Validation and Use of the Functioning Assessment Short Test in First Psychotic Episodes

Itxaso González-Ortega, PhD,* Adriane Rosa, PhD,† Susana Alberich, MSc,* Sara Barbeito, Ps,*
Patricia Vega, Ps,* Enrique Echeburúa, PhD,‡ Eduard Vieta, PhD,† and Ana González-Pinto, PhD*

Abstract: Numerous studies have documented high rates of functional impairment in patients with schizophrenia and bipolar disorder. However, this impairment appears early in the course of the illness. The purpose of the present study was to validate the Functioning Assessment Short Test (FAST) by comparing it with the Strauss-Carpenter Scale for use as an instrument to assess functional impairment in subjects with first psychotic episodes. The study was conducted on 53 patients admitted to Santiago Apostol Hospital because of a first psychotic episode. The FAST showed high internal consistency both at baseline and at 6 months as well as at 1 year. Concurrent validity showed a highly significant negative correlation at each time point. The FAST also showed good reliability and discriminant validity. The FAST showed strong psychometric properties and is a valid instrument for use in clinical practice, clinical trials, and research settings in subjects with first psychotic episodes.

Key Words: First psychotic episodes, functioning, functioning assessment short test, validity.

Patients with psychotic disorders show considerable difficulties across multiple domains of functioning (independent living, interpersonal relationships, occupational and educational achievement, recreational enjoyment, and sexual activity), which, however, have not been studied extensively. These difficulties are common, and may continue for prolonged periods or result in sustained disability with high personal suffering and indirect costs to society. Numerous studies have documented high rates of functional impairment in patients with well-established schizophrenia (Brill et al., 2009; Buchanan and Carpenter, 1994; Couture et al., 2006; Davidson and McGlashan, 1997; Gaebel and Pietzcker, 1987; Gharabawi et al., 2007; Kane, 1999; Kee et al., 2003; Lenior et al., 2001; Maj et al., 2000; Niendam et al., 2007; Siegel et al., 2006; Stephens et al., 1980) and bipolar disorder (Coryell et al., 1993; Judd et al., 2003; Bauer et al., 2001; Keck et al., 1998; Tohen et al., 2000a,b). However, the functional impairment appears early in the course of the illness. First episode psychosis is associated with a marked impairment in psychosocial functioning (Birchwood et al., 1998;

Conus et al., 2006; Mason et al., 2004; Niendam et al., 2007; O'Brien et al., 2009; Prasad et al., 2005; Strakowski et al., 1998; Tohen et al., 2003; Wyatt et al., 1997; Tohen et al., 2000a,b; Yung et al., 2003, 2004). Recent studies have found that impairment was not significantly different in patients with a first episode compared with those with multiple episodes (Tohen et al., 2003; Strakowski et al., 1998; Goetz et al., 2007; Pinkham et al., 2007).

The evaluation of various areas of psychosocial function, in addition to symptoms, is relevant for understanding the outcome and recovery process. In first-episode patients, it is particularly important to assess the differences in functional outcomes, which permit more accurate identification of the risk factors as well as effective treatments for disability. However, most studies have concentrated on symptom improvement, with much less attention being paid to recovery of psychosocial functioning, despite the fact that functional impairment is possibly even more debilitating and more long-lasting than the positive symptoms that mark the onset of the illness (Menezes et al., 2006).

In this context, the Functioning Assessment Short Test (FAST) is a brief instrument designed to assess functional impairment in severe mental disorders. The 24 items of the scale cover 6 specific areas of functioning: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships, and leisure time. It is a simple instrument, easy to apply, and requires a very short time to be administered. Moreover, the FAST showed strong psychometric properties and it was sensitive to different mood states (Rosa et al., 2007).

The purpose of the present study was to validate the FAST by comparing it with the Strauss-Carpenter Scale for use as an instrument to assess functional impairment in subjects with first psychotic episodes. As much research is currently focusing on first-episode samples, the availability of a valid, reliable, and sensitive to-change measure of functioning would be extremely helpful.

