Spanish Adaptation of the Beck Cognitive Insight Scale (BCIS) for Schizophrenia

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Introduction. The Beck Cognitive Insight Scale has been designed to evaluate the cognitive insight capacity, that is to say, the practice of self-reflectiveness as a meta-cognitive mechanism for examining and analysing the disorder's symptoms, it also permits a continuous re-evaluation of inadequate interpretations.

Methodology. The aim of this study is to examine the psychometric properties, the dimensional structure and the internal validity of the Spanish version of Beck's Cognitive Scale of Insight (BCIS). In this paper we also analyse its relation with the Positive and Negative Symptoms Scale (PANSS). The Cognitive Insight Scale was translated and adapted to Spanish with 129 in- and out-schizophrenic patients.

Results. Principal component analysis showed a two-factor structure that was similar to the original one, recognizable as self-reflectiveness (R) and self-certainty (C) with similar reliability as the American version. Self-reflectiveness and the R-C index correlated with loss of insight of the PANSS scale. In general, BCIS showed significant associations with the PANSS subscales. Out patients scored self-reflectiveness and R-C index signicantly higher than in-patients and lower in self-certainty.

Conclusion: Psychometric properties obtained with the adapted Spanish version of BCIS guarantee the adequate evaluation of cognitive insight.

Key words:
Insight, Metacognition, Auto-reflectiveness, Self-certainty, Schizophrenia

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Adaptación española de la Escala de Insight Cognitivo de Beck (EICB) en esquizofrénicos

Introducción. La Escala de Insight Cognitivo de Beck ha sido diseñada para evaluar la capacidad de insight cognitivo esto es, la práctica de la auto-reflexión como mecanismo metacognitivo de examen y análisis de los síntomas de la enfermedad que permite la re-evaluación continua de interpretaciones inadecuadas.

Metodología. Este estudio examina las propiedades psicométricas, la estructura dimensional y la validez interna de la versión española de la Escala de Insight Cognitivo de Beck (EICB). Igualmente se analiza su relación con la Escala de Síndrome Positivo y Negativo en Esquizofrenia (PANSS). La escala de Insight Cognitivo fue traducida y adaptada al castellano en 129 pacientes esquizofrénicos ingresados y no ingresados.

Resultados. El análisis de componentes principales mostró una estructura de dos factores semejantes a la original reconocibles como auto-reflexión (R) y auto-certeza (C), con similar fiabilidad a la versión americana. Auto-reflexión y el Indice R-C correlacionaron con pérdida de insight de la

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PANSS. En general la EICB se asoció significativamente con subescalas de la PANSS. Los pacientes comunitarios puntuaron significativamente más alto en auto-reflexión y el Indice R-C que los ingresados y más bajo en auto-certeza.

Conclusión. Las propiedades psicométricas obtenidas con la versión española adaptada de la EICB garantizan la adecuada evaluación del insight cognitivo.

Palabras Claves:
Insight, Metacognición, Auto-reflexión, Auto-certeza, Esquizofrenia

INTRODUCTION

Insight difficulties make up one of the most prevalent and representative characteristics of patients with schizophrenia. An International Pilot Study On Schizophrenia of the World Health Organization[1] estimated that 97% of acute psychotic patients suffer this problem. In fact, absence of *insight* is a variable that plays an especially relevant role in both the course and treatment of patients with psychosis.[2, 3]

However, the meaning underlying *insight*, regardless of the approach used to explain it, has been limited to the two most clinically relevant components, that is, knowledge of mental illness and need to receive treatment. In fact, there are few works that go deep into a more extensive concept of *insight*.[4]

Moritz and Woodward,[5] in the presentation of their management of megacognitive training in schizophrenia, have gathered a significant body of research that supports cognitive type intervention for psychosis.

