



Published in final edited form as:

*Schizophr Res.* 2010 June ; 119(1-3): 95–100. doi:10.1016/j.schres.2009.12.018.

## Social Functioning in Urban, Predominantly African American, Socially Disadvantaged Patients with First-Episode Nonaffective Psychosis

Sandra M. Goulding, M.P.H., Lauren Franz, M.B.Ch.B., M.P.H., Erin Bergner, M.P.H., and Michael T. Compton, M.D., M.P.H.

Emory University School of Medicine, Department of Psychiatry and Behavioral Sciences, Atlanta, Georgia, U.S.A

### Abstract

**Background**—Social functioning impairments develop and accumulate even prior to initial treatment-seeking for first-episode psychosis. This study, the first to examine social functioning in low-income, urban, predominantly African American first-episode patients: (1) assesses the internal consistency of Social Functioning Scale (SFS) subscales in this relatively unique sample; (2) identifies demographic and clinical variables that may be predictive of poor social functioning in this particular population; and (3) assesses changes in SFS scores in a subsample re-assessed six months after initial hospitalization.

**Methods**—109 participants (age, 23.1±4.7 years; 76.1% male; 89.9% African American) hospitalized for a first episode of nonaffective psychosis in an urban, public-sector setting were administered the SFS along with other clinical research instruments. 34 (31.2%) returned for a follow-up clinical research assessment six months after baseline assessment. Associations between the variables of interest were analyzed utilizing independent samples Student's *t*-tests and Pearson correlations.

**Results**—Associations were observed between social functioning domains and negative symptoms ( $r=-.21-.32, p<.05$ ), depressive symptoms ( $r=-.20-.23, p<.05$ ), and general psychopathology symptoms ( $r=-.23-.24, p<.05$ ). No significant differences were found in SFS subscale scores between baseline and six-month follow-up.

**Conclusions**—Deficits in social functioning are meaningfully related to several domains of symptoms, and such deficits may be relatively stable in the early course of psychotic disorders. Such findings may inform development of psychosocial interventions targeting social functioning in first-episode patients.

### Keywords

First-episode psychosis; Schizophrenia; Social functioning; Social Functioning Scale

---

Corresponding Author: Michael T. Compton, M.D., M.P.H., Emory University School of Medicine, Department of Psychiatry and Behavioral Sciences, 49 Jesse Hill Jr. Drive, S.E., Room #333, Atlanta, GA 30303, TEL: 404-778-1486, FAX: 404-616-3241, Michael.Compton@emory.edu.

#### Conflicts of Interest

The authors know of no conflicts of interest pertaining to this manuscript.

**Publisher's Disclaimer:** This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## 1. Introduction

Schizophrenia is commonly characterized by deficits in interpersonal communication, employment, community functioning, and other social domains (Bellack, 2006), and such impairments in social functioning have important implications for diverse outcomes (Couture et al., 2006). Among first-episode patients, age-appropriate social and vocational functioning often are not attained (Lieberman et al., 1992), as evidenced by high degrees of social impairment and 40–63% remaining unemployed after 1–2 years (Gupta et al., 1997; Ho et al., 1998). Despite initial symptom reduction after initiating treatment, functional recovery is often poor following the first episode (Penn et al., 2005). Tohen and colleagues (2000) found that 77% of patients with first-episode psychosis experienced symptom remission at six months; yet, most (79.8%) failed to display functional recovery during the same period. Functional (e.g., social, vocational, interpersonal) recovery continues to be a major challenge given that it does not always follow symptomatic improvement (Addington et al., 2003).

Research on early identification and intervention for psychotic disorders seeks to improve long-term outcomes of those with new-onset schizophrenia-spectrum disorders (Penn et al., 2005). Because most clinical and psychosocial deterioration occurs within the early course (Lieberman et al., 2001), psychosocial treatments during the first five years of illness are hypothesized to have greater impact than later comparable treatments (Birchwood et al., 1994). Early psychosis programs seek to intervene and treat patients during this stage, and many such programs address social skills, family support, and employment. Malla and colleagues (2001) found that patients displayed a relatively good quality of life and exhibited positive changes after one year in the Prevention and Early Intervention Program for Psychoses (PEPP), and gainful employment increased from about 20% to 37%. Studies at the Early Psychosis Prevention and Intervention Center (EPPIC) have revealed 23–25% functional improvement at 3-, 6-, and 12-month follow-up (McGorry et al., 1996). Addington, Young, and Addington (2003) found significant symptomatic and functional improvements after one year of treatment in a comprehensive, community-wide program targeting first-episode psychosis.

