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Absence of bias in clinician ratings of everyday functioning among African American, Hispanic and Caucasian patients with schizophrenia

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Abstract

A substantial research literature implicates potential racial/ethnic bias in the diagnosis of schizophrenia and in clinical ratings of psychosis. There is no similar information regarding bias effects on ratings of everyday functioning. Our aims were to determine if Caucasian raters vary in their ratings of the everyday functioning of schizophrenia patients of different ethnicities, to find out which factors determine accurate self-report of everyday functioning in different ethnic groups, and to know if depression has similar effects on the way people of different ethnicities self-report their current functionality. We analyzed data on 295 patients with schizophrenia who provided their self-report of their everyday functioning and also had a Caucasian clinician rating their functionality. Three racial/ethnic groups (African American (AA), Hispanic and Caucasian) were studied and analyzed on the basis of neurocognition, functional capacity, depression and real-world functional outcomes. No differences based on racial/ethnic status in clinician assessments of patients' functionality were found. Differences between racial groups were found in personal and maternal levels of education. Severity of depression was significantly correlated with accuracy of self-assessment of functioning in Caucasians, but not in AAs. Higher scores on neurocognition and functional capacity scales correlated with reduced overestimation of functioning in AAs, but not in Hispanics. This data might indicate that measurement of everyday functionality is less subject to rater bias than measurement of symptoms of schizophrenia.

Keywords

Schizophrenia; Functional capacity; Ethnicity; Clinician bias; Minorities; Latinos

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1. Introduction

Schizophrenia is a severe psychiatric disorder that affects more than 24 million adults worldwide and has an enormous personal, social and economic burden on those affected (Goldner et al., 2002). Being a condition that occurs around the world and is prevalent in all races, the relationship between ethnicity and schizophrenia has been the subject of multiple studies in recent years (Kessler et al., 2005; Hampton, 2007; Chrishon et al., 2012). Despite the United States National Comorbidity Survey Replication (NCS-R) study reporting the prevalence of schizophrenia among African Americans (AAs) and Hispanics being similar to that for Caucasian non-Hispanics (Kessler et al., 2005), various studies have documented how AAs and Hispanics are diagnosed with schizophrenia spectrum disorders more often than Caucasians (Hampton, 2007; Chrishon et al., 2012). Hampton found the increased rates for AAs being diagnosed with schizophrenia compared to Caucasians ranged from 9% to 32% (Hampton, 2007). This finding has been replicated in multiple other studies, which report differences in rates of previously identified schizophrenia among the different ethnic groups (e.g., Harvey et al., 2014). In contrast, it was found that Caucasians were more likely than AAs to being diagnosed with major depressive disorder (MDD) and bipolar disorder (BD), at increased rates ranging from 7% to 33% (Hampton, 2007; Harvey et al., 2014).

Different theories have been proposed to explain the variable prevalence of diagnoses of schizophrenia across the different ethnic groups. These range from genetic and biological grounds, to psychological, socio-economic (Rajji et al., 2009) and educational reasons (Harvey et al., 2004). Lower education, failure of marriage, homelessness and low quality of insurance coverage were factors found to be significantly associated with being diagnosed with schizophrenia spectrum disorders in ethnic minority patients (Choi et al., 2012).

Clinician bias has been held responsible of this disparity as well. Trierweiler and colleagues found that clinicians appear to perceive AA patients as more paranoid and suspicious, contributing to increased rates of psychotic diagnoses (Trierweiler et al., 2000). Adebimpe (1981) attributed the increased diagnosis of schizophrenia in AAs to the cultural distance between patient and provider. stereotypes of AA psychopathology, false positive symptoms. and biased diagnostic instruments, stating that one or more of these factors may take part in the misdiagnosis. In fact, being unfamiliar with the cultural norms of AA's behavior seems to leave clinicians vulnerable to increased bias (Lawson, 1986). Using semi-structured diagnostic instruments does not completely eliminate the racial differences in prevalence of diagnoses. A study using these methods showed that the process clinicians used to link symptom observations to diagnostic constructs was different between AA and Caucasians. particularly for schizophrenia (Neighbors et al., 2003).