Cognitive Insight Construct of the BCIS

In 2004, Beck et al.[6] published the results with the psychometric properties of a new instrument, that is the *Beck Cognitive Insight Scale or* BCIS, for the evaluation of *insight* using a cognitive approach. The construct underlying this instrument is that the absence of *insight* would be produced by: 1) failure of objectivity; 2) loss of ability to put this in perspective; 3) resistance to correct information based on other opinions and 4) having excess trust in the conclusions. The authors emphasize that a strategy of focalizing on the specific structure of the beliefs experienced by the psychotic patient could provide an alternative way of regarding *insight*. Thus, emphasis is placed on "emotional *insight*" in comparison to "intellectual *insight*." Emotional *insight*" would imply sufficient understanding to modify dysfunctional beliefs and associated affectivity and the behavioral consequences of these beliefs. In turn, "intellectual *insight*" supposes adequate understanding of the symptoms by the patient but without experiencing a change in the underlying delusional system (emotional *insight*). Compared to the *insight* called "clinical," in which the symptoms that are important for the diagnosis and treatment are stressed, in "cognitive *insight*" the mechanism of evaluation of correction of inadequate interpretations and distorted believes are stressed.

Since it has appeared, the BCIS has been applied in different populations of patients and has been translated into Chinese,[7] Norwegian,[8] French,[9] Korean,[10] Turkish[11] and Japanese.[12] The original article of the scale demonstrated a two dimension factorial solution in in-patients.[6] Other studies have shown the same replication of factors in several samples.[9, 10, 12-16] An excellent qualitative review of all the findings obtained in the year 2010, with the Cognitive Insight construct measured with the BCIS, in regards to the psychometric properties and to its relation with psychopathology, can be found in Riggs et al.[17]

The characteristics per se of cognitive *insight* according to the BCIS scale as a complementary measurement of *insight*, and the lack of this type of measurement in Spain, justify adapting the questionnaire for its use in individual and group treatment[18] in patients with psychosis and schizophrenia. This study presents the results of the translation and adaptation of the Spanish version of the BCIS in patients with schizophrenia. Specifically, the objectives were: 1) to analyze the psychometric properties and internal validity of the Spanish version; 2) to obtain the descriptive statistics of their dimensions in patients with schizophrenia evaluated in different treatment units and reference values of the scale adapted in our setting and 3) to analyze the relations of the Cognitive Insight Scale with positive, negative and general symptoms and the total measurement with the PANSS.

METHODOLOGY

Clinical-linguistic adaptation procedure.

Authorization for the Spanish adaptation of the BCIS was obtained from Aaron Beck (2005, personal communication). The semantic and cultural adaptation of the scale was performed using direct and inverse translation methodology (translation - back translation).[19-21] The authors who created the instrument reviewed the final version and confirmed the semantic equivalence with the American version.

Participants

In order to participate in this study, the patients had to fulfill the DSM-IV criteria for schizophrenia. The sample was made up of 129 patients from different participating centers: 100 with paranoid schizophrenia (77.5%), 14 with

Table 1 Sociodemographical and clinical characteristics of the sample

Variable	N (%)	Mean (SD)
Total age		37.15 (10.23)
Men	92 (71.3)	35.87 (10.36)
Women	37 (28.7)	40.32 (9.30)
Years of schooling		10.23 (2.99)
Level of studies completed		
Without completed studied	10 (7.8)	
Primary	62 (48.1)	
Secondary	46 (35.7)	
Upper	11 (8.5)	
Years onset disease		23.72 (7.07)
Site of examination		
Acute unit	52 (40.3)	
Subacute unit	4 (3.1)	
Day Hospital	6 (4.7)	
Day Center	30 (23.3)	
Adult MHC	37 (28.7)	

undifferentiated schizophrenia (10.9%), 11 with residual schizophrenia residual (8.5%), 3 with disorganized schizophrenia (2.3%) and 1 with hebephrenic schizophrenia (0.8%). The sociodemographic data collected were gender, age, years of schooling and level of studies completed. The clinical variables were age at onset of the disease, place of evaluation and duration of the disease up to the moment of the study (table 1). A total of 71.3% (92) of the patients were male. Mean age was 37.15 (SD=10.23) years, with the range of 18 to 69 years. Four centers participated in the collection of the sample: Hospital Clínic de Barcelona, Hospital de Mataró, Hospital Universitario Psiquiátrico Institut Pere Mata de Reus and Sant Joan de Déu-SSM of Barcelona. All the patient signed an informed consent approved by the Bioethics Committee of each one of the participating hospitals.