METHODS

Subjects

The study was conducted on patients admitted to Santiago Apostol Hospital between 2004 and 2009 because of a first psychotic episode. The first-episode psychosis program involves all potential candidates from a given catchment area in the Basque Country (Spain), and as described in more detail elsewhere (González-Pinto et al., 2009), the patients are highly representative of those who live in the community and who develop a first psychotic episode. All patients who provided informed consent were included in the study.

The first psychotic episode was defined as the first time that a patient displayed positive psychotic symptoms consisting of delusions or hallucinations. All subjects were aged 19 to 49 years and met *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition (DSM-IV; American Psychiatric Association, 1994) criteria for schizophreniform disorder; schizoaffective disorder; schizophrenia; delusional disorder; brief psychotic disorder; atypical psychosis; bipolar I, II disorder; or major depressive disorder with psychotic

*Department of Psychiatry, Santiago Apóstol Hospital, Vitoria, Spain (CIBERSAM);
†Department of Psychiatry, Hospital Clinic of Barcelona, Spain (CIBERSAM);
and ‡Department of Clinical Psychiatry, University of the Basque Country, Spain (CIBERSAM).
Send reprint requests to Itxaso González-Ortega, PhD, Santiago Apóstol Hospital, Olaguibel, 29, 01004 Vitoria, Spain. E-mail: itxaso.gonzalezortega@osakidetza.net.

symptoms. Patients diagnosed with bipolar I or II disorder with psychotic symptoms, schizoaffective disorder or major depressive disorder with psychotic symptoms, were considered "affective psychotic patients," whereas the other diagnoses were considered "nonaffective psychotic patients." Subjects with mental retardation, organic brain disorders, or drug abuse as a primary diagnosis were excluded. The DSM-IV axis I diagnosis was made using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I).

Measures

Diagnosis was determined using the SCID-I.

Patients were assessed with a protocol that included the following scales: the Clinical Global Impression (Guy, 1976), Strauss-Carpenter Scale (Strauss and Carpenter, 1972), the Global Assessment Functioning (GAF) Scale (American Psychiatric Association, 1994), and the FAST (Rosa et al., 2007).

Other clinically and demographically relevant variables were also collected, i.e., gender, age, and marital status.

All patients were evaluated with this protocol at baseline, at 2 and 6 months, and at 1 year, during follow-up.

Statistical Analysis

SPSS for Windows, version 16.0 and R 2.5 were used for the analyses.

We analyzed the internal consistency, concurrent validity, discriminant validity, and test-retest reliability of the FAST.

Internal consistency of Strauss and FAST was analyzed using the Cronbach alpha to examine the internal consistency of the FAST items in each domain and in total scale.

Concurrent validity was analyzed considering the scores obtained on the Strauss-Carpenter Scale and FAST, applying the Pearson Correlation Coefficient and the intraclass correlation coefficient (ICC).

Discriminant validity of the FAST was measured to detect differences between euthymic and acute patients using receiver operating characteristic curves.

Test-retest reliability of the scales was assessed by comparing the evaluations at baseline and at 1 year using the Pearson correlation coefficient and ICC. We selected patients stabilized at 6 months to analyze test-retest reliability. We compared the evaluations at baseline and at 1 year because the Strauss–Carpenter scale is designed to assess the past year.

RESULTS

Fifty-one patients with a first psychotic episode participated in the study. The mean age of the patients was 24.10 years ($SD = 7.17$), and 35.3% of patients were women. A total of 17 (33.3%) patients were diagnosed with schizophrenia according to DSM-IV; 13 (25.5%) were diagnosed with psychotic disorder not specified; 9 (17.6%) met the DSM-IV criteria for the bipolar disorder, and 2 (3.9%) were diagnosed with brief psychotic disorder and major depressive disorder, respectively. Mean age at onset was 24.10 ($SD = 7.17$).