The diagnosis and assessment of schizophrenia becomes complex by the fact that patients demonstrate poor insight-a lack of awareness of their illness. Several areas are affected, including awareness of symptoms (Amador et al., 1994; Gould et al., 2013), cognitive abilities (Medalia and Thysen, 2008; Durand et al., 2015), and functional skills and readiness to work (Bowie et al., 2007; Sabbag et al., 2011; Harvey and Strassnig, 2012). Patients tend, on average, to underestimate the severity of their symptoms and to overestimate their everyday functioning. Recently, our group found that higher levels of

depressive symptoms in people with schizophrenia were associated with less overestimation of everyday functioning and negative symptoms associated with greater overestimation of everyday functioning compared to clinician ratings (Sabbag et al., 2012).

Although the research on ethnic and racial differences has suggested variations in interpretations of symptom presentation, there has been little research on clinician impressions of everyday functioning. In other words, are clinicians more likely to view racial or ethnic minorities as more disabled, in addition to more paranoid or otherwise symptomatic? Such ratings could lead to patients being seen as overestimating their potential, while in fact their potential is being underestimated by clinician raters of racial and ethnic backgrounds that are different from the patients.

We analyzed data collected in the Validation of Everyday Real-World Outcomes (VALERO) study parts 1 and 2 (Harvey et al., 2011; Leifker et al., 2011; Durand et al., 2015), a set of studies aimed at understanding self-assessment in people with schizophrenia using clinician raters as a reference point. A significant number of patients with schizophrenia of different ethnic backgrounds, including AAs, Hispanics, and non-Hispanic Caucasians participated in these two studies. All clinicians and raters who provided impressions of everyday functioning were Caucasian. We capitalized on this opportunity and decided to build on previous findings in order to answer the following questions: (a) Are there any differences in the ratings of everyday functioning that Caucasian raters give to patients with schizophrenia who vary in their ethnic backgrounds? (b) Which factors determine accurate self-report in the different ethnic groups, in terms of their life history, educational attainment and academic capability? (c) Would depression differentially affect the way people of different ethnicities self-report their functionality? As we had objective performance-based information about cognition and functional capacity, we were able to relate both self-reports and clinician ratings to these reference points. It was our hypothesis that racial and ethnic minorities might be rated as more disabled compared to performance-based indices of their actual ability, in line with previous research in symptomatic ratings of these patient populations.

2. Methods

2.1. Participants

The data are part of two study cohorts collected in three different geographical areas, aimed at identifying the correlates of functional status as well as the optimal method for rating everyday functioning among schizophrenia outpatients. The methods used to collect these samples were described in previous papers (Harvey et al., 2011; Durand et al., 2015). The study participants were outpatients with schizophrenia or schizoaffective disorder receiving treatment at one of several service delivery systems in Atlanta, Miami, and San Diego. Atlanta patients were either recruited via a private psychiatric rehabilitation program (Skyland Trail) or from the outpatient population at the Atlanta Veterans Affairs (VA) Medical Center. San Diego patients were recruited from the University of California at San Diego (UCSD) Outpatient Psychiatric Services clinic, a large public mental health clinic, from other local community clinics or by self-referral. Miami patients were recruited from the outpatient services at the University of Miami, Miller School of Medicine. All research

participants provided signed informed consent according to standards approved by the responsible local Institutional Review Boards.

Patients were participants in one of two phases of the VALERO study parts 1 or 2. These data were collected between July 2007 and July 2012. All subjects completed a structured diagnostic interview for diagnostic verification, administered by a trained interviewer. The Structured Clinical Interview for the DSM ([SCID]; First et al., 1996) was used at the Atlanta sites and the Mini International Neuropsychiatric Interview, 6th Edition ([MINI]; Sheehan et al., 1998) in San Diego and Miami. All diagnoses were verified in local consensus procedures. Screening also included global cognitive impairments and premorbid functioning measured with the Mini-Mental State Examination ([MMSE]; Folstein et al., 1975) and the Wide Range Achievement Test, 3rd Edition ([WRAT-III]; Jastak and Wilkinson, 1984) Recognition Reading subtest. Patients were excluded for a history of traumatic brain injury, brain disease such as seizure disorder or neurodegenerative condition, an MMSE score below 18, or the presence of another DSM-IV-TR diagnosis that would exclude the diagnosis of schizophrenia. To capture a comprehensive array of participants reflective of real-world realities, comorbid substance use disorders were not an exclusion criterion. Rather, patients who appeared intoxicated were rescheduled. No inpatients were recruited, but patients who resided in a variety of residential facilities including unsupported, supported or supervised facilities were eligible. Informants were not screened for psychopathology or substance abuse.