Instruments

1) Cognitive Insight Measurement.
The Beck Cognitive Insight Scale (BCIS[6]) is a measure of self-recording of 15 items that evaluate how the patients evaluate their own judgment. It is made up of two dimensions, Self-Reflectiveness (R) (9 items) and Self-Certainty (C) (6 items). A composite index was obtained consisting of Cognitive *Insight* as Reflectiveness-Certainty (CI=R-C) (subtraction of self-certainty from self-reflectiveness). It follows a format of response with four Likert-like options: Never agree (0), Somewhat agree (1), quite agree (2) and totally agree (3), with a range of possible responses from 0 to 45. The instruction for application is as follows: *Below is a list of sentences about how people think and feel. Please read each sentence in the list carefully. Indicate how much you agree with each statement by placing an X in the corresponding space next to each statement.* The reliability of the original American version of the instrument, with 150 in-patients, was 0.68 for the self-reflectiveness scale and 0.60 for self-certainty.

2) Measurement of psychotic symptoms.
The PANSS (*Positive and Negative Syndrome Scale Schizophrenia*[22]) was used in its Spanish version[23] for the cross-sectional evaluation of symptoms. Item 12 on the grade of *insight* of the patient is especially important for the interests of our research.

Procedure

Once the final adapted version was obtained, the Beck scale and PANSS were applied to a sample of patients with schizophrenia within a more extensive multicentric study. Descriptive statistics were obtained from the total sample and from two sub-samples, one of patients admitted to an acute unit at the time of evaluation (Acute Group; N=52) and another one of community patients evaluated in a Mental Health Center (MHC Group; N=37). The composition of these two groups was similar, with a man:woman ratio of 2:1, this being 35:17 in the Acute Group and 25:12 in the MHC Group. Similarly, there were no differences in the years of schooling, age, and disease duration between the groups. However, in the in-patients, age of onset of the disease was lower than in the Health Center patient group. Regarding the psychopathological characteristics in both groups (table 2), the results show that, as was to be expected, the Acute group had higher scores in positive, negative, general and total symptoms and on item 12 in the PANSS. The BCIS scale was applied to 84 of the 129 patients approximately 48 hours after its first application to analyze the test-retest reliability of the questionnaire.

Statistical analysis

A confirmatory factor analysis (CFA) was performed using the structural equation model to confirm factorial structural stability. The ^{2}, *comparative fit index* (CFI) and *standardized root mean square residual*; (SRMR) were calculated. In accordance with Tabchnick and Fidell (2007),[24] the goodness of fit criterion was defined as an ^{2}/df ratio below 2, CFI greater than 0.95, and SRMR lower than 0.06. The CFA was performed using the sem v. 0.9.11[25] model by R v. 2.6.1.[26] The analysis of principal components with varimax rotation was applied to obtain the dimensions of the scale. Cronbach's alpha coefficients were performed for the internal consistency analysis.

Table 2 Means and deviations of the dimensions of the PANSS and BCIS in the different groups

	Total Mean (SD)	Acute Group Mean (SD)	MHC Group Mean (SD)	Differences Acute Group -MHC Group
Severity of the symptoms				
PANSS positive	16.05 (6.47)	20.46 (6.20)	9.95 (2.14)	p = 0.000
PANSS negative	18.67 (7.32)	19.67 (7.30)	15.05 (6.11)	p = 0.002
PANSS general	32.74 (9.56)	36.88 (8.97)	24.35 (5.66)	p = 0.000
PANSS total	67.45 (19.57)	77.01 (17.12)	49.35 (11.83)	p = 0.000
PANSS item 12- insight	3.15 (1.60)	3.83 (1.56)	2.24 (1.40)	p = 0.000
BCIS Dimensions				
Self-reflectiveness (R)	15.13 (4.69)	14.17 (4.89)	16.21 (3.94)	p = 0.039
Self-Certainty (C)	8.79 (3.71)	9.84 (3.70)	7.24 (3.36)	p = 0.001
R-C Index	6.33 (6.25)	4.32 (6.36)	8.97 (5.63)	p = 0.001