As a critical domain of psychosis in both chronic and first-episode samples, numerous scales—many with proven reliability and validity—have been developed to measure social functioning in these disorders, including: the Assessment of Interpersonal Problem-Solving Skills (AIPSS; Donahoe et al., 1990), the Multnomah Community Ability Scale (MCAS; Barker et al., 1994), the World Health Organization Disability Assessment Schedule (WHODAS-II; Annicchiarico et al., 2004; Chisolm et al., 2005; Chopra et al., 2004), the Community Adjustment Form (CAF; Test et al., 1991), and the Social Functioning Scale (SFS; Birchwood et al., 1990). The latter instrument has been translated into several languages (Bora et al., 2006; Górná et al., 2008; Nemoto et al., 2007; Torres and Olivares, 2005), though results on its use across various ethnic and socioeconomic groups of first-episode patients are sparse.

In light of the relatively limited research on social functioning in patients with first-episode psychosis in this population, and no research using the SFS in low-income, urban, predominantly African American first-episode patients, this descriptive study had three objectives. First, scores derived from the SFS subscales were characterized while assessing the internal consistency of SFS subscales in this particular population. Publication of descriptive data enables comparison across studies involving diverse samples of first-episode patients. Second, scores on the SFS subscales were examined in relation to demographic and clinical variables that might be predictive of poor social functioning in this particular population. Characterizing such associations augments understandings of phenomenology, including the pre-treatment social course of first-episode psychosis. Third, changes in social functioning were assessed in a subsample of first-episode patients re-assessed at six months post-

hospitalization. Longitudinal assessments of social functioning advance understandings of the static versus dynamic nature of social deficits in the early course.

## 2. Methods

### 2.1 Setting and Sample

Data were obtained from a cross-sectional study (Compton et al., 2009a,b,c). All participants were hospitalized for a first-episode of a schizophrenia-spectrum disorder in a large, university-affiliated, public-sector hospital or an urban county psychiatric crisis center within the greater Atlanta metropolitan area of the southeastern United States. Although some first-episode patients in this setting are initially evaluated and treated in outpatient facilities, most who present to the psychiatric emergency service are hospitalized so that a complete work-up can be done, and due to the severity of psychosis at the time of initial presentation. Thus, hospitalization is a common first entry to the mental health system for these first-episode patients. Some participants returned for a follow-up assessment six months after hospitalization.

Those between the ages of 18 and 40 years who were able to speak and read English were eligible for participation. Exclusion criteria were: known mental retardation, Mini-Mental State Examination (MMSE) score of <23 (indicates disorientation or cognitive impairment of degree that could interfere with extensive clinical research assessment), a significant medical condition that could compromise ability to participate in evaluation, prior antipsychotic treatment lasting >3 months, previous hospitalization for psychosis >3 months before the index hospitalization, or inability to provide written informed consent. The study was approved by all relevant institutional review boards, and all patients gave written informed consent. As described in detail previously (Compton et al., 2009a,b,c), of 281 patients screened between July 2004 and June 2008, 89 were ineligible based on these exclusion criteria. Among the 192 eligible patients, the 83 who were eligible but not enrolled did not differ from the 109 participating patients in terms of age, gender, or race/ethnicity.

The mean age of the 109 participants was  $23.1 \pm 4.7$  (range: 18–39) years and 83 (76.1%) were male. While most participants self-identified as Black/African American (98, 89.9%), few identified as White/Caucasian (7, 6.4%), Asian American (2, 1.8%), or African/Ethiopian (2, 1.8%). Sixty-two participants (56.9%) met diagnostic criteria, based on the *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID; First et al., 1998), for schizophrenia (48 with paranoid type, 10 with disorganized type, two with residual type, and two with undifferentiated type); eight (7.3%) for schizoaffective disorder (five with bipolar type and three with depressive type); 22 (20.2%) for schizophreniform disorder; 12 (11.0%) for psychotic disorder not otherwise specified; four (3.7%) for brief psychotic disorder; and one (0.9%) for delusional disorder. Further detailed characterization of the study sample has been provided in prior publications (Compton et al., 2009a,b,c). This sample is characterized by high rates of school drop-out (Goulding et al., 2009), incarceration (Ramsay et al., 2009), and substance use (Stewart et al., 2009), and thus is considered socially disadvantaged from a number of perspectives.

