al., 2008, Patrick et al., 2009).

All of the clinical evaluations were done by research trained professionals.

### 2.3.3. Statistical analysis

The total scores of the SRPR and CR assessments have been used in the analysis as in previous companion paper (Rossi et al., 2016).

A cluster analysis, k-means method, was performed using measurements of SER. The absolute measures were z-transformed. Nonhierarchical k-means clustering is a fast and reliable method that partitions a data set into a pre-specified number of clusters. We hypothesized that the three cluster solution better fits with the clinical observation of subjects with good, bad and intermediate outcome according to previous literature (Marquand et al., 2016).

We described the three clusters according to the content and the meaning of the rating scales utilized.

The clusters identified were further considered for one-way analysis of variance (ANOVA). ANOVA was used to study the differences between the three clusters for clinical variables and real world functionality.

Pearson correlations between the variables in the total sample and within the clusters were performed.

## 3. Results

Out of 1691-screened persons, 1180 were eligible; of these, 202 refused to participate, 57 dropped out before completing the procedures, and 921 were included; 903 subjects were entered the cluster analysis due to missing values in the remaining ones. No sociodemographic differences were observed between recruited and remaining 57 subjects who did not completed the study (Galderisi et al., 2014).

The cluster analysis performed on SRPR variables identified three clusters (Table 1). The first one (n = 328) was characterized by the highest scores on the RSA subscales, Self-Esteem-RS and Problem focus coping, and the lowest scores on the ISMI. RSQ and Emotional focus scores were low but intermediate between cluster 2 and 3, with RSQ scores very close to those of the second cluster and Emotional focus scores closer to the third cluster.

*Table 1. Self-reported elements of 'personal recovery' (SRPR) in the three clusters of persons with schizophrenia (Mean ± SD).*

| Variable | Cluster 1 (n = 328) | Cluster 2 (n = 340) | Cluster 3 (n = 235) | F[a] (df 2; 901) |
|---|---|---|---|---|
| **ISMI** | 1.78 ± 0.42 | 2.43 ± 0.43 | 2.25 ± 0.51 | 239.156 |
| **Self-esteem-RS** | 51.02 ± 27.65 | – 7.54 ± 30.30 | 1.80 ± 36.40 | 392.390 |
| **RSQ** | 8.50 ± 2.28 | 8.56 ± 1.80 | 6.45 ± 2.00 | 30.190 |
| **RSA structured style** | 15.37 ± 2.84 | 12.18 ± 3.04 | 11.23 ± 2.87 | 110.034 |
| **RSA social competence** | 23.09 ± 4.04 | 16.86 ± 4.15 | 15.92 ± 4.66 | 311.565 |
| **RSA family cohesion** | 23.61 ± 5.06 | 20.15 ± 4.69 | 16.14 ± 4.95 | 68.551 |
| **RSA social resources** | 29.09 ± 4.15 | 25.10 ± 4.59 | 19.95 ± 5.31 | 91.695 |
| **RSA personal strength** | 36.61 ± 6.67 | 23.80 ± 6.58 | 25.72 ± 7.04 | 364.322 |
| **Problem focus coping** | 43.20 ± 9.06 | 43.07 ± 7.21 | 31.53 ± 8.34 | 147.836 |
| **Emotional focus coping** | 23.69 ± 4.84 | 28.31 ± 4.78 | 22.89 ± 5.61 | 129.447 |

Abbreviations: ISMI: Internalized Stigma of Mental Health; Self-Esteem-RS: Self-Esteem Rating Scale; RSQ: Recovery Style Questionnaire; RSA: Resilience Scale for Adults.

[a] K-mean ANOVA F tests are reported for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. All F are significant at 0.0005 level.

The third cluster (n = 235) showed the lowest scores for RSA subscales, Problem and Emotional focus, and RSQ. ISMI and Self-Esteem-RS were instead intermediate between cluster 1 and 2, with the ISMI score closer to the second cluster.

The second cluster (n = 340) showed the highest scores for ISMI, RSQ and Emotional focus, and the lowest scores for Self-Esteem-RS and RSA Personal Strength. The remaining RSA subscales and problem focus coping scores were intermediate between those of the first and the third clusters.

No difference for gender distribution was found among the 3 cluster was seen (chi squared 3.18; df 2, ns).