Table 3 Principal components with varimax rotation for the BCIS scale (in Spanish)

Items of the BCIS	I	II
(5) Algunas de mis experiencias que me han parecido muy reales pueden haberse debido a mi imaginación	0.75	
(6) Algunas de la ideas que tenía como ciertas acabaron siendo falsas	0.67	
(8) Aunque me siento muy seguro/a de estar en lo cierto, podría estar equivocado/a	0.62	
(1) Algunas veces he malinterpretado las actitudes que los demás tienen hacia mí	0.50	
(15) Mis experiencias raras pueden deberse a que esté muy alterado/a o estresado/a	0.50	
(4) Llego a conclusiones demasiado rápido	0.33	
(12) Si alguien comenta que mis creencias son erróneas estoy dispuesto/a a considerar su opinión	0.32	
(14) Suele haber más de una explicación posible sobre porqué la gente actúa de la manera en que lo hace	0.32	
(2) Las interpretaciones que hago de mis experiencias son sin duda correctas		0.69
(13) Puedo confiar en mi propio juicio siempre		0.64
(7) Si siento que algo es correcto significa que es correcto		0.60
(9) Conozco mejor que nadie cuáles son mis problemas		0.52
(11) No puedo fiarme de lo que opinan los demás sobre mis experiencias	0.32	0.50
(10) Cuando los demás no están de acuerdo conmigo, normalmente están equivocados		0.47
(3) Otras personas pueden entender mejor que yo la causa de mis experiencias raras		
% Variance	17.79	13.30

Intraclass correlation coefficients were found to obtain the test-retest reliability. Descriptive statistics were calculated using the means and standard deviation after calculation of normality of the dimensions with the Shapiro-Wilk test. Contrast of means was performed for independent samples for the differences between groups of patients and Pearson correlation for the calculation of the relationship between BCIS and item 12 of the PANSS. In turn, the sample was divided into two groups of patients based on the dimensions of the PANSS, between those who scored equal to or above the mean and those who scored below it, comparing this according to the BCIS scale, using the student's T test. All the analyses were performed using the SPSS statistical program (v.13).

Table 4 Differences in the BCIS scales by group by above (and equal to) and below the mean on the PANSS Scale

PANSS Score		N	M (SD) R	M (SD) C	M (SD) I-C
Positive	≥	53	15.22 (5.23)	10.07 (3.65)	5.15 (6.61)
	<	76	15.06 (4.31)	7.90 (3.50)	7.15 (5.89)
	p		0.849	**0.001**	0.073
Negative	≥	63	14.49 (4.71)	8.96 (3.84)	5.52 (5.99)
	<	66	15.74 (4.63)	8.63 (3.60)	7.10 (6.44)
	p		0.131	0.614	0.152
General Psychopathology	≥	63	14.76 (5.12)	9.68 (3.70)	5.07 (6.28)
	<	66	15.48 (4.25)	7.95 (3.54)	7.53 (6.02)
	p		0.384	**0.008**	**0.026**
TOTAL	≥	63	14.69 (5.25)	9.87 (3.88)	4.82 (6.67)
	<	66	15.54 (4.08)	7.77 (3.25)	7.77 (5.49)
	p		0.307	**0.001**	**0.007**

In bold, significant *p* values

RESULTS

Descriptive and discriminant validity of the Spanish version of BCIS

An analysis using the Shapiro-Wilk test in the sample demonstrated that the R, C and R-C (with p = 0.149, p = 0.312 and p = 0.436, respectively) dimensions were distributed according to a normal tendency. Table 2 shows the descriptive statistics for the total sample of participants, for the group of patients in the Acute Unit and the group evaluated in the Mental Health Center (MHC). The total group of participants showed a mean of 15.13 (SD=4.69) and 8.79 (SD=3.71), respectively, on the self-reflectiveness and self-certainty scale. In turn, the R-C Index show a mean of 6.33 (SD=6.25). Correlation between R and C was a non-significant -0.094. In the BCIS dimensions, the in-patients showed a significantly greater score in self-certainty and a lower one in Self-reflectiveness and the R-C Index than the non-hospitalized patients.

