



# The validation of the Indonesian version of psychotic symptoms ratings scale (PSYRATS), the Indonesian version of cognitive bias questionnaire for psychosis (CBQP) and metacognitive ability questionnaire (MAQ)

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## Abstract

**Aim:** The present study was to validate the Indonesian version of Psychotic Symptoms Ratings Scales (PSYRATS), the Cognitive Bias Questionnaire for Psychosis (CBQP) and the Metacognitive Ability Questionnaire (MAQ) as a new scale to measure the ability of meta-cognition of schizophrenia.

**Background:** The PSYRATS, CBQP, and MAQ have demonstrated their usefulness for the assessment of hallucinations and delusions, cognitive biases and metacognitive ability in schizophrenia. So far no validation of the Indonesian version has been carried out.

**Methods:** The PSYRATS, CBQP and MAQ were administered to 155 subjects with a diagnosis of schizophrenia. Factor structure, reliability, test-retest stability, and convergent validity were analyzed.

**Findings:** We found that the all psychometric were reliable and valid. Indonesian version of the PSYRATS and CBQP Indonesian version have high reliability. The reliability of new psychometric of MAQ was Cronbach's alpha=.759 and was checked in a subsample (n=32; r=.668; p<.01).

**Conclusions:** Similar to the original PSYRATS and CBQP, the Indonesian version of PSYRATS and CBQP have good psychometric properties. The new psychometric of MAQ is a valid instrument for assessing metacognition. Implications for future research are discussed.

**Keywords:** Schizophrenia; Hallucination Severity; Delusion Severity; Bias Cognitive for Psychosis; Metacognition: Instrumental Study.

## 1. Introduction

Schizophrenia is a severe psychiatric condition which worldwide prevalence estimates range between 0.5% and 1% (Centers for Disease Control and Prevention, 2013). The prevalence of severe mental disorder in Indonesia was 1,7 per thousand population and the highest rate were in province DI Yogyakarta and Aceh as much as 2,7 per thousand population (Risksedas, 2013). The symptoms of schizophrenia fall into four categories include positive symptom, negative symptoms, disorganization and cognitive impairment that people may have from one, two, or all (Bustillo, 2008). Schizophrenia is associated with lack of awareness on their own cognitive distortion. Unlike neuropsychological disturbances reflecting neural-based deficits, cognitive biases are distortions in the collection, appraisal and processing of certain information (e.g., jumping to conclusions, overconfidence in errors) (Moritz, et al, 2013). They also have a high rate of suicide, severe functional impairment, and high costs for psychiatric services.

Due to the wide range of schizophrenia symptoms, studies of this disorder have used multiple symptomatology scales designed to evaluate the disorders. The use of several different scales gives an indirect assessment of schizophrenia symptoms. However, more

recently, several hallucination and delusion scales based on DSM-IV criteria have been developed to increase accuracy of the diagnosis and decrease the time needed to perform the assessment. Clinician-administered rating scales commonly used in inpatient hospital settings include the Psychotic Symptom Rating Scales (PSYRATS; Haddock, 1999), the Positive and Negative Symptom Scale (PANSS; Kay, Fiszbein, & Opler, 1987), the Brief Psychiatric Rating Scales (BPRS; Overall & Gorham, 1962), the Schedule for the Assessment of Negative Symptoms (SANS; Andreasen, 1982a) and the Schedule for the Assessment of Positive Symptoms (SAPS; Andreasen, 1982b). Differences between these scales mainly involve administration time, time-frame considered, and the number of items used to assess each criterion. Despite the good psychometric properties of these clinician-administered instruments, they all have certain disadvantages, such as a need for clinical expertise to perform the assessments.

The Psychotic Symptom Rating Scales (PSYRATS), a 17-item instrument composed of 2 subscales to measure the hallucination and delusion severity and changes in schizophrenia. The PSYRATS has strong psychometric properties, but its seldom being used to practical in some settings in Indonesia. The PSYRATS had shown the highest levels of sensitivity to change and that discriminate best between hallucination and delusion.



Findings showed a high internal consistency, high test-retest reliability, and good sensitivity to change after Metacognitive Training (MCT) treatment. In short, Haddock et al (1988) considered that the PSYRATS was a reliable and brief self-reported instrument for assessing hallucination and delusion severity as well as sensitivity to change.

Cognitive biases involved in the pathogenesis of schizophrenia. The Cognitive Bias Questionnaire for Psychosis (CBQP) is a reliable and valid self-report instrument for assessing cognitive bias for psychosis. CBQP, a 30 items consisted of 15 items of anomalous perceptions and 15 items of threatening events. According to Peters et al (2010) The CBQP has good psychometric properties. The Cognitive Biases Questionnaire for psychosis (CBQP) was developed to measure five biases (JTC, intentionalising, catastrophising, emotion-based reasoning and dichotomous thinking) that are considered to be important in psychosis and delusions specifically. The 5 biases were highly correlated with each other, although confirmatory factor analysis showed equal goodness of fit indices for 1-factor and 5-factor scales.

