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## Interviewer-Perceived Honesty Mediates Racial Disparities in the Diagnosis of Schizophrenia

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### Abstract

**Objective**—African Americans are disproportionately diagnosed with schizophrenia, and the factors that contribute to this disparity are poorly understood. This study utilized data from the 1995 MacArthur Violence Risk Assessment Study to examine the impact of racial differences in sociodemographic characteristics, clinical presentation, and research interviewer perceptions of honesty on disparities in the diagnosis of schizophrenia in African Americans.

**Method**—African Americans ( $n = 215$ ) and whites ( $n = 537$ ) with severe mental illness receiving inpatient care were administered structured diagnostic, sociodemographic, and clinical measures during hospitalization. Assessments of interviewer-perceived honesty during diagnostic interviews were used to characterize interviewer perceptions of the patient, and their impact on racial disparities in the diagnosis of schizophrenia.

**Results**—African Americans were over three times as likely to be diagnosed with schizophrenia ( $n = 97$ , 45%) compared to whites ( $n = 101$ , 19%). Disparities in sociodemographic and clinical characteristics modestly contributed to disparities in diagnostic rates. In contrast, interviewer-perceived honesty proved to be a significant predictor of racial disparities in schizophrenia diagnoses that when accounted for, substantially reduced diagnostic disparities between African Americans and whites. Mediator analyses confirmed that interviewer-perceived honesty was the only consistent mediator of the relationship between race and schizophrenia diagnosis.

**Conclusions**—Interviewer perceptions patient honesty are important contributors to disparities in the diagnosis of schizophrenia among African Americans, and may be reflective of poor patient-clinician relationships. Methods of facilitating a trusting relationship between patients and clinicians are needed to improve the assessment and treatment of minorities seeking mental health care.

Disparities in mental health services and outcomes among racial minorities have been widely documented across a range of psychiatric conditions (1,2), including those who experience schizophrenia (3). These disparities have been particularly prominent among African Americans, who receive less mental health services (4), more coercive methods of care (5,6,7,8), and poorer quality of treatment (9,10). Not surprisingly, such differences in the quality and nature of mental health services received by African Americans have led to significantly poorer outcomes in this population (11).

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One of the most striking and consistent disparities observed among African Americans seeking mental health services is the increase in diagnosis of schizophrenia (12,13,14,15,16,17). This phenomenon exists despite the absence of unique genetic evidence to indicate a true increase in prevalence among this population (18,19), although some increase in prevalence may be due to greater environmental risk factors (20). Bias in the diagnosis of schizophrenia in African Americans has the potential to have a monumental impact on care, as indicated approaches for psychotic versus mood disorders vary considerably and the receipt of an unneeded antipsychotic treatment regimen has the potential to have severe adverse consequences (21). As such, an important priority in reducing disparities in mental health outcomes among African Americans has been understanding and reducing diagnostic bias when such individuals seek care.

Unfortunately, remarkably little is known about the contributors and potential mechanisms behind the over-representation of schizophrenia diagnoses in the African American community. Consideration of the sources of diagnostic bias in this population have primarily examined differences in the sociodemographics and the clinical presentation of individuals seeking care, and have continued to find increased diagnoses of schizophrenia in African Americans after adjusting for differences in socioeconomic status (12,22) and symptomatology (17). Recently, investigators have begun to turn their attention more toward clinician behavior and characteristics in locating potential racial biases in the diagnosis of schizophrenia. Evidence suggests that clinicians use different symptom criteria when making schizophrenia diagnoses in African Americans (23), which is not remediated by the use of a structured clinical interview (24). Further, increased diagnosis appears to be equally prevalent among African American and white clinicians (25). Clinicians also appear to perceive African American clients as more paranoid and suspicious in general (17, 26), which could contribute to elevated rates of psychotic diagnoses. Indeed, recent popular literature has extensively discussed how schizophrenia became a “black” diagnosis, in part due to cultural mistrust and perceived obstinance by whites (27). Currently, however, little empirical data exists examining the impact of factors that may be reflective of the patient-clinician relationship, such as clinician perceptions of honesty and trust, on disparities in the diagnosis of schizophrenia in African Americans.

This study sought to investigate the degree to which sociodemographic characteristics, clinical presentation, and interviewer perceptions of patient honesty served as mechanisms of racial disparities in diagnostic rates of schizophrenia. It was hypothesized that differences between African Americans and whites with regard to sociodemographic and clinical presentation upon hospital admission would contribute to the over-representation of African Americans diagnosed with schizophrenia. In addition, we hypothesized that independent of any differences in clinical presentation, interviewer-perceived honesty of the patient would also contribute significantly disparities in schizophrenia diagnoses.