Study of reliability

In turn, the internal consistency for self-reflectiveness was 0.59 with it was 0.62 for self-certainty. Regarding test-retest reliability, the intraclass correlation coefficient showed values of 0.69 for R, 0.72 for C and 0.70 for CI.

Study of the construct validity (confirmatory factorial analysis and analysis of the principal components).

The CFA suggested that the model did not well-fit the data: χ^2 = 117.36, df = 105, p = 0.028, ^{2}/df ratio 1.12, CFI = 0.85, SRMR = 0.088. Given this poor fit, an analysis was made of the principal exploratory components. To verify the psychometric properties of the version adapted to Spanish of the BCIS, we conducted the same analyses as the original authors had done of the instrument, as the best way to test the convergence of the results. Thus, the principal components were analyzed, obtaining five components with self-values superior to 1, specifically, 2.66, 1.99, 1.47, 1.22 and 1.03. However, the inspection of the self-values implied that the scale would be make up of a simpler structure, so that two components were obtained and a varimax rotation applied (table 3). A first component or dimension was obtained. This was formed by items 1, 4, 5, 6, 8, 12, 14 and 15 and a second one was obtained in which items 2, 7, 9, 10, 11 and 13 were included. One of the fifteen items, number 3 of self-reflectiveness, had a saturation <0.30 in its component.

Study of the convergent validity

This principal objective of this work was not that of carrying out an exhaustive convergent validation of the Beck scale. However, we have used item 12 of absence of insight of the PANSS scale as convergent measure of self-

knowledge. Thus, *insight* correlates with R, C and the R-C Index, -0.35, 0.42 and -0.51 (p = 0.000), respectively.

Differences in the BCIS according to the dimensions in the PANSS.

Results on the differences in BCIS according to the level of symptoms measured with the PANSS, analyzed in the total sample of participants, are shown in Table 4. When the sample is divided based on whether the symptoms of the patients were equal to or above the mean and below it, we observed that there were differences in the positive dimension, general and total psychopathology, in the score on self-confidence was greater when the symptoms were greater. In turn, the lower the general and total psychopathology, the greater the cognitive *insight*.

DISCUSSION

The main purpose of this study was to analyze the psychometric properties of the Spanish version of the Beck et al.[6] Cognitive Insight Scale in a sample of patients with schizophrenia. Obtaining similar data compared to those found with the American version would imply a first indicator of a good linguistic and cultural adaptation of the items to our setting.

In regards to the replication of the dimensional structure of the scale, the analysis of the components grouped the items into two dimensions recognizable as self-reflectiveness and self-certainty in a heterogeneous sample of patients diagnosed of schizophrenia. One statement showed correlations inferior to 0.30 (item 3 "*Other people can understand the cause of my unusual experiences better than I can*") of the self-reflectiveness dimension. A study conducted by Pedrelli et al.[13] in psychotic patients shows, precisely in item 3, a scarce weight in its dimension. Equally, in the study with the Korean version,[10] item 3 had a low saturation. In turn, the saturations of factors in our sample were similar when analyzed in normal population in other studies.[12, 27]

The results obtained in regards to reliability, although low, are similar to those obtained with the original version of the instrument.[6] Thus, Pedrelli et al.[13] obtained values between 0.66 in Self-reflectiveness and 0.55 in Self-certainty in psychotic patients. Higher values were found when the scale was applied in a sample of 150 psychotic patients, with major depressive and bipolar disorder with 0.73 for Self-reflectiveness and 0.70 for Self-certainty.[28] The reliability of the French version applied to patients with schizophrenia and schizoaffective disorder was greater than in ours.[9] Engh et al.[8] also obtained higher values both in patients with schizophrenia and in bipolar disorder and in controls. With schizophrenic, schizoaffective and other psychosis participants, lower values of 0.64 in R[10] were found. In this sense, Beck et al.[6] assumed these reliability values as adequate and attributed them to the number of items (< 10). Although these indexes had lower values than the value of 0.70 recommended by some authors,[29] they could be acceptable for research purposes.[30, 31] Another explanation for the reliability values obtained could be related to the question inherent to the subject studied. Schizophrenic patients have information processing and concentration difficulties. These difficulties could be biasing their response to the questionnaire. In fact, some of the studies in which the values are higher were obtained when patients with less cognitive deterioration were included, as are patients with depression and bipolar disorder[28] or university students.[12] In turn, the test-retest reliability values of our study are found among those considered as acceptable.