Empowering metacognitive competency by raising awareness for cognitive biases may then act prophylactically against psychotic breakdown (Moritz et al, 2013 in Roberts & Penn, 2013). There for, a new instrument to measure the metacognitive ability was needed. A change in cognitive, affective and psychomotor aspects was proved using MAQ before and after treatment of the metacognitive training (Erawati, et al, 2013). MAQ consist of 29 items which consist of 17 items of cognitive aspect, 5 items of affective aspect, and 7 items of behavior aspect.

Several instruments have been created to assess schizophrenia diagnosis and severity in the Indonesian population. However, no validated self-report measures are yet available to specifically assess hallucination, delusion severity, and bias cognitive and metacognitive ability. For this reason, the aim of the present study was to validate the Indonesian language version of the PSYRATS, CBQP, and MAQ in a sample of subjects with schizophrenia diagnosis. The psychometric properties of Indonesian version of the PSYRATS, CBQP, and MAQ.

## 2. Methods

In an Indonesian sample of 155 patients diagnosed with schizophrenia were interviewed twice during the course of two months using a newly developed Indonesian version of the PSYRATS, CBQP and MAQ with very good psychometric properties. Our design adopted factor structure, reliability, test-retest stability.

This study was approved by the Clinical Research Ethics Committee at the Ghrasia Mental Hospital Jogjakarta and carried out in accordance with the Declaration of Helsinki. Participants were given a detailed description of the study and gave their written informed consent.

### 2.1. Participants

The total sample consisted of 155 subjects with schizophrenia recruited from mental health settings in Indonesian public institutions. According to Nunnally (1978) the sample size was considered appropriate taking into account psychometric recommendations that suggest 5 to 10 individuals per item. Inclusion criteria consisted of schizophrenia diagnosis fulfilling Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) (APA, 2000) and age between 18 and 65 years. Exclusion criteria were as follows: co morbidity with bipolar disorder, current major depressive disorder, substance dependence, and severe difficulties in reading comprehension. All participants had to be native Indonesian speakers.

There were 155 schizophrenia patients with delusions and hallucination in our mental hospital during May- July 2012. Of these, all met the criteria for delusions and hallucination score using PSYRATS.

## 3. Results

### 3.1. Patient demographics

The socio-demographic and background characteristics of patients were analyzed using univariate analysis and cross table statistics. Schizophrenia clients in this research were 35 years old on average. Most of the schizophrenia clients were male (54.19%). These and other characteristics are summarized in Table 1. Note that the patient did not differ significantly on any variable at baseline.

The Indonesian version of the PSYRATS replicates the original version. The PSYRATS-Hallucination subscale has high reliability (Cronbach's alpha=.741), as well as good test-retest stability, which was checked in a subsample (n=31; r=.791; p<.01). The Indonesian version of the PSYRATS-delusion subscale replicates the original version has high reliability (Cronbach's alpha=.801), as well as good test-retest stability, which was checked in a subsample (n=31; r=.637; p<.01). The Indonesian version of the CBQP replicates the original version. The scale has high reliability (Cronbach's alpha=.722), as well as good test-retest stability, which was checked in a subsample (n=92; r=.664; p<.01). The Indonesian version MAQ reliability (Cronbach's alpha=.759), as well as good test-retest stability, which was checked in a subsample (n=32; r=.668; p<.01). PSYRATS has shown moderate to high correlations with MAQ. The PSYRATS is able to discriminate among different levels of delusion and hallucination severity.

**Table 1:** Sociodemographic Variables at Baseline

Variables	(n=155)
Background	
Sex (male/female)	84/71
Age in years	35.68(12.36)
Educational background	
Elementary School	24
Junior high School	34
Senior high school	68
College	29
Working status	
Student	10
Civil worker	8
Entrepreneur	82
Unemployee	55
Marriage status	
Married	57
Divorce	20
Not married	78
Ever had trauma in the past	
Yes	143
No	12
Mental disorder history in family	
Yes, there is	40
None	115
Ever been hospitalized with mental disorder	
Never	35
Ever	120