Table 1 describes the main sociodemographic and clinical characteristics of the sample.

Internal Consistency

The internal consistency of Strauss and Carpenter Scale (standardized Cronbach's alpha) was 0.70 at baseline, 0.44 at 6 months, and 0.80 at 1 year. The internal consistency of FAST was 0.88 at baseline, 0.89 at 6 months, and 0.94 at 1 year. That is, the FAST showed a high internal consistency at both baseline and at 6 months and an excellent internal consistency at 1 year, indicating that the items are sufficiently homogeneous.

TABLE 1. Sociodemographic and Clinical Characteristics of the Sample

Characteristics	n	%
Gender		
Female	33	64.7
Male	18	35.3
Family status		
Single	43	87.8
Married	3	6.1
Divorced/separated	3	6.1
Diagnosis		
Schizophrenia	17	33.3
Psychotic disorder not specified	13	25.5
Bipolar disorder	9	17.6
Brief psychotic disorder	2	3.9
Major depressive disorder	2	3.9
Substance-induced psychotic disorder	1	2

	Mean	SD
Age	24.10	7.17
The clinical global impression (CGI)		
Baseline	5.82	0.86
6 mo	3.38	1.28
1 yr	3.06	1.58
Strauss-Carpenter scale		
Baseline	14.51	4.05
6 mo	13.51	3.12
1 yr	14.33	4.68
The global assessment functioning (GAF)		
Baseline	33.18	10.10
6 mo	58.98	14.98
1 yr	60.75	14.94
The functioning assessment short test (FAST)		
Baseline	31.29	11.76
6 mo	24.31	12.01
1 yr	20.41	15.38

SD indicates standard deviation.

Concurrent Validity

The results for convergent validity were obtained by comparing the Strauss scale with the FAST. Concurrent validity showed a highly significant negative correlation at each point ($p < 0.001$); the Pearson correlation coefficients were $r = -0.74$ at baseline, $r = -0.74$ at 6 months, and $r = -0.87$ at 1 year. According to the scores obtained, patients that showed low scores assessed using the FAST, obtained higher scores on the Strauss scale. This result indicates that Strauss scores showed adjustment whereas FAST scores showed disability.

Discriminant Validity

We analyzed discriminant validity of the FAST to detect differences between euthymic and acute patients using area under the curves. The area under the curve was 0.96, (95% CI, 0.870–0.991), which indicates a good discriminant capacity (Fig. 1).

Reliability

For the Strauss and Carpenter Test, the Pearson correlation coefficient between 6 months and 1 year evaluation was 0.87, $p < 0.001$, and the ICC was 0.93, $p < 0.001$ (95% CI, 0.853–0.968). For
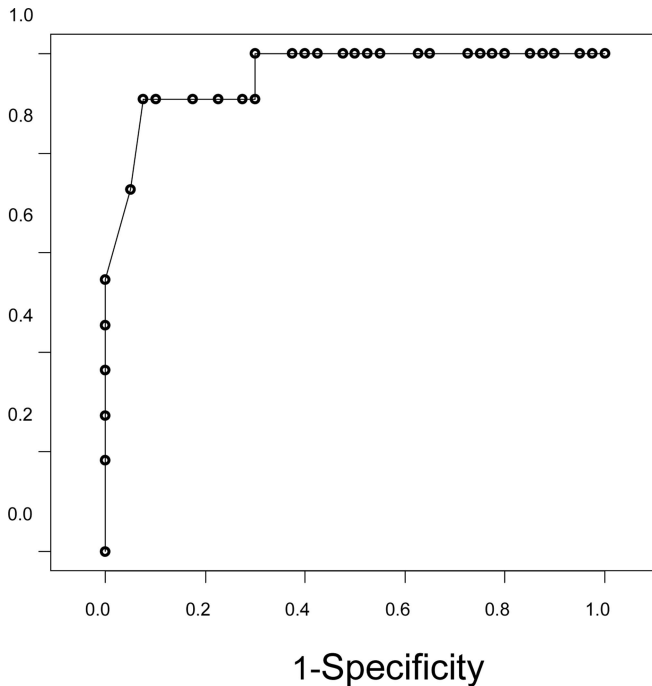
FIGURE 1. Rank-order correlation curves of FAST.