Of the 109 participants, 34 (31.2%) returned for a follow-up assessment six months after hospitalization. Limited retention for the follow-up assessment—despite a relatively aggressive attempt to encourage participants to return—was likely driven by numerous complex factors, such as frequent changes in phone numbers, moving from one family member to the next, and other indicators of social fragmentation and psychosocial disruption (e.g., incarceration, substance abuse). Comparisons on 12 sociodemographic and 15 clinical variables between those patients who returned and those who did not revealed that the two groups differed only with respect to two variables—those who did not return were more likely

to have been incarcerated prior to their first hospitalization ( $\chi^2=5.01$ ,  $df=1$ ,  $p=0.02$ ) and had significantly lower scores on the Social and Occupational Functioning Assessment Scale (SOFAS; Goldman et al., 1992) than those who did return for the 6-month assessment (median of 35.0 versus 38.5 years,  $z=1.96$ ,  $p=0.05$ ). Of note, those who did and did not return for follow-up did not differ on any of the baseline SFS subscale scores.

## 2.2 Materials

The SFS is a reliable, valid, and sensitive measure responsive to change resulting from interventions (Birchwood et al., 1990) that measures areas of functioning essential to the successful community maintenance of individuals with schizophrenia, including: *social engagement/withdrawal* (e.g., How often will you start a conversation at home?); *interpersonal communication* (e.g., How easy or difficult do you find talking to people at present?); *independence/performance* (e.g., How often do you prepare and cook a meal?); *recreation* (e.g., How often do you play a sport?); *prosocial activities* (e.g., How often do you visit friends?); *independence/competence* (e.g., How able are you to budget?); and *employment/occupation* (e.g., When were you last employed?). This 79-item questionnaire can be completed by the patient or by an interviewer using direct questioning, as was done in the present study. Most items are rated on a 4-point scale of frequency or ability, with higher scores indicating greater competency. Internal consistency coefficients for SFS subscales are presented below in section 3.1.

The SOFAS (Goldman et al., 1992) uses a 100-point continuum divided into 10-point intervals with descriptive anchors with higher scores indicating greater competence. Unlike the Global Assessment of Functioning Scale (GAF), a counterpart to the SOFAS, social and occupational functioning is measured in a way that is not directly influenced by the severity of psychiatric symptoms (American Psychiatric Association, 2000; Hilsenroth et al., 2000; Saraswat et al., 2006).

The *Positive and Negative Syndrome Scale* (PANSS; Kay et al., 1987), used for rating severity of symptoms in schizophrenia-spectrum illnesses, is a 30-item scale utilizing a 7-point rating scheme with higher scores indicating greater severity. Items are grouped into positive (7 items), negative (7 items), and general psychopathology symptoms (16 items). Prior research has demonstrated good concurrent, criterion-related, and predictive validity (American Psychiatric Association, 2000; Kay et al., 1987).

The *Calgary Depression Scale for Schizophrenia* (CDSS; Addington et al., 1990) is a reliable and valid questionnaire designed to rate depressive symptomatology in patients with schizophrenia. It is composed of nine items defined according to operational criteria and rated on a 4-point scale ranging from 0=absent to 3=severe. The internal consistency coefficient for the CDSS was  $\alpha=0.76$ .

The *Birchwood Insight Scale* (BIS; Birchwood et al., 1998), a widely-used measure of insight, is comprised of eight items to which the participant responds “agree,” “disagree,” or “unsure.” Items are summed for a total score, with higher scores indicating greater insight. Previous research has indicated satisfactory internal consistency, test-retest reliability, and construct and concurrent validity (Birchwood et al., 1998). The internal consistency coefficient was  $\alpha=0.82$ .

## 2.3 Data Analyses

Basic descriptive statistics were calculated for the seven SFS subscales, including Cronbach's alpha where relevant. Associations between select sociodemographic and clinical variables and SFS subscale scores were examined using independent samples Student's *t*-tests and Pearson correlations. Changes in SFS subscale scores from initial hospitalization to six-month

follow-up were assessed using paired samples Student's *t*-tests. Imputation methods were not used for sparse missing data,  $p < .05$  was used as the criterion for determining significance, and all analyses were conducted using *SPSS 15.0*.

### 3. Results

#### 3.1 Descriptive Statistics Pertaining to SFS Subscale Scores

Possible ranges, observed ranges, and mean ( $\pm$ standard deviation) scores for the seven SFS subscales are shown in Table 1. Cronbach's  $\alpha$  internal consistency reliability coefficients for the *independence/performance*, *recreation*, *prosocial activities*, and *independence/competence* subscales were .83, .76, .88, and .90, respectively, indicating an adequate level of internal consistency (the other subscales do not have response formats that are readily amenable to Cronbach's  $\alpha$  calculations). Four of the seven SFS subscales were significantly correlated with the SOFAS score (Table 1). As shown in Table 2, inter-correlations among SFS subscales were generally in the modest to moderate range (average correlation of  $r = .30$ ).