The descriptive statistics of the Spanish version tend to be slightly higher than those found with schizophrenic patients.[6] This tendency was repeated when the patients were elderly schizophrenics[13] or non-patient participants.[32] Our results are similar to those obtained in patients with schizophrenia both in those with psychotic symptoms and in those who did not have these symptoms at the time of the evaluation,[11] with scores in the three dimensions of the BCIS that are higher and more similar to ours. Likewise, patients with schizophrenia and bipolar disorder obtained scores that are very close to ours.[8, 33] This is seen in the study with the French version of the scale conducted with schizophrenia and schizoaffective patients who lived independently.[9] In turn, somewhat lower values were obtained in the sample of patients with a first psychotic episode with active and non-active delusions in regards to the self-reflectiveness dimension and the composite index.[34] With the Japanese version, lower values were found in all of the dimensions.[12] The three measurements of the BCIS showed a tendency to normal distribution. This implies that the *insight* is not a variable or, if preferred, symptom (or mental state) that can be described as present or absent, but rather it seems that the self-knowledge would have a continuity or dimensionality character.

The convergent validity of a scale is the relation that it shows with a widely agreed on instrument in the construct in question. To verify this feature, the BCIS scale was compared with a simple measurement that is greatly used among the clinicians who work with or investigation schizophrenia. The results implied a negative correlation between item 12 of the PANSS and the self-reflectiveness dimension and the Cognitive Index. That is, the lower the cognitive *insight* shown by a patient, the higher the greater absence of self-knowledge or *insight*. This significant and expected association is repeated with self-certainty. That is, the greater the confidence that the delusion is real, the greater is the loss of *insight*. The same pattern of links with

the French version of the Beck scale is repeated in regards to the relations with item 12 or absence of *insight* of the PANSS.[9] Lepage et al.[35] (2008) obtained lower score on confidence index (CI) as the absence of *insight* increased in item 12.

In regards to the relation of the Beck scale with the PANSS dimensions, it should be observed that the positive symptoms are related, as expected, with self-certainty, that is, there are more problems in becoming distant or critical. This finding is similar to that found in the Turkish version of the BCIS.[11] However, these authors also found less self-reflectiveness and cognitive *insight* index in patients with more positive symptoms. The association between positive symptoms and self-certainty was the same as that found by Pedrelli et al.,[13] where a relationship with the negative symptoms was also obtained. In turn, the total sum of the PANSS and the general dimension implied greater self-certainty and a lower composite index of cognitive *insight*. These links are repeated with item 12, implying that the lesser the *insight* measured by the PANSS the lower is the self-reflectiveness and cognitive *insight* and the greater is the self-certainty. Similar results, although lower ones, were observed in self-reflectiveness and self-certainty, with schizophrenic patients but not with bipolar disorder ones, where the relation was not significant.[8] Favrod et al.[9] did not obtain a relationship with the dimensions of the PANSS. In a recent study with schizophrenic patients, the self-certainty variable would be explained by a neuropsychological measurement of verbal learning after controlling for depressive and positive symptoms.[36] In turn, in a longitudinal study with two measurements in schizophrenia, stable relations were obtained between greater Self-certainty and cognitive symptoms. [37]

In conclusion, the results regarding psychometric properties and validation of the Spanish version of the Beck Cognitive Insight Scale (BCIS) in schizophrenic participants, guarantee that this instrument can be used as a measure of Cognitive Insight in the Spanish language. Having a validated scale in Spanish of these characteristics will help the clinician to obtain more information at the time of the diagnosis and in the treatment planning on the cognitive processes of the patient in order to analyze and consider the patient's symptoms.