the FAST, the Pearson correlation coefficient was 0.78, and the ICC was 0.87 (95% CI, 0.719–0.938), both with $p < 0.001$.

DISCUSSION

It is well known that patients with schizophrenia or bipolar disorder show a marked impairment in psychosocial functioning. Additionally, the psychosocial impairment begins in the early stages of disease (Birchwood et al., 1998; Conus et al., 2006; Mason et al., 2004; Niendam et al., 2006; O'Brien et al., 2009; Prasad et al., 2005; Strakowski et al., 1998; Tohen et al., 2003; Wyatt et al., 1997; Tohen et al., 2000a,b; Yung et al., 2003, 2004; Tohen et al., 2009; Salvatore et al., 2009). Therefore, it is particularly important to assess functional outcome in first psychotic episodes, where persistent psychosocial impairment during short-term follow-up may be a harbinger of chronic or treatment-resistance in the long-term (Strakowski et al., 2000).

At present, there are some limitations to evaluate functioning in psychiatric patients, particularly patients with first psychotic episode. The majority of instruments available to assess the functioning are very lengthy and mainly focus on global or limited measures of functional recovery, rather than examining specific, discrete areas of psychosocial activity (Zarate et al., 2000; Strakowski et al., 2000). In addition, overall insufficient attention has been paid to scale dealing with psychometric issues (Bellack et al., 2007). In this context, the FAST is an instrument developed to evaluate the effect of illness factors on each specific domain of functioning related to severe mental illness. The FAST offers advantages because of the simplicity of the instrument, the ease of its application, and the time frame required for its implementation. The high feasibility of the scale makes it applicable both in clinical practice and in research settings. In addition, the FAST has shown strong psychometric properties in bipolar disorder patients (Rosa et al., 2007) and has allowed the identification of specific predictors of functioning (Rosa et al., 2009).

In this study, the FAST showed high internal consistency at both baseline and at 6 months and an excellent internal consistency

at 1 year. Specifically, the psychometric properties of the FAST have been tested by comparing with the Strauss-Carpenter Scale in patients with first psychotic episodes to assess its validity. The Strauss-Carpenter Scale was chosen for the comparison as it is probably the instrument most used in studies which evaluate the functional outcome in schizophrenia and first psychotic episodes (Brill et al., 2009; O'Brien et al., 2009; Gharabawi et al., 2007; Niendam et al., 2006; Siegel et al., 2006; Prasad et al., 2005; Kee et al.,2003; Maj et al., 2003; Buchanan and Carpenter, 1994; Gaebel and Pietzcker, 1987; Stephens et al., 1980). Indeed, it has previously been used to validate other scales (Carlson et al., 2009), and moreover, the psychometric properties of the Strauss-Carpenter Scale have been tested previously in schizophrenia (Ahuir et al., 2009; Poirier et al., 2004; Handel et al., 1996). In our study, both these scales were highly correlated, which supports the concurrent validity of the FAST.

In addition, the FAST also showed good psychometric properties regarding reliability and discriminant validity. The FAST appears to be a sensitive instrument to detect differences in functioning between acute psychotic patients and patients in remission. In fact, higher functioning was found in remitted patients. Together, these findings suggest that the FAST is a valid instrument for use in clinical practice, clinical trials, and research settings in subjects with first psychotic episodes with the advantage that information can be obtained concerning the domains of functioning, as well as the tool being easy to use.