#### 3.2 Associations between SFS Subscale Scores and Demographic and Clinical Variables

Gender was significantly associated with only one SFS subscale—females had a higher mean *interpersonal communication* score ( $7.56 \pm 1.64$ ) than males ( $6.22 \pm 1.94$ ;  $t = 3.09$ ,  $df = 99$ ,  $p = .003$ ). Age was significantly correlated with only one subscale—older age was associated with a higher *employment/occupation* score ( $r = .22$ ,  $p = .03$ ).

Correlations between SFS subscale scores and symptom domains, as well as insight, are shown in Table 3. The PANSS positive symptom score was significantly associated only with *employment/occupation* ( $r = -.24$ ,  $p = .01$ ). The PANSS negative symptom score was associated with *social engagement/withdrawal*, *interpersonal communication*, and *employment/occupation* scores ( $r = -.21$ – $-.32$ , all  $p < .05$ ). The PANSS general psychopathology symptom score was associated with *social engagement/withdrawal* and *interpersonal communication* scores ( $r = -.24$  and  $r = -.23$ , both  $p < .05$ ). Three SFS subscales were significantly correlated with CDSS scores: *prosocial activities*, *recreation*, and *independence/performance* scores ( $r = -.20$ – $-.23$ , all  $p < .05$ ). The BIS score was significantly associated only with *independence/competence* ( $r = -.19$ ,  $p = .05$ ). Associations between SFS scores and duration of untreated psychosis are presented elsewhere (Compton et al., 2009a).

Given that each of these SFS subscale scores significantly correlated with two symptom scores, use of three linear regression models assessed independent effects of symptom domains while treating the other symptom domain as a covariate. For *social engagement/withdrawal*, negative symptoms remained a significant correlate while controlling for general psychopathology symptoms ( $F(2,102) = 6.20$ ,  $p = .003$ ,  $R^2 = .11$ ). Regarding *interpersonal communication*, neither negative symptoms nor general psychopathology symptoms remained a significant correlate while controlling for the effects of the other ( $F(2,98) = 4.26$ ,  $p = .02$ ,  $R^2 = .08$ ). For the *employment/occupation* subscale, positive symptoms remained a significant correlate while controlling for negative symptoms ( $F(2,97) = 4.66$ ,  $p = .01$ ,  $R^2 = .09$ ).

#### 3.3 Changes in SFS Subscale Scores from Initial Hospitalization to Six-Month Follow-Up

As shown in Table 4, all SFS subscale scores remained relatively stable from baseline to 6-month follow-up among the 34 patients with available data. On the other hand, positive symptoms, negative symptoms, and general psychopathology symptoms improved during the six months after initial hospitalization ( $24.3 \pm 4.5$  to  $20.1 \pm 8.5$ ,  $p = .03$ ;  $20.8 \pm 7.3$  to  $17.9 \pm 5.1$ ,  $p = .04$ ;  $41.7 \pm 9.8$  to  $35.4 \pm 9.6$ ,  $p = .01$ , respectively).

## 4. Discussion

This detailed description of social functioning, operationalized using SFS scores, in a unique first-episode sample allows for comparisons with prior studies conducted in other settings. Five of the mean SFS subscale scores in the current sample were generally comparable to those from a study involving 50 first-episode patients in Canada (Addington et al., 2008). However, it is noteworthy that the mean *prosocial* score in the present sample ( $21.17 \pm 11.44$ ) was substantially lower ( $36.16 \pm 3.64$ ), while the mean *independence/competence* score was higher ( $34.88 \pm 5.64$  compared to  $20.54 \pm 6.55$ ). The former finding might be driven by a true difference in engagement in social activities across the two samples or by the non-applicability of items within the *prosocial* subscale to particular populations. That is, the apparent low mean score in the present sample could be a function of some *prosocial* items (e.g., art gallery/museum, exhibition, formal occasions) not resonating with the normative social experiences in this population. Regarding the higher *independence/competence* scores, it is likely that a greater level of independence (e.g., using public transport, cooking for oneself, doing weekly shopping, leaving the house alone) is unavoidable for low-income, socially disadvantaged first-episode patients who are often alienated from family and living with limited social assistance. Ongoing detailed description of social functioning in first-episode samples will further clarify true differences across studies versus those tied to wording (and cultural sensitivity) of particular rating scales, and will provide a more thorough understanding that can inform tailoring of psychosocial treatments to particular groups of patients.