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REFERENCES

1. Carpenter WT, Strauss JS, Bartko, JJ. Flexible system for the diagnosis of schizophrenia: report from the WHO International Pilot Study of Schizophrenia. Science 1973;182:1275-8.
2. Amador XF, Straus DH, Yale SA, Gorman JM. Awareness of illness in schizophrenia. Schizophr Bull. 1991;17 (1):113-32.
3. Sanz M, Constable G, Lopez-Ibor M, Kemp R, David AS. A comparative study of insight scales and their relationship to psychopathological and clinical variables. Psychological Medicine. 1998;28:437-46.
4. Domínguez Panchón AI, Marková IS, Berrios GE, Bulbena Vilarrasa A. Evaluación del insight en la psicosis. En: Bulbena Vilarrasa A, Berrios GE, Fernández de Larrinoa Palacios P. Medición clínica en psiquiatría y psicología. 1 ed. Barcelona: Masson; 2000. p. 137-51.
5. Moritz S, Woodward TS. Metacognitive training in schizophrenia: from basic research to knowledge translation and intervention. Curr Opin in Psichiatry. 2007;20(6):619-25.
6. Beck AT, Baruch E, Balter JM, Steer RA, Warman DM. A new instrument for measuring insight: the Beck Cognitive Insight Scale. Schizophr Res. 2004;68(2-3):319-29.
7. Mak WWS, Wu CFM. Cognitive insight and causal attribution in the development of self-stigma among individuals with schizophrenia. Psychiatr Serv. 2006;57:1800-2.
8. Engh JA, Friis S, Birkenaes AB, Jónsdóttir H, Ringen PA, Ruud T, et al. Measuring cognitive insight in schizophrenia and bipolar disorder: a comparative study. BMC Psychiatry. 2007; Dec 11;7:71.
9. Favrod J, Zimmermann G, Raffard S, Pomini V, Khazaal Y. The Beck Cognitive Insight Scale in outpatients with psychotic disorders: Further evidence from a French-speaking sample. Can J Psychiatry. 2008;53(11):783-7.
10. Kim HJ, Jhin HK, Chung EK, Chang DW, Lee J-I. Cross-cultural validation of the Beck Cognitive Insight Scale in Korean. Psychiatry Invest. 2007;4:109-15.
11. Bora E, Erkan A, Kayahan B, Veznedaroglu B. Cognitive insight and acute psychosis in schizophrenia. Psychiatry Clin Neurosciences. 2007;61(6):634-9.
12. Uchida T, Matsumoto K, Kikuchi A, Miyakoshi T, Ito F, Ueno T, et al. Psychometric properties of the japanese version of the Beck Cognitive Insight Scale: Relation of cognitive insight to clinical insight. Psychiatry and Clin Neurosciences. 2009;63:291-7.
13. Pedrelli P, McQuaid JR, Granholm E, Patterson TL, McClure F, Beck AT, et al. Measuring cognitive insight in middle-aged and older patients with psychotic disorders. Schizophr Res. 2004;71(2-3):297-305.
14. Tranulis C, Lapage M, Malla A. Insight in first episode psychosis: who is measuring what?. Early interv Psychiatry. 2008; 2:34-41.
15. Martin JM, Warman DM, Lysaker PH. Cognitive insight in non-psychiatric individuals and individuals with psychosis: an examination using the Beck Cognitive Insight Scale. Schizophr Res. 2010 Aug;121(1-3):39-45.
16. Kao Y-C, Iiu Y-P. The Beck Cognitive insight Scale (EICB): translation and validation of the Taiwanenese version. BMC Psychiatry. 2010;10-27.
17. Riggs SE, Grant PM, Perivoliotis D, Beck AT. Assessment of Cognitive Insight: A qualitative review. Schizophr Bull. 2010 Aug 6. doi:10.1093/schbul/sbq085
18. Ruiz-Parra E, González-Torres MA, Eguiluz I, de la Sierra E, Trojaola B, Catalán A. Basurto-PGIP. Un abordaje manualizado de psicoterapia grupal integradora en psicosis Actas Esp Psiquiatr. 2010;38(2):72-86.
19. Alonso J, Antó JM. Instrumentos de calidad de vida relacionadas con la salud: características generales y proceso de adaptación transcultural. Quaderns CAPS. 1990;14:16-24.
20. Beaton DE, Bombardier C, Guillemin F, Bosi-Ferraz M. Guidelines for the process of cross-cultural adaptation of self-report