The concept of functioning is complex and involves many different domains including capacities to work, to study, and to live independently; for recreation; and for romantic intimacy (Zarate et al., 2000; Tohen et al., 2000a,b; Keck et al., 1998). The majority of the available instruments used to assess functioning have focused on global measures of functional recovery rather than specific domains of psychosocial functioning. Among multidimensional scales assessing functioning, the GAF is the most commonly used, but the original GAF instructions call for symptoms to be rated as well as functioning (First et al., 1997; Martinez-Aran et al., 2007). Other scales used, such as the Social Adjustment Scale, the Life Functioning Questionnaire, the Short Form-36, the Multidimensional Scale of Independent Functioning, and the WHO Disability Assessment Schedule, measure some elements of functioning but none are specific instruments developed to assess specific areas of functional impairment and take a longer time to administer. The Psychosocial Functioning Scales of the longitudinal interval follow-up evaluation and the Social Adjustment Scale II include ratings for major life roles. However, they do not account for the influence of contextual factors, such as the level of support available and the tolerance to performance decrements (Berns et al., 2007). Furthermore, the use of self-reported scales to assess functional impairment in psychiatric illness, particularly in patients with psychotic symptoms, may not be reliable because of the severity of their psychopathology and associated lack of insight. Finally, overall insufficient attention has been paid to scales addressing with psychometric issues and many instruments are not suitable for use in clinical trials (Bellack et al., 2007). In this context, the FAST has various advantages that make it suitable for assessment of functioning in first psychotic episodes.

The Strauss–Carpenter scale is a reliable and valid instrument for measuring both functioning and prognosis of patients with schizophrenia (Ahuir et al., 2009); however, in relation to functioning it only measures some elements, i.e., occupational, but not important areas such as financial and cognitive functioning. By contrast, the FAST focuses on assessment of functioning and offers the advantage of the information being derived from the domains of functioning (autonomy, occupational functioning, cognitive func-

tioning, financial issues, interpersonal relationships, and leisure time), as well as ease of use.

In conclusion, the FAST is a valid instrument, with good psychometric properties, that can be used from first affective and nonaffective psychotic episodes. This study has some limitations. The use of a control group was not considered because this had already been completed in the validation of the scale in multiple-episode patients, and the objective of this study was to apply it to first-episode patients. Future studies should analyze the psychometric properties of the FAST in larger epidemiological samples and compare first-episode with multiple-episode patients. Nevertheless, the FAST is now being used in many epidemiological studies and clinical trials, including those from the Spanish Centre for Biomedical Research Network on Mental Health (Centro de Investigación Biomédica En Red de Salud Mental - CIBERSAM) and the European Network of Bipolar Research Expert Centers (ENBREC), which are some of the leading research bodies in first-episode affective and psychotic patients in Europe.

REFERENCES

Ahuir M, Bernardo M, de la Serna E, Ochoa S, Carlson J, Escarpín G, Gutiérrez-Zotes A, Valero J, Salamero M, Cañizares S, Fernández-Egea E, Cañete J, Gallo P (2009) Adaptación y validación española de la Escala Pronóstica para la Esquizofrenia de Strauss y Carpenter. *Rev Psiquiatr Salud Ment*. 2:150–159

American Psychiatric Association (1994) *Diagnostic and Statistical Manual for Mental Disorders. Fourth Edition.* Washington (DC): American Psychiatric Association.

Bauer MS, Kirk GF, Gavin C, Williford WO (2001) Determinants of functional outcome and healthcare costs in bipolar disorder: A high-intensity follow-up study. *J Affect Disord*. 65:231–241.

Bellack AS, Morrison RL, Mueser KT (2007) Social problem solving in schizophrenia. *Schizophr Bull*. 33:1213–1220.

Berns S, Uzelac S, González C, Jaeger J (2007) Methodological considerations of measuring disability in bipolar disorder: Validity of the Multidimensional Scale of Independent Functioning. *Bipolar Disord*. 9:3–10.