## Methods

### Participants

Participants consisted of 752 individuals with a major depressive disorder ( $n = 432$ ), schizophrenia or schizoaffective disorder ( $n = 198$ ), or bipolar disorder ( $n = 122$ ) enrolled in the multi-site MacArthur Violence Risk Assessment Study (28). While data collection was completed in 1995 using the DSM-III-R diagnostic system, this study conducted uniquely in-depth research assessments across a large number of participants, including assessments of research interviewer perceptions of their interactions with participants, oversampled African Americans, and collected both independent research and chart diagnostic data that allowed for a comprehensive examination of racial disparities in the diagnosis of schizophrenia across multiple methodologies. Individuals were recruited from psychiatric

inpatient units in three major metropolitan areas (Pittsburgh, Pennsylvania; Worcester, Massachusetts; Kansas City, Missouri). Eligibility criteria consisted of a chart diagnosis of a severe mental illness (i.e., schizophrenia, schizophreniform disorder, schizoaffective disorder, major depressive disorder, dysthymic disorder, bipolar disorder, brief reactive psychosis, delusional disorder, substance abuse or dependence, or a personality disorder), current hospitalization for less than 21 days, age 18 to 40, and the ability to read and speak fluent English. The parent study recruited 1695 patients, and a total of 1136 (67%) participants were enrolled in the study. However, since this research focused on investigating racial disparities in schizophrenia-spectrum versus major mood disorders, only individuals diagnosed with schizophrenia, schizoaffective, major depressive, or bipolar disorder ( $N = 752$ ) were included. In addition, the limited number of Hispanic individuals in the sample ( $n = 21$ ) precluded their inclusion in this investigation. Included participants were on average  $29.99 \pm 6.20$  years of age, half (54%) were male, and 29% were African American. Over half of individuals had never been married (58%), most (75%) had been hospitalized for a psychiatric condition previously, and the majority (72%) were currently hospitalized voluntarily.

## Measures

**Psychiatric Diagnosis**—Principal psychiatric diagnoses were obtained for the study using two separate methods. The first consisted of a thorough review of psychiatric records to obtain the latest clinic diagnosis of the participant. The second method employed a research diagnostic interview using the DSM-III-R Checklist (29), which consists of a structured interview and checklist of diagnostic symptoms of DSM disorders. The interview covers all Axis I diagnostic categories, and most importantly does not allow interviewers to circumvent certain diagnostic categories based on their own judgments or information they are receiving during the interview. This is accomplished by requiring interviewers to review all inclusion and exclusion criteria for all Axis I disorders in the DSM during their interview. The DSM-III-R Checklist has been validated for diagnosing psychiatric disorders (29,30,31), and successfully used in previous studies of racial disparities in psychiatric diagnosis (23).

**Psychiatric Symptomatology**—Psychopathology was assessed using the Brief Psychiatric Rating Scale (BPRS; 32) and the Auditory Hallucinations Schedule (28). The BPRS is a widely-used measure of psychiatric symptomatology that has good psychometric properties (33), with higher scores reflecting greater levels of symptomatology. The Auditory Hallucinations Schedule is a semi-structured interview designed to characterize auditory hallucinations in individuals with psychotic conditions, and was used to establish the presence of auditory hallucinations. Finally, the presence of delusions was assessed during the DSM-III-R Checklist.

**Interviewer-Perceived Honesty**—To obtain information on the interaction between the interviewer and the patient during diagnostic and clinical assessments, interviewers completed a questionnaire after conducting their interviews. This questionnaire was originally completed for quality assurance purposes and consisted of ratings of the perceived honesty of the patient during the interview. Such information provided a unique opportunity to begin to examine the impact of the patient-clinician interaction on diagnostic decisions. Perceived honesty ratings were made using a 5-point scale ranging from 1 (honest) to 5 (untruthful) in response to the question, “Did the subject appear to be answering honestly?”, and were completed separately for diagnostic, delusion, and hallucination assessments. Ratings of perceived honesty during these interviews were highly interrelated, and thus averaged. The resulting interviewer-perceived honesty scale combining these ratings demonstrated excellent internal consistency ( $\alpha = .87$ ).

**Socioeconomic Status**—Hollingshead and Redlich's index was used to measure socioeconomic status by taking into account pre-hospitalization education and occupation, with higher scores indicating greater socioeconomic status (34).