Characterization of relations between social functioning and symptomatology revealed several associations of interest, that, in addition to findings from other sites, indicate that negative and depressive/anxiety/general psychopathology symptoms are intimately related to social functioning. For example, PANSS negative symptom scores were found to predict SFS scores in 60 first-episode patients in Canada (Voges and Addington, 2005). Furthermore, negative and depressive/anxiety symptoms were also predictive of SFS scores in 74 first-episode patients assessed during hospitalization and at 1- and 4–6-years follow-up (Górna et al., 2008). Efforts to ameliorate such symptoms may improve patients' social adjustment and effectiveness of psychosocial interventions may be compromised if such key symptoms are not adequately addressed concurrently.

Longitudinal assessment of social functioning in a subset of the study sample allowed for an examination of intransigence versus improvement in social deficits in the early course. There were no significant differences in SFS subscales scores between baseline and follow-up at six months, suggesting that deficits in social functioning are relatively stable. Even after resolution of acute psychotic symptoms, independent living, social interactions, and productivity often remain compromised for prolonged periods after the first episode (Tohen et al., 2000). Consistent with that observation, the present findings demonstrate persistent social dysfunction despite significant improvements in positive, negative, and general psychopathology symptoms. As some prior research has demonstrated little difference in SFS scores between first-episode and chronic patients (Addington et al., 2008; Grant et al., 2001), the apparent lack of improvement is especially interesting given that impaired social functioning appears to accumulate before initial treatment seeking. Deficits in social functioning have been shown to be present by the time of the first-episode (Drake et al., 2007; Górna et al., 2008; Grant et al., 2001; Voges and Addington, 2005) and are even detectable in clinical high-risk (i.e., putatively prodromal) samples (Addington et al., 2008). Interventions that improve performance skills while enhancing environmental supports (Beale and Lambric, 1995), allowing the patient to assume more personal responsibility through social competence (Jacobson and Greenley, 2001), are seriously needed. Such interventions should embrace the recovery model, emphasizing both responsibility for and control of the recovery process through the assumption

that all have the capacity to improve and develop a life distinct from their illness (Bellack et al., 1990).

Several methodological limitations should be noted. First, given the unique sociodemographic characteristics of this sample, caution should be taken in generalizing the present findings to dissimilar populations. However, given the lack of research in this unique, homogenous, understudied population, the present findings provide a foundation for future studies examining social functioning in similar samples. Second, related to the prior limitation, the study did not permit addressing whether there are differences in social functioning between African American first-episode patients and those from other racial/ethnic groups. Third, while 6-month longitudinal data were available for some participants, it is important to note that less than one-third returned for that assessment, and this limited sample size clearly affects power to detect changes in scores. While attrition was quite substantial, the fact that there were only two significant differences among 27 key baseline sociodemographic and clinical variables between those who did and did not return for a follow-up assessment suggests that the influence of selection bias was likely minimal. Furthermore, they did not differ on any of the baseline SFS subscales scores, ruling out a bias based on social functioning itself. Nonetheless, those who could not be followed may have differed in important ways that were not captured at the baseline assessment. For example, they may have had less family encouragement to continue participation, more relocation to pursue college or work, poorer insight and engagement with treatment and research, or lesser altruistic drives related to the research goals. Furthermore, although 27 *baseline* characteristics could be compared, differences in clinical characteristics at six months post-hospitalization obviously could not be assessed.

Despite some inherent limitations, prior research and this study illuminate important relationships between symptomatology and SFS scores, and give evidence for a relative intransigence of social impairment in the early course of psychotic disorders. Further research should inform the development of appropriate social functioning interventions in the early course of such disorders.

## Acknowledgments

This research was supported by National Institute of Mental Health grant K23 MH067589 to the last author.

This research was supported by National Institute of Mental Health grant K23 MH067589. The authors gratefully acknowledge Tandra Carter, Victoria Chien, Michelle Esterberg, Amy Leiner, Tarianna Stewart, Kevin Tessner, and Hannan Trotman.

### Role of the Funding Source

This research was supported by National Institute of Mental Health grant K23 MH067589. The funding sources had no further role in study design, preparation (writing and analysis) of the manuscript, or the decision to submit the manuscript for publication.