Birchwood M, Todd P, Jackson C (1998) Early intervention in psychosis. The critical period hypothesis. *Br J Psychiatry*. 172:53–59.

Brill N, Levine SZ, Reichenberg A, Lubin G, Weiser M, Rabinowitz J (2009) Pathways to functional outcomes in schizophrenia: The role of premorbid functioning, negative symptoms and intelligence. *Schizophr Res*. 110:40–46.

Buchanan RW, Carpenter WT (1994) Domains of psychopathology: An approach to the reduction of heterogeneity in schizophrenia. *J Nerv Ment Dis*. 182:193–204.

Carlson J, Ochoam S, Harom JM, Escartínm G, Ahuir M, Gutierrez-Zotes A, Salamero M, Valero J, Cañizares S, Bernardo M, Cañete J, Gallo P (2009) Adaptation and validation of the quality-of-life scale: Satisfaction with Life Domains Scale by Baker and Intagliata. *Compr Psychiatry*. 50:76–80.

Conus P, Cotton S, Abdel-Baki A, Lambert M, Berk M, McGorry PD (2006) Symptomatic and functional outcome 12 months after a first episode of psychotic mania: Barriers to recovery in a catchment area sample. *Schizophr Res*. 86:155–155.

Coryell W, Scheftner W, Keller M, Endicott J, Maser J, Klerman G (1993) The enduring psychosocial consequences of mania and depression. *Am J Psychiatry*. 150:720–727.

Couture MS, Roberts DL, Penn DL, Cather C, Otto MW, Goff D (2006) Do baseline characteristics predict the therapeutic alliance in the treatment of schizophrenia. *J Nerv Ment Dis*. 94:10–14.

Davidson L, McGlashan TH (1997) Treated outcomes in severe and enduring mental disorders. *Curr Opin Psychiatry*. 10:183–186.

American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed), DSM-IV. Washington (DC): APA.

First MB, Spitzer R, Gibbon M (1997) *Structured Clinical Interview for DSMIV Axis I Disorders*. Biometrics Research Department, Washington (DC): American Psychiatric Press Inc.

Gaebel W, Pietzcker A (1987) Prospective study of course of illness in schizophrenia. Part III. Treatment and outcome. *Schizophr Bull*. 13:307–316.

Gharabawi G, Bossie C, Turkoz I, Kujawa M, Mahmoud R, Simpson G (2007) The impact of insight on functioning in patients with schizophrenia or schizoaffective disorder receiving risperidone long-acting injectable. *J Nerv Mental Dis*. 195:976–982.

Goetz M, Tohen C, Reed M, Lorenzo E, Vieta E; EMBLEM Advisory Board (2007) Functional impairment in patients with mania: Baseline results of the EMBLEM study. *Bipolar Disord*. 9:45–52.

González-Pinto A, Alberich S, Barbeito S, Gutierrez M, Vega P, Ibáñez B, Haidar MK, Vieta E, Arango C. Cannabis and first-episode psychosis: Different long-term outcomes depending on continued or discontinued use. *Schizophr Bull*. In press.

Guy W (1976) *ECDEU Assessment Manual for Psychopharmacology*. Rockville (MD): National Institute of Mental Health.

Handel M, Bailer J, Brauer W, Laubenstein D, Rey ER (1996) The prognostic scale by Strauss and Carpenter and its validity. *Eur Arch Psychiatry Clin Neurosci*. 246:203–208.

Judd LL, Schettler PJ, Akiskal HS, Maser J, Coryell W, Solomon D, Endicott J, Keller M (2003) Long-term symptomatic status of bipolar I vs. bipolar II disorders. *Int J Neuropsychopharmacol*. 6:127–137.

Kane JM (1999) Pharmacologic treatment of schizophrenia. *Biol Psychiatry*. 46:1396–1408.

Kee KS, Green MF, Mintz J, Brekke JS (2003) Is emotion processing a predictor of functional outcome in schizophrenia? *Schizophr Bull*. 29:487–497.