One-way analysis of variance (ANOVA) on the clinical elements of recovery (CR), including socio-demographic and clinical variables, showed PANSS score differences among the three clusters (Table 2). The first cluster showed the lowest scores for the Negative and General subscales, as well as the lowest total score; the third cluster the highest scores; and the second cluster intermediate scores. The third cluster showed the highest score for Positive Symptoms, with a significant difference from the second cluster. The PANSS lack of insight (i.e. PANSS General Psychopathology Item 12) showed instead a different pattern of differences, with the

second cluster reporting the lowest score (i. e. the best insight), the third cluster the highest score (i. e. the poorest insight) and the first cluster an intermediate score.

*Table 2. Clinical elements of Recovery (CR) in the three clusters of persons with schizophrenia (Mean ± SD).*

| Variable | Total sample (n = 903; males = 631) | Cluster 1 (n = 328; males = 220) | Cluster 2 (n = 340; males = 237) | Cluster 3 (n = 235; males = 174) | F | Post hoc comparisons least significant difference (LSD) |
|---|---|---|---|---|---|---|
| Age | 40.20 ± 10.69 | 39.26 ± 10.36 | 40.06 ± 10.46 | 41.71 ± 10.69 | 3.67* | 1 < 3** |
| Educational level | 11.64 ± 3.41 | 12.18 ± 3.50 | 11.57 ± 3.28 | 10.99 ± 3.36 | 8.50§ | 1 > 2*, 3§; 2 > 3* |
| Age at onset | 23.38 ± 7.28 | 24.85 ± 7.37 | 23.15 ± 6.62 | 24.30 ± 7.55 | 4.89** | 1 > 2*** |
| PANSS Positive symptoms | 16.00 ± 6.66 | 15.06 ± 7.04 | 15.90 ± 6.03 | 17.45 ± 6.76 | 8.98§ | 1 < 3§; 2 < 3** |
| PANSS negative symptoms | 21.88 ± 8.47 | 20.10 ± 8.41 | 21.56 ± 7.88 | 24.83 ± 8.65 | 22.71§ | 1 < 2*, 3§; 2 < 3§ |
| PANSS general psychopathology | 37.29 ± 11.67 | 34.10 ± 11.41 | 38.29 ± 11.46 | 40.29 ± 11.30 | 22.30§ | 1 < 2§, 3§; 2 < 3* |
| PANSS G 12 | 3.17 ± 1.61 | 3.14 ± 1.64 | 2.88 ± 1.55 | 3.63 ± 1.57 | 15.39§ | 2 < 1*, 3§; 1 < 3§ |
| PANSS total score | 75.16 ± 22.73 | 69.26 ± 22.90 | 75.74 ± 21.36 | 82.56 ± 22.21 | 24.86§ | 1 < 2§, 3§; 2 < 3§ |
| CDSS | 3.98 ± 4.00 | 2.59 ± 3.05 | 5.13 ± 4.31 | 4.24 ± 4.15 | 37.11§ | 2 > 1§, 3**; 1 < 3§ |
| PSP | 53.17 ± 16.33 | 56.55 ± 15.59 | 53.74 ± 15.14 | 47.63 ± 17.58 | 21.75§ | 2 < 1*, 3§;1 > 3§ |

$p$ < *0.05; **0.01; ***0.005; §0.0005.

Abbreviations: PANSS: Positive and Negative Syndrome Scale; CDSS: Calgary Depression Scale for Schizophrenia; PSP: Personal and Social Performance Scale.

The second cluster showed the highest scores for CDSS; the first cluster the lowest.

The remaining clinical variables and functional evaluations showed the best scores for the first cluster, the poorest for the third and an intermediate one for the second cluster.

As to socio-demographic variables, the first cluster was characterized by younger age, higher educational level, and later age at onset, with respect to the other two clusters, while the third cluster showed the lowest educational level (Table 2). SRPR and clinical measures are weakly correlated (Pearson $r < 0.25$ range $r$ 0.02–0.25) (Table 3).

*Table 3. Correlations between Self-reported elements of 'personal recovery' (SRPR) and Clinical elements of recovery (CR) in the total sample (n = 903).*