## Procedures

Upon recruitment from inpatient units, participants were assessed by research interviewers using the aforementioned measures while hospitalized. Careful attention was paid to ensure that individuals were capable of providing informed consent to participate in the study, as well as capable of completing the study assessments. This study was approved and reviewed annually by the Institutional Review Board of each study site, and all enrolled individuals provided written, informed consent prior to participation.

## Data Analysis

Racial disparities in the diagnosis of schizophrenia and the potential contributors to these disparities were investigated by first examining differences in diagnostic rates of schizophrenia between African Americans and whites. Next, the presence of systematic differences in demographic, clinical, and interviewer-perceived honesty characteristics between races were examined using independent *t*-tests or Fisher's exact test for categorical variables. Areas of significant differences between African Americans and whites were considered as potential contributors to the effects of race on the diagnosis of schizophrenia, and their contribution to a schizophrenia diagnosis was then examined using a series of logistic regression models. Finally, for variables that demonstrated significant associations with both race and a schizophrenia diagnosis, and were temporally intermediate between racial status and psychiatric diagnosis, multiple mediation models were examined to assess the indirect effect of race on schizophrenia diagnosis through sociodemographic, clinical and perceived honesty characteristics using Baron and Kenny's approach (35). The indirect effect of race on outcome through the mediator was subsequently calculated using the product of coefficients method (35), and the significance of indirect effects tested using the asymptotic *z'* test for indirect effects outlined by MacKinnon and colleagues (36).

## Results

### Racial Disparities in the Diagnosis of Schizophrenia

We began our analysis of racial disparities in the diagnosis of schizophrenia by first examining differences between African Americans and whites with regard to diagnostic rates of the disorder, as well as clinical and demographic characteristics. As can be seen in Table 1, while 19% of the white sample received a research diagnosis of schizophrenia or schizoaffective disorder nearly half (45%) of the African American sample was diagnosed with these conditions. This difference in diagnostic rates of schizophrenia-spectrum disorders represents over a threefold increase among African Americans compared to whites, and was of similar magnitude when examining non-research chart diagnoses. Significant differences between races were also clearly present in a variety of sociodemographic and clinical characteristics. African Americans in the sample were slightly older and had lower socioeconomic status. Further, African Americans trended to experience greater rates of hallucinations and delusions, as well as substance use problems, and greater levels of psychiatric symptomatology, particularly with regard to thought disturbance. In addition to these disparities in sociodemographic and clinical characteristics, interviewers consistently perceived African Americans to be less honest during diagnostic interviews compared to whites.

## Mechanisms of Racial Disparities in the Diagnosis of Schizophrenia

After observing a markedly elevated rate of schizophrenia-spectrum disorders in African American patients, as well as racial disparities in a number of demographic and clinical characteristics, a series of logistic regression models were conducted to examine the degree to which disparities in sociodemographic and clinical characteristics contributed to the increased diagnosis of schizophrenia in African Americans. Results revealed numerous predictors of the diagnosis of schizophrenia, both from chart and research diagnostic assessments (see Table 2). Older individuals who had never been married were significantly more likely to be diagnosed with schizophrenia, but socioeconomic status was an inconsistent predictor of a schizophrenia diagnosis. As expected, individuals experiencing delusions and other schizophrenia symptomatology (e.g., thought disturbance and anergia) were more likely to be diagnosed with the disorder. While these demographic and clinical characteristics were highly significant predictors of a schizophrenia diagnosis, being African American continued to place individuals at an over three-fold risk of receiving a research diagnosis of schizophrenia, after adjusting for these clinical and demographic predictors.

Given that clinical and demographic characteristics could not account for the increased diagnosis of schizophrenia in African Americans, perceived honesty during the research interview was sought as a potential stronger contributor. As can be seen in Table 2, individuals were nearly 1.5 times as likely to receive a schizophrenia diagnosis if the interviewer perceived them to be dishonest during diagnostic assessments. Further, after adjusting for the impact of perceived honesty, the effect of being African American on receiving a diagnosis of schizophrenia was markedly reduced for research diagnoses and no longer statistically significant for chart diagnoses. Mediator analyses presented in Table 3 indicated that few sociodemographic or clinical characteristics significantly mediated the effect of race on the diagnosis of schizophrenia. The presence of auditory hallucinations significantly mediated the effect of race on research diagnoses of schizophrenia, but not chart diagnoses; and the absence of substance abuse significantly mediated the effect of race on chart diagnoses of schizophrenia, but not research diagnoses. In contrast, interviewer-perceived honesty represented the strongest and only consistent mediator of racial disparities in the diagnosis of schizophrenia across diagnostic methodologies. Taken together, these findings indicate that clinician perceptions of honesty and the relationship between the interviewer and patient are important and potentially unique contributors to racial disparities in the diagnosis of schizophrenia.