Keck PE Jr, McElroy SL, Strakowski M, West SA, Sax KW, Hawkins JM, Bourne ML, Haggard P (1998) 12-month outcome of patients with bipolar disorder following hospitalization for a manic or mixed episode. *Am J Psychiatry*. 155:646–652.

Lenior ME, Dingemans PM, Linszen DH, De Haan L, Schene AH (2001) Social functioning and the course of early-onset schizophrenia: A five-year follow-up of a psychosocial intervention. *Br J Psychiatry*. 179:53–58.

Maj M, Pirozzi R, Formicola AM, Bartoli L, Bucci P (2000) Reliability and validity of the DSM-IV diagnostic category of schizoaffective disorder: Preliminary data. *J Affect Disord*. 57:95–98.

Maj M, Pirozzi R, Magliano L, Bartoli L (2003) Agitated depression in bipolar I disorder: Prevalence, phenomenology and outcome. *Am J Psychiatry*. 160:2134–2140.

Martinez-Aran A, Vieta E, Torrent C, Sanchez-Moreno J, Goikolea JM, Salamero M, Malhi GS, Gonzalez-Pinto A, Daban C, Alvarez-Grandi S, Fountoulakis K, Kaprinis G, Tabares-Seisdedos R, Ayuso-Mateos JL (2007) Functional outcome in bipolar disorder: The role of clinical and cognitive factors. *Bipolar Disord*. 9:103–113.

Mason O, Startup M, Halpin S, Schall U, Conrad A, Carr V (2004) Risk factors for transition to first episode psychosis among individuals with "at-risk mental states." *Schizophr Res*. 71:227–237.

Menezes NM, Arenovich T, Zipursky RB (2006) A systematic review of longitudinal outcome studies of first-episode psychosis. *Psychol Med*. 36:1349–1362.

Niendam TA, Bearden CE, Zinberg J, Johnson JK, O'Brien M, Cannon TD (2007) The course of neurocognition and social functioning in individuals at ultra high risk for psychosis. *Schizophr Bull*. 33:772–781.

O'Brien MP, Zinberg JL, Ho L, Rudd A, Kopelowicz A, Daley M, Bearden CE, Cannon TD (2009) Family problem solving interactions and 6-month symptomatic and functional outcomes in youth at ultra-high risk for psychosis and with recent onset psychotic symptoms: A longitudinal study. *Schizophr Res*. 107:198–205.

Pinkham AE, Penn DL, Perkins DO, Graham KA, Siegel M (2007) Emotion perception and social skill over the course of psychosis: A comparison of individuals "at-risk" for psychosis and individuals with early and chronic schizophrenia spectrum illness. *Cogn Neuropsychiatry*. 12:198–212.

Poirier S, Bureau V, Lehoux C, Bouchard RH, Maziade M, Pelletier S, René L, Trépanier J, Émond C, Mérette C, Roy MA (2004) Factor analysis of the Strauss and Carpenter Revised Outcome Criteria Scale: A validation of the French translation. *J Nerv Ment Dis*. 192:864–867.

Prasad KM, Sahni SD, Rohm BR, Keshavan MS (2005) Dorsolateral prefrontal cortex morphology and short-term outcome in first-episode schizophrenia. *Psychiatry Res Neuroimaging*. 140:147–155.

Rosa AR, Reinares M, Franco C, Comes M, Torrent C, Sanchez-Moreno J, Martinez-Aran A, Salamero M, Kapczinski F, Vieta E (2009) Clinical predictors of functional outcome of bipolar patients in remission. *Bipolar Disord*. 11:401–409.

Rosa AR, Sanchez-Moreno J, Martinez-Aran A, Salamero M, Torrent C, Reinares M, Comes M, Colom F, Van Riel W, Ayuso-Mateos JL, Kapczinski F, Vieta E (2007) Validity and reliability of the Functioning Assessment Short Test (FAST) in bipolar disorder. *Clin Pract Epidemiol Ment Health*. 3:5.

