



# Evaluation of the Illness Management and Recovery Scale in schizophrenia and schizoaffective disorder

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## ABSTRACT

The aim of the present study was to evaluate the psychometric properties of the parallel client and clinician versions of the Illness Management and Recovery Scale (IMRS) developed to monitor the clients' progress in the Illness Management and Recovery (IMR) program in schizophrenia. A total of 107 study participants completed assessments of the IMRS, interview-based ratings of psychiatric symptoms, self-ratings of psychiatric symptoms, perception of recovery, and quality of life. Case managers completed the clinician version of the IMRS. Both versions of the scale demonstrated satisfactory internal reliability and strong test–retest reliability. The results also indicated convergent validity with interview-based ratings of psychiatric symptoms, self-rated symptoms, perception of recovery, and quality of life for both versions of the IMRS. These findings support the utility of the IMRS as a measure of illness self-management and recovery in clients with schizophrenia.

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## 1. Introduction

The Illness Management and Recovery (IMR) program is aimed at promoting recovery through teaching clients with severe mental illness to better manage their disorders (Gingerich and Mueser, 2005). The perspective on recovery in this program de-emphasizes the absence of psychopathology and instead views it as the process of identifying and pursuing a life and personal identity beyond the impact of mental illness (Anthony, 1993; Deegan, 1988; Bellack, 2006; Davidson et al., 2008; Davidson et al., 2009). The IMR program was developed in association with the National Implementing Evidence-Based Practices Project (Drake et al., 2001) and comprises several components with empirical support for improving the outcome in severe mental illness, including psychoeducation, social skills training, relapse prevention planning, behavioral tailoring for treatment adherence, and coping skills training for managing stress and symptoms (Mueser et al., 2002; Mueser et al., 2003; Gingerich and Mueser, 2005). The program is curriculum-based and delivered in an individual or group format over 40 sessions or more. Previous studies have demonstrated its effectiveness for clients with severe mental illness (i.e., major depression, bipolar disorder, psychotic disorders including schizophrenia and schizoaffective disorder and personality disorders), in different settings, with good fidelity to the program model (Mueser et al., 2006; Hasson-Ohayon et al., 2007; Levitt et al., 2009; Fujita et al., 2010; Färdig et al., 2011).

The Illness Management and Recovery Scale (IMRS) have been developed to monitor the clients' progress towards recovery and better illness management (Mueser et al., 2005). The parallel client and clinician versions include 15-items to capture different aspects of the program, such as knowledge about mental illness, social support, treatment adherence, relapse prevention planning, coping efficacy, and substance abuse and dependence. Previous research has established good internal consistency, test–retest reliability and convergent validity for the IMRS among clients with severe mental illness (Salysers et al., 2007; Hasson-Ohayon et al., 2008).

The aim of the present study was to evaluate the psychometric properties of the IMRS for clients with schizophrenia and schizoaffective disorder, and to conduct an item-by-item investigation to establish their utility in monitoring the clients' progress.

## 2. Methods

### 2.1. Setting and sample

The present evaluation was part of a larger effectiveness study of the IMR program (see Färdig et al., 2011, for a detailed description). Data from the baseline assessments of 41 participants of the effectiveness study of IMR and from an additional 66 individuals collected at a later stage were used to evaluate the psychometric properties of the IMRS. The data were collected between May 2006 and May 2007, and during 2009, at 6 psychiatric outpatient rehabilitation centers, serving individuals suffering from psychotic disorders, in the county of Uppsala, Sweden. The participants' case-managers in each of the 6 rehabilitation centers were trained in the use

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of the IMRS and completed the clinician version of the IMRS. Case-managers were mental health workers, social workers, psychiatric nurses, or occupational therapists. The procedure was repeated after 2 weeks. The study was approved by the Regional Ethical Review Board.

Inclusion criteria were a DSM-IV diagnosis of schizophrenia or schizoaffective disorder, proficiency in Swedish and willingness to provide informed consent after receiving detailed study information. No explicit exclusion criteria were employed.

For the present study the scales were translated into Swedish, and then independently back translated into English and compared with the original version to identify and correct any discrepancies.

## 2.2. Measures

### 2.2.1. Illness Management and Recovery Scale (IMRS)

The client and clinician versions of the IMRS (the acronym IMRS henceforth refers to both versions of the scale) include 15 items rated on 5-point behaviorally anchored scale (see Appendices 1 and 2 for both versions of the scale) (Gingerich and Mueser, 2005). The items are: 1—Progress towards goals; 2—Knowledge about mental illness; 3—Involvement of family and friends; 4—Contact with others outside of family; 5—Time spent in structured roles; 6—Symptom distress; 7—Impaired functioning; 8—Relapse prevention planning; 9—Relapse of symptoms; 10—Psychiatric hospitalizations; 11—Coping; 12—Involvement with self-help activities; 13—Using medication effectively; 14—Functioning affected by alcohol use; 15—Functioning affected by drug use. Previous research has shown good internal consistency (with Cronbach's  $\alpha = .72$  for the client version, and Cronbach's  $\alpha = .80$  for the clinician version), and good test–retest reliability at 2-weeks ( $r = .81$  for both versions). Convergent validity between the IMRS and measures of coping, social support, and drug use has been established (Salyers et al., 2007; Hasson-Ohayon et al., 2008). Also, controlled studies have demonstrated their sensitivity to change over time (Hasson-Ohayon et al., 2007; Levitt et al., 2009; Färdig et al., 2011). Hasson-Ohayon et al. (2008) investigated the underlying factor structure of the IMRS for severe mental illness and found three factors representing coping with mental illness, knowledge about mental illness/goal orientation, and using medication. For the purpose of the present evaluation in schizophrenia and schizoaffective disorder, an item-by-item investigation was conducted in order to establish their utility in monitoring the clients' progress.