measures. Spine. 2000; 25:3186-91.
21. Sperber AD. Translation and validation of study instruments for cross-cultural research. Gastroenterology. 2004;126: S124-8.
22. Kay SR, Opler LA, Fiszbein A. The positive and negative symptom scale (PANSS). Rating manual. Soc Behav Sci Documents. 1986;17:28-9.
23. Peralta V, Cuesta M. Validación de la escala de los síndromes positivo y negativo (PANNS) en una muestra de esquizofrénicos españoles. Actas Luso-Esp Neurol Psiquiatr Cienc Afines. 1994;22(4):171-7.
24. Tabachnick BG, Fidell LS. Using multivariate statistics, fifth ed. Boston: Allyn and Bacon, 2007.
25. Fox J. Sem: Structural Equation Models. R package version 0.9-11. http://www.r-project.org 2007.
26. R Development Core Team. R: A language and environment for statistical computing. Vienna: R Foundation for Statistical Computing 2008. ISBN 3-900051-07-0, URL http://www.R-project.org.
27. Warman DM, Dunahue S, Martin JM, Beck AT. An investigation of the Beck Cognitive Insight Scale in the general population. Poster presented al the 38th annual meeting of the Association for the Advancement of Behavior Therapy, New Orleans, LA. 2004, November.
28. Colis MJ, Steer RA, Beck AT. Cognitive Insight in Inpatients with Psychotic, Bipolar, and Major Depressive Disorders. Psychopathol Behav Assess. 2006;28(4):244-9.
29. Nunnally JC. Psychometric Theory. New York: McGraw-Hill, 1978.
30. Cortina JM. What is coefficient alpha? An examination of theory and applications. J Appl Psychol. 1993;78:98-104.
31. Holden RR, Fekken GC, Cotton DHG. Assessing psychopathology using structured test-item response latencies. Psychol Assess. 1991;3:111-8.
32. Warman DM, Martin JM. Cognitive insight and delusion proneness: An investigation using the Beck Cognitive Insight Scale. Schizophr Res. 2006;84 (2-3):297-304.
33. Engh JA, Friis S, Birkenaes AB, Jónsdóttir H, KlungsØyr O, Ringen P, et al. Delusions are associated with poor cognitive insight in schizophrenia. Schizophr Bull. 2009 Jan 27.
34. Buchy L, Czechowska Y, Chochol C, Malla A, Joober R, Pruessner J, et al. Toward a Model of Cognitive Insight in First-Episode Psychosis: Verbal Memory and Hippocampal Structure. Schizophr Bull. 2009 Apr 3.
35. Lepage M, Buchy L, Bodnar M, Bertrand MC, Joober R, Malla, A. Cognitive insight and verbal memory in first episode of psychosis. Eur Psychiatry. 2008;23(5):368-74.
36. Engh JA, Sundet K, Simonsen C, Vaskinn A, Lagerberg TV, Opjordsmoen S, et al. Verbal learning contributes to cognitive insight in schizophrenia independently of affective and psychotic symptoms. Prog Neuropsychopharmacol Biol Psychiatry. 2011 Jun 1;35(4):1059-63. Epub 2011 Mar 15.
37. Lysaker PH, Olesek KL, Warman DM, Martin JM, Salzman AK, Nicolò G, et al. Metacognition in schizophrenia: Correlates and stability of deficits in theory of mind and self-reflectivity. Psychiatry Res. 2010 Aug 7.