## References

- Addington D, Addington J, Schissel B. A depression rating scale for schizophrenics. *Schizophr Res* 1990;3:247–251. [PubMed: 2278986]
- Addington J, Penn D, Woods SW, Addington D, Perkins DO. Social functioning in individuals at clinical high risk for psychosis. *Schizophr Res* 2008;99:119–124. [PubMed: 18023329]
- Addington J, Young J, Addington D. Social outcome in early psychosis. *Psychol Med* 2003;33:119–1124.
- American Psychiatric Association. *Handbook of psychiatric measures*. American Psychiatric Association; Washington, D.C.: 2000.

- Annicchiarico R, Gibert A, Cortes U, Campana F, Caltagirone C. Qualitative profiles of disability. The WHO-DAS II: psychometric properties in the measurement of functional health status in adults with acquired hearing loss. *J Rehab Res Devel* 2004;41:835–846.
- Barker S, Barron N, McFarland BH, Bigelow DA. A community ability scale for chronically mentally ill consumers: I. Reliability and validity. *Community Ment Health J* 1994;30:363–379. [PubMed: 7956112]
- Beale, V.; Lambric, T. The recovery concept: Implementation in the mental health system: A report by the community support program advisory committee. Ohio Department of Mental Health; Columbus, OH: 1995. p. 1-20.
- Bellack AS. Scientific and consumer models of recovery in schizophrenia: Concordance, contrasts, and implications. *Schizophr Bull* 2006;32:432–442. [PubMed: 16461575]
- Bellack AS, Morrison RL, Wixted JT, Mueser KT. An analysis of social competence in schizophrenia. *Br J Psychiatry* 1990;156:809–818. [PubMed: 2207511]
- Birchwood M, Smith J, Cochrane R, Wetton S, Copestake S. The social functioning scale: the development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. *Br J Psychiatry* 1990;157:853–859. [PubMed: 2289094]
- Birchwood M, Smith J, Drury V, Healy J, Macmillan F, Slade M. A self-report Insight Scale for psychosis: reliability, validity and sensitivity to change. *Acta Psychiatr Scand* 1994;89:62–67. [PubMed: 7908156]
- Birchwood M, Todd P, Jackson C. Early intervention in psychosis: The critical period hypothesis. *Br J Psychiatry* 1998;33:53–59.
- Bora E, Eryavuz A, Kayahan B, Sungu G, Veznedaroglu B. Social functioning, theory of mind and neurocognition in outpatients with schizophrenia; mental state decoding may be a better predictor of social functioning than mental state reasoning. *Psychiatry Res* 2006;145:95–103. [PubMed: 17074402]
- Carpenter WT, Heinrichs DW, Wagman AM. Deficit and nondeficit forms of schizophrenia: the concept. *Am J Psychiatry* 1988;145:587–583.
- Chisolm TH, Abrams HB, McArdle R, Wilson RH, Doyle PJ. The WHO-DAS II: psychometric properties in the measurement of functional health status in adults with acquired hearing loss. *Trends in Amplification* 2005;9:111–126. [PubMed: 16244758]
- Chopra PK, Couper JW, Herrman H. The assessment of patients with long-term psychotic disorders: application of the WHO Disability Assessment Schedule II. *Austral NZJ Psychiatry* 2004;38:753–759.
- Compton MT, Gordon TL, Goulding SM, Esterberg ML, Carter T, Leiner AS, Weiss PS, Druss B, Walker EF, Kaslow NJ. Patient-level predictors of duration of untreated psychosis in an urban, predominantly African American, first-episode sample. *Am J Psychiatry*. 2009 (in press).
- Compton MT, Goulding SM, Gordon TS, Weiss PS, Kaslow NJ. Family-level predictors and correlates of the duration of untreated psychosis in African American first-episode patients. *Schiz Res* 2009;115:338–345.
- Compton MT, Ramsay CE, Shim RS, Goulding SM, Gordon TL, Weiss PS, Druss BG. Health services determinants of the duration of untreated psychosis among African American first-episode patients. *Psychiatr Serv* 2009;60:1489–1494. [PubMed: 19880467]
- Couture SM, Penn DL, Roberts DL. The functional significance of social cognition in schizophrenia: A review. *Schizophr Bull* 2006;32:S44–S63. [PubMed: 16916889]
- Donahoe CP, Carter MJ, Bloem WD, Hirsch GL, Laasi N, Wallace CJ. Assessment of interpersonal problem solving skills. *Psychiatry* 1990;53:329–339. [PubMed: 2263676]
- Drake RJ, Dunn G, Tarrier N, Bental RP, Haddock G, Lewis SW. Insight as a predictor of the outcome of first-episode nonaffective psychosis in a prospective cohort study in England. *J Clin Psychiatry* 2007;68:81–86. [PubMed: 17284134]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV Axis I Disorders. Biometrics Research Department, New York State Psychiatric Institute; New York, NY: 1998.
- Goldman HH, Skodal AE, Lave TR. Revising axis V for DSM-IV: a review of measures of social functioning. *Am J Psychiatry* 1992;149:1148–1156. [PubMed: 1386964]