## Discussion

Disparities related to access, availability and quality of mental health services and treatment among African Americans have been repeatedly documented (1,3). One of the most consistent disparities that has the potential to significantly impact mental health outcomes among this population is the increase in the diagnosis of schizophrenia in African Americans (16,17). To date, however, few studies have examined the potential mechanisms driving this diagnostic disparity. We investigated the degree to which sociodemographic, clinical, and interviewer-perceived honesty characteristics each independently served as contributing mechanisms to the diagnosis of schizophrenia in African Americans. As predicted, among the strongest contributors to racial disparities in the diagnosis of schizophrenia was whether or not the research interviewer perceived the participant to be honest and trustworthy in their interaction. Further, interviewer-perceived honesty proved to be the only consistent mediator of the increased diagnosis of schizophrenia in African Americans. These findings point to the potential importance of the patient-clinician relationship in contributing to race-related disparities in the diagnosis of schizophrenia, which appears to impact such disparities as much, if not more so than the clinical presentation of the patient.

Studies of racial disparities in mental health diagnoses have consistently underscored the potential importance of the patient-clinician relationship (17,23,25). The findings of this research are the first to document directly that perceived honesty during diagnostic interviews is an important mediator of racial disparities in the diagnosis of schizophrenia, and indicate that a fundamental challenge to psychiatric assessment in African Americans is developing a trusting, open, and collaborative relationship, which others have noted as essential for effective care with minority populations (37,38). Unfortunately, the context of a diagnostic assessment often poses some unique challenges to developing a trusting therapeutic relationship with patients, as assessments are commonly conducted in a single session by a clinician who has only just met the patient, and frequently must be rendered quickly in order to support an inpatient admission or other immediate referral. Future research efforts might profitably employ a longitudinal diagnostic assessment system that emphasizes developing an empathic trusting relationship between the patient and clinician.

Although this research has several implications for how to address racial disparities in the diagnosis of schizophrenia, such implications need to be understood in the context of a number of limitations. First, assessments of patient-clinician trust and interactions were limited to a single measure of perceived honesty on the part of the interviewer, which were based on a small number of ratings from diagnostic and assessment interviews. Although this measure demonstrated good internal consistency, an important limitation was the absence of information from the patient on his/her perceptions of the interaction. There are many reasons why a patient might be perceived as not being completely honest and forthcoming, and without the perspective of the patient and further examination of the patient-clinician interaction such reasons remain elusive. One possibility is that African Americans were completely honest during the interviews, but that clinicians held a racial bias in perceptions of honesty. It is also possible that the greater ratings of dishonesty in African Americans does not reflect perceptions of untruthfulness, but rather the increased presentation of unusual or inconsistent information, as is common in schizophrenia. It will be important for future studies to examine more comprehensively the patient-clinician relationship to clarify sources of mistrust and interviewer biases. In addition, this study only examined perceived honesty on the part of the research interviewer, and thus these findings may not generalize to non-research settings. While interviewer-perceived honesty was related to increased diagnoses of schizophrenia in both structured research interviews, as well as chart diagnoses, future studies are needed to examine the impact of perceptions of honesty and the patient-clinician relationship outside of a research setting. Second, psychiatric diagnoses were based upon the DSM-III-R system, which may have affected our findings. When data were collected for this study, the DSM-III-R was the diagnostic standard at the time, and while important changes were introduced into the DSM-IV, few differences exist between the diagnostic classification of schizophrenia in the DSM-III-R and current DSM-IV-TR. In addition, studies based on DSM-IV also continue to document disparities in the diagnosis of schizophrenia among African Americans at similar rates as observed in this study (39). As such, these findings are not likely to be appreciably affected by changes in the diagnostic criteria for schizophrenia. Third, disparities in quality of care could have also contributed to the over-representation of African Americans with schizophrenia in this inpatient sample, although previous studies have also suggested racial disparities in schizophrenia diagnoses in outpatient settings (14). Finally, this study was limited to an inpatient sample, which may affect the generalizability of these findings to individuals receiving psychiatric assessments in outpatient settings. To date, the majority of studies have focused on the diagnosis of schizophrenia in inpatient or psychiatric emergency settings, and an important question remains whether racial disparities in diagnoses exist in outpatient settings where patients may have the opportunity to develop a more personal relationship with the diagnostician.