We also collected demographic information, participants were asked to self-report their racial and ethnic backgrounds and also informed us about personal and maternal educational attainment. After screening, the test battery was completed in a fixed order, namely, functional skills assessment followed by a cognitive test battery and a symptom interview. All raters received extensive training in performing all of the assessments, and every three months their performance was re-evaluated. In VALERO 1, high contact clinicians and relatives or friends of the patients provided information to a clinical rater who generated ratings of everyday functioning. In VALERO 2, the data from a high contact clinician was the source of information. Clinicians simply completed the questionnaire rating scale with no interview and no instructions about how to generate ratings.

2.2. Functional measures

2.2.1. Neurocognition—We examined neuropsychological performance with a modified version of the Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS) consensus cognitive battery (MCCB). For this study, we did not include the social cognition measure from the MCCB, the Mayer–Salovey–Caruso Emotional Intelligence Test—Managing Emotions, because meta-analytic studies have indicated that social cognition manifests a different relationship to everyday outcomes compared to neurocognition (Fett et al., 2011). This minor modification of the MCCB makes the results similar to previous work, such as our own, which did not include social cognition measures (Bowie et al., 2007). We calculated a cognitive composite score, an average of 9 age-corrected T-scores based on the MCCB normative program.

2.2.2. Functional capacity—We administered the brief version of the UCSD Performance-based Skills Assessment (UPSA-B; Mausbach et al., 2007) as our functional capacity measure. The UPSA-B is a measure of functional capacity in which patients are asked to perform everyday tasks related to communication and finances. During the *Communication* subtest, participants role-play exercises using an unplugged telephone (e.g., making an emergency call; dialing a number from memory; calling to reschedule a doctor's appointment). For the *Finance* subtest, participants count change, read a utility bill and write and record a check for the bill. The UPSA-B requires approximately 10 min, and raw scores are converted into a total score ranging from 0 to 100, with higher scores indicating better functional capacity.

2.2.3. Real-world functional outcomes—As a measure of real world functional performance, the Specific Levels of Functioning (SLOF) was used (Schneider and Struening, 1983). As we previously found in the initial phase of the VALERO study (Harvey et al., 2011), everyday functioning rated with multiple rating scales was related to performance-based assessments of cognition and functional capacity. Of those examined, the SLOF was shown to be the best measure of real world functioning due to its optimal individual correlation with the ability measures. For the analyses in this study, we used the everyday activities, vocational functioning, and interpersonal relationships subscale. The VALERO RAND panel believed that the other two subscales from the SLOF, Personal Care and Social acceptability should be excluded, because personal care measures very basic ADLs and social acceptability measures disruptive behavior.

2.3. Psychopathology measures

The Beck Depression Inventory II (BDI-II; Beck et al., 1996) is comprised of a 21-item self-report inventory to assess attitudes and severity of depressive symptoms with higher total scores being indicative of higher severity of depressive symptoms.

3. Results

A total of 405 cases were in the database for this study, ages ranging from 18 to 65 ($M=43$). In the two databases, there were a number of cases where their clinicians stated that they were unable to report on some elements of the SLOF Community Activities subscale. Rather than impute scores based on means or some other procedure, we conducted these analyses with the remaining 295 subjects.

The participant population consisted of 67% males and 33% females. Demographic information is presented in Table 1. The ethnic breakdown of our participants was 43% Caucasian, 35% AA, 15% Hispanic and 7% unknown. We found several performance-based and demographic differences between the three racial/ethnic groups (Table 1). One-way ANOVAs using Scheffe post hoc comparisons found statistically significant differences for personal education [$F(2, 292)=12.16$], $p<0.001$, maternal education ($F(2, 292)=20.04$), $p<0.001$, and participant performance-based academic achievement (WRAT-III scores [$F(2, 292)=13.19$]) $p<0.001$ across the three groups. The follow-up tests revealed that the Caucasian patients had higher levels of personal and maternal education, as well as higher WRAT-III scores than the other groups, who did not differ from each other. However,

scores on the BDI-II, the UPSA-B and MCCB did not differ between the samples, all $F(2.292) < 2.68$, all $p > 0.05$.

The clinician ratings of the SLOF subscales are presented in Table 2. One-way analysis of variance (ANOVA) across Caucasian, AA, and Hispanic groups of the SLOF subscales yielded no statistically significant differences. Post hoc comparisons using Scheffe further substantiated that there were no racial/ethnic-based differences in the clinician ratings of the three subscales (Table 2).