| | PANSS positive symptoms | PANSS negative symptoms | PANSS general psychopathology | PANSS G 12 | PANSS Total Score | PSP |
|---|---|---|---|---|---|---|
| **ISMI** | 0.14§ | 0.21§ | 0.25§ | 0.07* | 0.25§ | − 0.17§ |
| **Self-esteem-RS** | − 0.07* | − 0.10*** | − 0.19§ | 0.02 | − 0.15§ | 0.13§ |
| **RSQ** | − 0.10** | − 0.13§ | − 0.09** | − 0.17§ | − 0.13§ | 0.09** |
| **RSA structured style** | − 0.08* | − 0.13§ | − 0.15§ | − 0.04 | − 0.15§ | 0.12§ |
| **Rsa social Competence** | − 0.05 | − 0.20§ | − 0.17§ | − 0.03 | − 0.18§ | 0.17§ |
| **RSA family cohesion** | − 0.17§ | − 0.05 | − 0.16§ | − 0.13§ | − 0.15§ | 0.14§ |
| **RSA Social Resources** | − 0.19§ | − 0.15§ | − 0.19§ | − 0.18§ | − 0.21§ | 0.19§ |
| **RSA personal strength** | − 0.02 | − 0.15§ | − 0.19§ | − 0.04 | − 0.16§ | 0.15§ |
| **Problem focus coping** | − 0.11*** | − 0.22§ | − 0.14§ | − 0.11*** | − 0.18§ | 0.21§ |
| **Emotional focus coping** | − 0.05 | − 0.09** | − 0.00 | − 0.09** | − 0.05 | 0.09** |

Abbreviations: ISMI: Internalized Stigma of Mental Health; Self-Esteem-RS: Self-Esteem Rating Scale; RSQ: Recovery Style Questionnaire; RSA: Resilience Scale for Adults; PANSS: Positive and Negative Syndrome Scale; PSP: Personal and Social Performance Scale.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

§ $p < 0.0005$.

## 4. Discussion

To the best of our knowledge, this is the first report using SRPR to delineate different clusters of persons with schizophrenia. The first cluster identifies a sample with the best and the third a sample with the poorest clinical outcome. Even though SRPR and clinical measures are weakly correlated, as reported elsewhere (Jørgensen et al., 2015), the clinical measures contribute to cluster characterization.

The first cluster shows positive features of recovery, both self-reported personal and clinical, and the third cluster presents negative features. The second cluster, which has the most positive insight (i.e. a lower PANSS General Psychopathology Item 12 score), shows a more complex pattern, a somewhat 'paradoxical' mixture of positive and negative self-reported personal (e.g. low self-esteem, low personal strength, higher level of stigma and emotional coping) and clinical features (e.g. high depressive symptoms). Insight into illness may complicate the relationship between self-reported personal and clinical elements of recovery (Lysaker et al., 2007, Belvederi Murri et al., 2016). This cluster may identify persons with greater vulnerability toward depression but not toward psychotic symptoms, probably due to low self-esteem.

Staring et al. (2009) reported that higher insight is associated with different objective elements of recovery (i.e. symptoms) depending on the level of stigma. Those who do not perceive stigma show better outcome and those with higher stigma show depressive mood and low quality of life. These results are in line with those reported by Lysaker et al. (2007) and Belvederi Murri et al. (2016), with a strong relationship between better insight and higher depression especially among persons with lower service engagement. Findings from our study confirm this observation, in one of the clusters.

In line with a previous report (Rudnick and Martins, 2009), the highest emotional coping and the lowest problem focused coping characterize the two clusters with poor functioning, the second and the third respectively. According to Ritsner et al. (2003), a more balanced coping fits with a more positive outcome as in the first cluster. The third cluster shows both self-reported and clinical 'negative' elements of recovery together with the worst recovery style biased toward sealing-over (i.e. avoidant coping strategies), as reported by Tait et al. (2004) and Modestin et al. (2009).

Our approach was aimed at reducing the heterogeneity of schizophrenia in a very large sample of community dwelling persons, to identify more homogeneous subgroups, characterized by different patterns of elements of recovery.

The cross-sectional nature of this study constitutes an important limitation and prevents conclusions regarding the causality of the relationship between personal and clinical features of recovery. Even though several recommended instruments to assess recovery are reported (Ralph et al., 2000) we selected instruments that evaluated some aspects of the recovery so that this choice could have introduced a bias in the evaluation. A further limitation of the study is that some instruments were not validated in Italian (Self-Esteem-RS, Nugent, 1993).

The major strengths of the study are the large size of the sample and the wide array of state of the art instruments.

Nevertheless, we found that the SRPR allows the identification of different subgroups with meaningful clinical differences that could inform treatment.

In our opinion, and in line with previous suggestions (Vass et al., 2015), the integration of subjective and clinical models would yield a better assessment and overall understanding of recovery and contribute to design individualized and integrated treatment programs aimed to improve insight and coping strategies, reduce stigma, and shape recovery styles (Lysaker et al., 2013). The complex process of recovery (Jørgensen et al., 2015) could be disentangled either within different domains or, alternatively, different identifiable

clusters of people needing intervention more balanced toward insight, coping or resilience improvement. Our results support this view.

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## Declaration of interest

None.

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