- Górna K, Jaracz K, Rybakowski F. Determinants of objective and subjective quality of life in first-time-admission schizophrenic patients in Poland: a longitudinal study. *Qual Life Res* 2008;17:237–247. [PubMed: 18163221]
- Goulding SM, Chien VH, Compton MT. Prevalence and Correlates of School DropOut Prior to the Initial Treatment of Nonaffective Psychosis in an Urban First-Episode Cohort: Evidence of a Need for Supported Education. *Schizophr Res*. 2009 (in press).
- Grant C, Addington J, Addington D, Konnert C. Social functioning in first- and multiepisode schizophrenia. *Can J Psychiatry* 2001;46:746–749. [PubMed: 11692978]
- Gupta S, Andreasen NC, Arndt S, Flaum M, Hubbard WC, Zieball S. The Iowa longitudinal study of recent onset psychosis: One-year follow-up of first episode patients. *Schizophr Res* 1997;23:1–13. [PubMed: 9050123]
- Hilsenroth MJ, Ackerman SJ, Blagys MA, Bumann BD, Baity MR, Smith SR, Price JL, Smith CL, Heindselman TL, Mount MK, Holdwick DJ Jr. Reliability and validity of DSM-IV Axis V. *Am J Psychiatry* 2000;157:1858–1863. [PubMed: 11058486]
- Ho B, Nopoulos P, Flaum M, Arndt S, Andreasen NC. Two-year outcome in first-episode schizophrenia: Predictive value of symptoms for quality of life. *Am J Psychiatry* 1998;155:1196–1201. [PubMed: 9734542]
- Jacobson N, Greenley D. What is recovery? A conceptual model and explication. *Psychiatr Serv* 2001;52:482–485. [PubMed: 11274493]
- Kay SR, Fiszbein A, Opler LA. The Positive and Negative Syndrome Scale (PANSS) for schizophrenia. *Schizophr Bull* 1987;13:261–276. [PubMed: 3616518]
- Kirkpatrick, B.; Buchanan, RW.; Alphas, LD.; McKinney, PD.; Carpenter, WT. *The Schedule for the Deficit Syndrome*. Maryland Psychiatric Research Center; Baltimore, Maryland: 2001.
- Lieberman J, Alvir J, Woerner M, Degreef G, Bilder RM, Ashtari M. Prospective study of psychobiology in first-episode schizophrenia at Hillside Hospital. *Schizophr Bull* 1992;18:351–371. [PubMed: 1411327]
- Lieberman JA, Perkins D, Belger A, Chakos M, Jarskog F, Boteva K, Gilmore J. The early stages of schizophrenia: Speculations on pathogenesis, pathophysiology, and therapeutic approaches. *Biol Psychiatry* 2001;50:884–897. [PubMed: 11743943]
- Malla AK, Norman RMG, McLean TS, McIntosh E. Impact of phase-specific treatment of first episode psychosis on Wisconsin Quality of Life Index (client version). *Acta Psychiatr Scand* 2001;103:355–361. [PubMed: 11380305]
- McGorry PD, Edwards J, Mihalopoulos C, Harrigan SM, Jackson HJ. EPPIC: An evolving system of early detection and optimal management. *Schizophr Bull* 1996;22:305–326. [PubMed: 8782288]
- Nemoto T, Kashima H, Mizuno M. Contribution of divergent thinking to community functioning in schizophrenia. *Prog Neuropsychopharmacol Biol Psychiatry* 2007;31:517–524. [PubMed: 17218048]
- Penn DL, Waldheter EJ, Perkins DO, Mueser KT, Lieberman JA. Psychosocial treatment for first-episode psychosis: A research update. *Am J Psychiatry* 2005;162:2220–2232. [PubMed: 16330584]
- Ramsay CE, Goulding SM, Broussard B, Cristofaro S, Abedi G, Compton MT. From Handcuffs to Hallucinations: Prevalence and Psychosocial Correlates of Prior Incarcerations in an Urban, Predominantly African American Sample of Hospitalized Patients with First-Episode Psychosis. 2009 (submitted).
- Saraswat N, Rao K, Subbakrishna DK, Gangadar BN. The Social Occupational Functioning Scale (SOFS): a brief measure of functional status in persons with schizophrenia. *Schizophr Res* 2006;81:301–309. [PubMed: 16256309]
- Stewart T, Goulding SM, Pringle M, Esterberg ML, Compton MT. A Descriptive Study of Nicotine, Alcohol, and Cannabis Use in Urban, Socially Disadvantaged, Predominantly African American Patients with First-Episode Nonaffective Psychosis. *Clin Schizophr Rel Psychoses*. 2009 (in press).
- Test, MA.; Knodler, WH.; Allness, DJ. Long-term community care through an assertive continuous treatment team. In: Tamminga, CA.; Schulz, SC., editors. *Advances in Neuropsychiatry and Psychopharmacology*. Vol. 1. Raven; New York, NY: 1991.
- Tohen M, Strakowski SM, Zarate C, Hennen J, Stoll AL, Suppes T, Faedda GL, Cohen BM, Gebre-Medhin P, Baldessarini RJ. The McLean-Harvard first-episode project: 6-month symptomatic and