## 4. Data analysis

Data analysis was carried out using SPSS 18.0 statistical software for Windows. Descriptive statistics were used to describe the demographic and clinical characteristics of the sample. An exploratory factorial analysis (EFA) of principal components with a Varimax rotation was performed to examine the factorial structure of the scale. It was used Confirmatory Factor Analysis (CFA) to explore the goodness of fit of the original one-factor structure of the PSYRATS Indonesian version, CBQP Indonesian version, and MAQ. EQS software for Windows version 6.1 was used to conduct the CFA. The maximum likelihood with robust correction method was used to adjust for distributional problems in the data set. Although a model with a non-significant chi-square estimate is generally considered a model with good fit, Hu and Bentler (1999)

recommended combinational rules to evaluate model fit. The following criteria were used to indicate the fit of the CFA models to the data: CFI (Comparative Fit Index) and GFI (Goodness of Fit Index)  $>.90$  and RMSEA (Root Mean Square Error of Approximation)  $<.08$ . Values for CFI and GFI ranged from 0 to 1. These fit statistics and the chi-square were selected because previous research has demonstrated their performance and stability.

To test internal consistency, Cronbach's alpha was estimated and the split-half method was also applied. In addition, Cronbach's alpha was estimated with each of the items removed one at a time from the scale. Test-retest reliability and convergent validity were evaluated by correlation analysis.

## 5. Discussion

Psychotic Rating Scale (PSYRATS) is a golden standard in measure delusion and hallucination severity on schizophrenia. Haddock et al (1999) PSYRATS have two independent subscales, eleven characteristics of hallucinations and six characteristics of delusions are assessed using an item-specific anchored five-point rating system. In the auditory hallucinations subscale (PSYRATS-AH) hallucinations are rated for example in regard to their frequency, location, loudness, and disruption to life. The delusions subscale (PSYRATS-DS) includes for example items concerning the amount and duration of preoccupation with delusions or amount and intensity of distress. The ratings are based on the patients' experiences during the previous week. In particular, the separate assessment of the dimension of the personal distress linked to symptoms is a major advantage of the PSYRATS. Using a likert scale (0-4), the range score of delusion subscale is 0-24, whereas the range score of hallucination subscale is 0-44. If the score is smaller, then there will be a decline of the symptom.

The CBQp was related to hallucinations, delusions and depression, and there was preliminary evidence that it is sensitive to change following CBTp. None of the biases were related to existing experimental tasks, suggesting the CBQp measures a different construct. The research conducted by Jasper, et al (2010) to 30 respondents show that the CBQp has good psychometric properties and the 5 biases were highly correlated with each other, although confirmatory factor analysis showed equal goodness of fit indices for 1-factor and 5-factor scales. Another research showed that the CBQ-P and DACOBS appear to be psychometrical sound instruments to assess general thinking bias in psychosis within a Flemish population (Bastiaens, et al, 2013).

Metacognitive Ability Questionnaire (MAQ) is a reliable and valid self-report instrument for assessing the metacognition awareness on schizophrenia. MAQ is a 29- items subjective metacognition scale designed to measure metacognitive ability. Each item is quantitatively assessed on a 4-point Likert scale that ranges from 0 (rare) to 3 (often). It reflects the goal of each MCT session and consisted of three components of metacognitive skills pertaining to cognition, affect and behavior. If the score is higher, then there will be an increasing of the ability of metacognition.

## 6. Conclusions

To conclude, the Indonesian PSYRATS is a reliable instrument for assessing and discriminating hallucination and delusion severity in Indonesian population. Moreover, administration-time is brief and it is suitable for use in both research and clinical settings. Also, CBQp is good psychometric to assess cognitive bias for psychosis and MAQ is a valid and reliable instrument to measure metacognitive ability in Indonesian population.

## 7. Competing interests

The authors declare that they have no competing interests.

## 8. Authors' contributions

EE conceived the study aims and design, and developed the study in discussions with BK, NH. EE performed the analysis and drafted the initial manuscript. All authors contributed to interpretation of results, revised and commented on the manuscript for important intellectual content. All authors read and approved the final manuscript.

## 9. Accessible summary

- The Psychotic Symptoms Ratings Scales (PSYRATS) Indonesian version is a good and sensible psychometric to assess hallucination and delusion severity as positive symptoms in schizophrenia.
- Cognitive biases involved in the pathogenesis of schizophrenia. Therefore Cognitive Bias Questionnaire for Psychosis (CBQp) Indonesian version as valid and reliable instruments is needed to measure cognitive biases such as jump to conclusion (JTC), intentionalising, catastrophising, emotion-based reasoning and dichotomous thinking.
- The Metacognitive Ability Questionnaire (MAQ) as a new instrument could be used in assessing the metacognition of schizophrenia patients so that they can minimize their own cognitive bias.

Implications for research, practice and/or policy

- PSYRATS Indonesian version should become a standard psychometric in assessing auditory hallucination and delusion in schizophrenia.
- CBQp Indonesian version could be used as bias cognitive psychometric in schizophrenia.
- MAQ could be used as a new psychometric in assessing metacognitive ability.

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