Difference scores were computed for the three clinician and patient rated SLOF subscales, subtracting clinician/interviewer ratings from patient self-reports. These difference scores are presented in the bottom of Table 2. One-way analysis of variance (ANOVA) across Caucasian, AA, and Hispanic groups of the SLOF difference scores subscales yielded no statistically significant differences. Pearson correlations with the BDI-II and the performance-based measures were computed in each of the racial/ethnic groups. These correlations are presented in Table 3.

Higher BDI-II scores were significantly correlated with reduced over estimation of functioning for all three subscales in the Caucasian group and two out of three subscales in the Hispanic sample, but not at all in the AA group. Higher scores on the UPSA-B and MCCB were correlated with reduced over-estimation of functioning for all three subscales in the AA group, in two out of three subscales in the Caucasian group, but not at all in the Hispanic group.

4. Discussion

Despite the large body of literature that substantiates biases in diagnosis of schizophrenia and overrating of clinical symptoms due to cultural distance between the clinician and the patient, we found no ethnic based rating discrepancies in our analyses. In our sample of 295 patients, where every clinician rating the patients was Caucasian, the assessment of the patients' functionality unveiled no differences in the ratings across the three ethnicities. Further, even though some demographic differences may have been due to early life disadvantages (i.e. reduced maternal education and reading skills) in the Hispanic and African-American samples, there were no differences in the performance-based tests of cognition and functional capacity across the three groups.

The lack of difference in SLOF ratings across the racial/ethnic samples cannot be attributed to low statistical power. The only subscale where one group differed from another by even one point was work skills, where the Caucasian patients were rated as one point better than the Hispanic patients.

Differences have been found among the symptoms reported by patients from different ethnicities. As several studies have shown, African American patients report more severe and more frequent hallucinations and paranoid symptoms than Caucasians (Adebimpe, 1981; Strakowski et al., 1996; Arnold et al., 2004). Another study reported Mexican-American patients with schizophrenia were more likely to report physical symptoms than Caucasians (Weisman et al., 2000).

These findings are supported by studies showing how, when assessing patients with schizophrenia, racial differences tend to decrease between AAs and Caucasians when strict adherence to diagnostic criteria is exercised and performance-based measures are collected (Simon et al., 1973; Mukherjee, 1983). Moreover, a more recent study (Bae and Brekke, 2002) showed that when using the Brief Psychiatric Rating Scale (BPRS) to generate structured ratings of symptom severity in a group of AA, Hispanic and Caucasian schizophrenia patients, no ethnic differences were found. The data found in our study and these others may suggest that increased objectivity in ratings, including everyday functioning and structured assessments of clinical symptoms of schizophrenia such as hallucinations or delusions, may reduce ratings bias.

Differences were found between the racial/ethnic groups based on the level of education of the patients and their mother's education. Possibly due to special characteristics in immigration patterns seen in both states, a large number of Hispanics in California have historically presented lower educational attainment and SES than those living in Florida, where more individuals present higher SES and more educational attainment (Arias, 1986). Our findings parallel the results of a study by Harvey et al. (2003), where a cross national cognitive assessment was performed among patients with schizophrenia with the purpose of validating consistency of translated psychological tests across different languages. In countries where two languages were spoken, i.e. Canada and South Africa, no language-associated differences were found. Differences in performance between countries were reported though, and were best explained by educational differences between countries.

One of the most interesting findings in our analyses had to do with how depressive symptoms displayed a very different relationship with self-assessment in the three ethnic groups. For Caucasians, more accurate self-report was strongly associated with more significant depression symptoms in all three subscales (work, activities and interpersonal functioning). In contrast, for the AA group, depression was not at all significant in influencing their self-assessment. This difference could be explained by the differences in lifelong SES among participants as well as differences in the way they perceive their level of opportunities, experiences, and the transition from being healthy to being ill. Individuals with a greater history of social and financial deprivation may experience less of a social status decline after the development of schizophrenia. The AA population recruited in Atlanta was less affluent economically than the Caucasian participants from Atlanta, who were seen at a private rehabilitation facility. Additionally, many of the AAs were patients at the VA Hospital, where they normally receive social and mental health services and financial assistance not commonly available to the nonveteran population. It is interesting to note our previous findings that the patients attending the rehabilitation facility-mainly Caucasians-had completed less education than their mothers, while the VA patients-mainly AAs-had completed more (Vargas et al., 2014). In that study we found that differences between personal and maternal education predicted the difference in status between best and latest jobs, with greater reduction from maternal educational attainment more strongly predicting a lifelong history of downward vocational drift. We also found the VA patients were more likely to be living independently and were performing better on measures of functional capacity compared to their lifetime educational attainment.