functional outcome in affective and nonaffective psychosis. *Biol Psychiatry* 2000;48:467–476. [PubMed: 11018220]

Torres A, Olivares JM. Validation of the Spanish version of the social functioning scale. *Actas Esp Psiquiatr* 2005;33:216–220. [PubMed: 15999297]

Voges M, Addington J. The association between social anxiety and social functioning in first episode psychosis. *Schizophr Res* 2005;76:287–292. [PubMed: 15949660]

**Table 1**

Descriptive Statistics for SFS Subscale Scores, Internal Consistency of Subscales with Multiple Similarly Scored Items, and Correlations with SOFAS Score (n=109)

SFS Subscale	Possible Range	Observed Range	Mean±SD	Cronbach's alpha	Correlation with SOFAS Score
Social Engagement/Withdrawal	0-15	0-15	8.80±3.03	–	.33**
Interpersonal Communication	0-9	2-9	6.55±1.95	–	.17
Independence/Performance	0-39	5-39	26.35±7.36	.83	.34**
Recreation	0-45	4-39	20.82±7.03	.76	.26*
Prosocial Activities	0-66	1-46	21.17±11.44	.88	.20
Independence/Competence	0-39	0-39	34.88±5.64	.90	.07
Employment/Occupation	0-10	0-10	5.43±2.54	–	.28**

\* Correlation is significant at the .05 level;

\*\* Correlation is significant at the .01 level

Table 2

Inter-correlations between SFS Subscale Scores ( $n=109$ )

	Social Engagement/Withdrawal	Interpersonal Communication	Independence/Performance	Recreation	Prosocial Activities	Independence/Competence
Social Engagement/Withdrawal						
Interpersonal Communication	.24*					
Independence/Performance	.29***	.30***				
Recreation	.22*	.27***	.56***			
Prosocial Activities	.24*	.24*	.48***	.66***		
Independence/Competence	.05	.12	.38***	.14	.15	
Employment/Occupation	.25*	.14	.50**	.42**	.33*	.28**

\* Correlation is significant at the .05 level;

\*\*\* Correlation is significant at the .01 level

**Table 3**  
Correlations between SFS Subscale Scores and Psychopathology Symptoms (*n*=109)

	PANSS Positive Symptoms	PANSS Negative Symptoms	PANSS General Psychopathology Symptoms	CDSS Total Depression Score	BIS Insight Score
Social Engagement/Withdrawal	-.02	-.32**	-.24*	-.08	-.09
Interpersonal Communication	-.11	-.27**	-.23*	.03	-.02
Independence/Performance	-.05	-.11	-.10	-.23*	-.12
Recreation	.01	-.12	-.16	-.20*	.08
Prosocial Activities	-.02	-.09	-.18	-.23*	-.06
Independence/Competence	-.08	-.06	-.08	-.17	-.19*
Employment/Occupation	-.24**	-.21*	-.19	-.11	-.07

\* Correlation is significant at the .05 level;

\*\* Correlation is significant at the .01 level

**Table 4**Changes in SFS Subscale Scores from Initial Hospitalization to Six-Month Follow-Up ( $n=34$ )

	Mean±SD at Initial Hospitalization	Mean±SD at 6-Month Follow-Up
Social Engagement/Withdrawal	8.84±3.17	9.16±3.03
Interpersonal Communication	6.72±1.97	7.24±1.89
Independence/Performance	28.22±7.93	26.03±7.76
Recreation	21.62±6.91	19.24±5.71
Prosocial Activities	22.78±11.09	19.91±12.80
Independence/Competence	34.25±7.65	35.82±3.95
Employment/Occupation	5.63±2.93	5.12±2.60