### 2.2.2. Psychosis Evaluation Tool for Common Use by Caregivers (PECC)

The PECC is a 26-item semi-structured interview in which a trained clinician rates the frequency and severity of psychiatric symptoms, including positive and negative symptoms of schizophrenia, mania, anxiety and depression, cognitive symptoms, insight and suicidality (De Hert et al., 1998). Interrater reliability and interscale validity for the scale have previously been established (De Hert et al., 2002). For the effectiveness study of the IMR program, five clinicians (psychologists in training) completed two days of training prior to assessment, including ratings of videotaped interviews, and were considered fully trained when satisfactory agreement on each item was established (interrater reliability  $r > .80$ ).

### 2.2.3. Manchester Short Assessment of Quality of Life (MANSA)

The MANSA is a 12-item self-report scale that elicits information about satisfaction in different life domains, including job, financial situation, number and quality of friends, leisure, living situation, personal safety, people that the client lives with, sex life, relationship with family, physical health, and mental health. Satisfaction on each item is rated on a 7-point scale (Priebe et al., 1999). Research has shown good validity ( $r > 0.83$ ;  $p < 0.001$ ), internal consistency (Cronbach's  $\alpha = 0.74$ ) and correlation with the Brief Psychiatric Rating Scale (BPRS) ( $r = -0.49$ ;  $p < 0.001$ ).

### 2.2.4. Recovery Assessment Scale (RAS)

The RAS is a 41-item self-report scale assessing perceptions of recovery from mental illness (Corrigan et al., 1999). The scale includes five factors: personal confidence and hope, willingness to ask for help, goal and success orientation, positive reliance on others, and not dominated by symptoms. Assessments indicate high internal consistency, test–retest reliability, and convergent validity (Corrigan et al., 2004).

### 2.2.5. Modified Colorado Symptom Index (MCSI)

The Modified Colorado Symptom Index (MCSI) is a 14-item self-report scale that measures the frequency of psychiatric symptoms over the previous 30 days (Conrad et al., 2001). The scale has been shown reliable and valid for individuals with severe mental illness (Boothroyd and Huey, 2008). For the purpose of the present study the scores were inverted for easier interpretation of the correlation matrices.

## 2.3. Statistical analysis

Statistical analyses were conducted to examine the internal consistency, test–retest reliability and the convergent validity of the IMRS (Streiner and Norman, 2008). In the case of missing data in the test–retest examination, no imputations were employed. Pairwise deletion was used and cases with missing data were excluded from the specific analysis. Unless otherwise noted all statistical analyses were 2-tailed and used a significance level of  $p \leq 0.05$ . SPSS release 18.0.1 was used for all statistical analyses.

## 2.4. Descriptive statistics

Means, standard deviations and percentages are presented for background characteristics of the participants. Means and standard deviations are presented for the IMRS at Time 1 and at Time 2.

## 2.5. Internal consistency

Internal consistency of the IMRS was examined using Cronbach's  $\alpha$ . Based on previous studies of the IMRS and the recommendations of Nunnally (1978) an  $\alpha$ -value  $\geq .70$  would be satisfactory.

## 2.6. Test–retest reliability

Test–retest reliability of the IMRS was evaluated using Pearson correlations between Time 1 and Time 2 on total scores and on individual item scores. Based on previous examinations of the IMRS it was expected that the test–retest reliability of total scores would be large ( $r > .70$ ).

## 2.7. Convergent validity

Convergent validity was evaluated by assessing Pearson correlations between the two versions of the IMRS, and between the IMRS and conceptually related validation measures, i.e. PECC, MANSA, RAS and MCSI.

In order to investigate convergent validity between the two versions of the IMRS, correlations between the total scores and individual item scores were computed at Time 1 and Time 2. It was expected that moderate (0.40–0.69) correlations would be found between total scores of the two versions. Small (0.00–0.39) to moderate (0.40–0.69) correlations were expected for individual item scores (Cohen, 1988).

Correlations were computed between total scores of the IMRS and total scores of the PECC, MCSI, RAS, and MANSA. Correlations between total scores of the IMRS and subscale scores of the PECC were also investigated. Finally, correlations between individual item scores of the IMRS and total scores of the PECC, MCSI, RAS, and MANSA were

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