In summary, we found no evidence of racial/ethnic bias in functional status ratings. We also found no performance-based differences in ability measures relevant to schizophrenia, although the groups did differ in their personal and familial educational attainment. Depression exerted different influences on self-assessment across the groups, and we speculate that individuals who experience greater levels of lifelong deprivation may have different standards or reference points for self-assessment than individuals whose illness is associated with greater social and vocational downward drift.

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Table 1

Demographic and Clinical Variables in Patient Samples with Schizophrenia.

Race/ethnic group	<i>n</i> =295								
	<i>n</i>	%							
Caucasian	128	43							
African American	102	35							
Hispanic	43	15							
Unknown	22	7							
Gender distribution	<i>n</i>								
		%							
Male	198	67							
Female	97	33							
Variable	Caucasian		African American		Hispanic		<i>df</i>	<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Personal education (years)	13.08	2.61	12.25	2.02	11.81	2.11	(2.292)	7.04	.001
WRAT-III reading	47.26	4.89	43.97	5.65	44.55	6.71	(2.292)	12.78	<.001
Mother's education (years)	14.21	2.99	12.24	3.12	11.35	4.13	(2.292)	17.35	<.001
BDI-II scores	14.46	11.07	16.21	11.72	13.38	10.42	(2.292)	1.36	.257
UPSA-B	75.89	12.34	74.14	14.47	70.75	18.19	(2.292)	2.42	.090
Global NP	38.99	7.77	36.48	6.16	38.06	7.53	(2.292)	4.09	.018

M – mean, *SD* – standard deviation, WRAT-III – wide range achievement test 3rd edition, BDI-II – Beck Depression inventory II, UPSA-B – UCSD performance-based skills assessment, NP – neuropsychological performance.

Table 2

Real-World Functional Outcomes Clinician Ratings.

	<u>Caucasian</u>		<u>African American</u>		<u>Hispanic</u>		<i>F</i> (2,292)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
SLOF–Interpersonal relationships subscale	24.11	5.70	23.88	6.57	23.79	6.22	.070	.932
SLOF–Activities subscale	46.88	7.45	46.48	10.54	46.29	9.72	.102	.903
SLOF–Work skills subscale	22.81	4.85	21.64	5.84	21.38	4.87	2.23	.110
Differences between Patient reports and Clinician ratings								
SLOF–Interpersonal relationships subscale	–1.31	6.03	1.78	7.20	–.76	6.12	.427	.653
SLOF–Activities subscale	–2.40	8.83	–1.76	11.88	–3.28	10.25	.376	.687
SLOF–Work skills subscale	–1.62	5.26	–2.10	6.47	–3.65	5.62	2.16	.117

M – mean, SD – standard deviation, SLOF – specific levels of functioning scale.

Table 3

Pearson Correlations of the Clinical and Performance Based Variables with SLOF Difference Scores.

	<u>UPSA-B</u>		<u>Global NP</u>		<u>BDI-II</u>	
	r	p	r	p	r	p
Caucasian						
SLOF Work Diff	-0.15	0.071	-0.09	0.279	-0.24	0.003**
SLOF Activities Diff	-0.26	0.002**	-0.38	0.001***	-0.33	0.000***
SLOF Interpersonal Diff	-0.17	0.035*	-0.18	0.032*	-0.29	0.000***
African American						
SLOF Work Diff	-0.24	0.006**	-0.23	0.009**	-0.14	0.127
SLOF Activities Diff	-0.20	0.027*	-0.23	0.011*	-0.06	0.558
SLOF Interpersonal Diff	-0.21	0.016*	-0.24	0.007**	-0.07	0.445
Hispanic						
SLOF Work Diff	-0.20	0.160	-0.08	0.592	-0.37	0.008**
SLOF Activities diff	-0.09	0.534	-0.03	0.825	-0.37	0.012*
SLOF Interpersonal Diff	-0.23	0.109	-0.05	0.76	-0.14	0.32

SLOF – specific levels of functioning scale, Diff – difference scores between patients and clinicians, UPSA-B – UCSD performance-based skills assessment, NP – neuropsychological performance, BDI-II – Beck Depression Inventory II.

Significant differences among groups: *, **, and ***. All correlations have an n of 295.

*
p < 0.05.

**
p < 0.01.

p < 0.0001.