Salvatore P, Baldessarini RJ, Tohen M, Khalsa HK, Perez Sanchez-Toledo J, Zarate CA, Vieta E, Maggini C (2009) McLean-Harvard First-Episode project: Two-year stability of DSM-IV diagnosis in 500 first-episode psychotic disorder patients. *J Clin Psychiatry*. 70:458–466.

Siegel SJ, Irani F, Brensinger CM, Kohler CG, Bilker WB, Ragland JD, Kanes SJ, Gur RC, Gur RE (2006) Prognostic variables at intake and long-term level of function in schizophrenia. *Am J Psychiatry*. 163:433–441.

Stephens JH, Ota KY, Carpenter WT Jr, Shaffer JW (1980) Diagnostic criteria for schizophrenia: Prognostic implications and diagnostic overlap. *Psychiatry Res*. 2:1–12.

Strakowski SM, Sax KW, McElroy SL, Keck PE Jr, Hawkins JM, West SA (1998) Course of psychiatric and substance abuse syndromes co-occurring with bipolar disorder after a first psychiatric hospitalization. *J Clin Psychiatry*. 59:465–471.

Strakowski SM, Williams MJ, Fleck DE, Delbello MP (2000) Eight-month functional outcome from mania following a first psychiatric hospitalization. *J Psychiatr Res*. 34:193–200.

Strauss JS, Carpenter WT Jr (1972) The prediction of outcome in schizophrenia: I. Characteristics of outcome. *Arch Gen Psychiatry*. 27:739–746.

Tohen M, Hennen J, Zarate C, Baldessarini RJ, Strakowski SM, Stoll A, Faeda GL, Suppes T, Gebre-Mehdin P, Cohen B (2000a) Two-year syndromal and functional recovery in 219 cases of first episode major affective disorder with psychotic features. *Am J Psychiatry*. 157:220–228.

Tohen M, Strakowski SM, Zarate C, Hennen J, Stoll AL, Suppes T, Faedda GL, Cohen BM, Gebre-Medhin P, Baldessarini RJ (2000b) The McLean-Harvard First-Episode Project: 6-month symptomatic and functional outcome in affective and nonaffective psychosis. *Biol Psychiatry*. 48:467–476.

Tohen CA, Zarate C Jr, Hennen J, Khalsa HM, Strakowski SM, Gebre-Medhin P, Salvatore P, Baldessarini RJ (2003) The McLean-Harvard First-Episode Mania Study: Prediction of recovery and first recurrence. *Am J Psychiatry*. 160:2099–2107.

Tohen M, Vieta E, Gonzalez-Pinto A, Reed C, Lin D; the European Mania in Bipolar Longitudinal Evaluation of Medication (EMBLEM) Advisory Board (2010) Baseline characteristics and outcomes in patients with first episode or multiple episodes of acute mania. *J Clin Psychiatry*. 71:255–261.

Wyatt RJ, Green MF, Tuma AH (1997) Long-term morbidity associated with delayed treatment of first-admission schizophrenic patients: A reanalysis of the Camarillo State Hospital data. *Psychol Med*. 27:261–268.

Yung AR, Phillips LJ, Yuen H, Francey S, McFarlane CA, Hallgreen MA, McGorry PD (2003) Psychosis prediction: A 12-month follow-up of a high-risk ("prodromal") group. *Schizophr Res*. 60:21–32.

Yung AR, Phillips LJ, Yuen HP, McGorry PD (2004) Risk factors for psychosis in an ultra high-risk group: Psychopathology and clinical features. *Schizophr Res*. 67:131–142.

Zarate CA, Tohen M, Land M, Cavanagh S (2000) Functional impairment and cognition in bipolar disorsder. *Psychiatr Q*. 71:309–329.