In summary, this study revealed that interviewer perceptions of honesty are significant and strong mediators of racial disparities in the diagnosis of schizophrenia in African Americans. Despite limited assessment of the patient-clinician relationship and restriction to an inpatient sample, our findings highlight the importance of understanding and seeking ways to improve the clinician-patient working alliance with ethnic and racial minority patients during psychiatric assessment to improve the care of such underserved individuals when they seek treatment.

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**Table 1**  
Demographic and Clinical Characteristics of African Americans and Whites Hospitalized for a Psychiatric Condition.

Variable	African American (N = 215)		White (N = 537)		<i>p</i> <sup>a</sup>
	N	%	N	%	
Male	121	56%	285	53%	.466
Ever Ever Married	79	37%	234	44%	.086
Involuntary Commitment	56	26%	154	29%	.529
Schizophrenia Diagnosis	97	45%	101	19%	< .001
Presence of Delusions	86	40%	164	31%	.016
Presence of Auditory Hallucinations	105	50%	178	34%	< .001
Presence of Substance Abuse	120	56%	227	42%	.001
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Age	30.69	5.89	29.71	6.30	.050
Socioeconomic Status	31.68	13.71	35.33	15.75	.003
BPRS	40.73	10.11	38.49	9.59	.005
Activation	4.34	2.09	4.36	1.91	.882
Thought Disturbance	8.82	4.92	7.15	4.50	< .001
Hostility	7.67	3.46	6.82	3.25	.002
Anergia	7.38	3.68	6.52	3.14	.001
Anxiety-Depression	12.51	5.90	13.61	5.27	.013
Perceived Honesty <sup>b</sup>	1.55	1.04	1.27	.64	< .001

Note. BPRS = Brief Psychiatric Rating Scale

<sup>a</sup>Tested using Fisher's exact test or independent samples *t*-test, two-tailed

<sup>b</sup>Scale ranges from 1 (honest) to 5 (untruthful)

**Table 2**  
 Logistic Regression Analyses Predicting Diagnosis of Schizophrenia by Race, Demographic and Clinical Characteristics, and Interviewer-Perceived Honesty.

Predictor	Research Diagnosis			Chart Diagnosis		
	B	SE	OR	B	SE	OR
Base Model						
African American	1.27	.18	3.55**	.90	.18	2.47**
Adjusting for Demographic and Clinical Characteristics						
Age	.08	.02	1.09**	.07	.02	1.07**
Ever Married	-.68	.29	.51*	-.54	.25	.58*
Socioeconomic Status	-.02	.01	.98	-.02	.01	.98*
Presence of Delusions	1.28	.37	3.61**	1.23	.32	3.42**
Presence of Auditory Hallucinations	.58	.28	1.78*	.31	.25	1.37
BPRS - Thought Disturbance	.14	.04	1.15**	.10	.04	1.11**
BPRS - Hostility	.06	.04	1.07	.01	.04	1.01
BPRS - Anergia	.26	.04	1.30**	.15	.03	1.16**
BPRS - Anxiety-Depression	-.18	.03	.83**	-.17	.02	.84**
Presence of Substance Abuse	-.24	.27	.79	-.62	.24	.54**
African American	1.18	.28	3.24**	.54	.25	1.72*
Adjusting for Demographic and Clinical Characteristics and Perceived Honesty <sup>a</sup>						
Perceived Honesty	.50	.17	1.64**	.40	.15	1.49**
African American	.99	.30	2.70**	.52	.27	1.69

Note. BPRS = Brief Psychiatric Rating Scale

<sup>a</sup> Effects of demographic and clinical characteristics are not reproduced for this model to avoid repetition

\*  $p < .05$ ,

\*\*  $p < .01$

Table 3

Mediator Analyses Examining the Effects of Race on the Diagnosis of Schizophrenia Through Sociodemographic, Clinical, and Interviewer-Perceived Honesty Characteristics.

Mediator	Research Diagnosis		Chart Diagnosis	
	Indirect Effect	$z'$	Indirect Effect	$z'$
Ever Married	.24	1.29	.14	1.14
Socioeconomic Status	.03	1.09	.03	1.11
Presence of Delusions	-.80	-1.39	-.77	-1.41
Presence of Auditory Hallucinations	.48	1.94	.25	1.33
BPRS - Thought Disturbance	.03	1.12	.02	1.04
BPRS - Hostility	.01	.51	.00	.06
BPRS - Anergia	.01	.21	.01	.21
BPRS - Anxiety-Depression	.07	.98	.06	.98
Presence of Substance Abuse	-.13	-.65	-.46	-2.12
Perceived Honesty	.08	1.98	.06	1.88

Note. BPRS = Brief Psychiatric Rating Scale