



Racial and Ethnic Diagnostic Patterns in Schizophrenia Spectrum Disorders

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Introduction

Schizophrenia is a debilitating mental illness that occurs in approximately 1 in every 100 individuals (Comer, 2015; Silverstein, Moghaddam, & Wykes, 2013) and consists of positive symptoms known as behavioral excesses (e.g., hallucinations, delusions), negative symptoms or behavioral deficits (e.g., lack of motivation, flat affect), and disorganized symptoms (e.g., disorganized behavior or speech). According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5), to meet diagnostic criteria for schizophrenia, two or more of the abovementioned symptoms must be present for at least 1 month. However, signs of the disorder must be present for a minimum of 6 months. In combination with the presence of symptoms, significant functional decline in work, social relationships, or self-care must also be indicated. Literature on the etiology of schizophrenia points to both genetic and environmental contributions to the onset of illness.

Later in the chapter, we discuss several potential environmental factors which may influence differential diagnostic patterns observed in the schizophrenia spectrum disorders. The World Health Organization (WHO), based on findings from multi-international sites, suggests that prevalence rates and manifestations of psychosis are similar worldwide (Jablensky et al., 1992; Kirkbride et al., 2012; Stilo & Murray, 2010). However, this finding has not been consistently supported. Rather, other studies suggest that worldwide, the prevalence of schizophrenia spectrum disorders may be higher in some racial/ethnic groups. This chapter reviews the literature on racial and ethnic diagnostic patterns with an attempt to identify factors that may account for this disparity. It is important to point out that the WHO multi-site studies (Jablensky et al., 1992; Sartorius et al., 1986) also indicated that patients from developing countries may have a more benign illness course, such that patients from developing countries tend to remit more quickly and require fewer hospitalizations than patients from developed countries. This topic, however, will not be addressed in the current paper as it has been tackled extensively elsewhere (e.g., Cohen, Patel, Thara, & Gureje, 2008; Haro et al., 2011; Hopper & Wanderling, 2000; Jablensky et al., 1992; Kulhara, Shah, & Grover, 2009; Weisman, 1997). This chapter will largely focus on the empirical evidence examining differential diagnostic patterns among Blacks and Whites with some attention to Hispanics/Latinos and Asians.

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As the literature is sparse regarding other racial/ethnic (e.g., Native Americans) and population subgroups (e.g., lesbian/gay/bisexual/transgender (LGBT)), findings related to these groups will not be discussed in this chapter.

This chapter will begin with a review of literature examining racial and ethnic diagnostic patterns in the United States (USA), other developed countries, and among immigrants to the USA. Literature regarding racial/ethnic differences in symptom severity and presentation will also be reviewed. We then examine potential factors, such as diagnostic decision-making, cultural mistrust, and the role of stress and environmental factors, which may contribute to the observed diagnostic discrepancies. Finally, we offer suggestions for improving diagnostic practices, such as utilization of the Cultural Formulation Interview, as well as recommendations for further research.

The terms race and ethnicity can be considered separately, with race referring to, “the category to which others assign individuals on the basis of physical characteristics, and the generalizations and stereotypes made as a result” (American Psychological Association, 2003), and ethnicity referring to a group of people that share a country of origin, language, religion, or cultural background (Rice & O’Donohue, 2002). For the purposes of this chapter, we refer to race/ethnicity broadly as these constructs are related and typically not distinguished from one another within the literature base. Relatedly, when discussing differences among racial/ethnic groups, we will generally utilize the broad terms White, Black, Hispanic/Latino, and Asian. However, when reporting results from previous studies, we will utilize the terminology designated by the authors, particularly if they are referring to a specific subset of a racial/ethnic group (e.g., Caribbean Blacks, Chinese Americans).

Diagnostic Patterns Among Racial/Ethnic Minorities in the USA

In the USA, the literature demonstrates that racial/ethnic minority patients are more likely to receive a schizophrenia spectrum disorder diag-

nosis when compared with their White counterparts. In this section, we review the empirical data examining this phenomenon in an attempt to identify potential mechanisms which may contribute to the observed racial/ethnic disparities. Three main hypotheses outlined in the literature include (1) the *clinician accuracy hypothesis*, in which different racial/ethnic groups exhibit varying levels of psychopathology which our current diagnostic procedures accurately capture, (2) the *clinician bias hypothesis*, in which all racial/ethnic groups have a similar symptom presentation but biases in diagnostic procedures yield false differences, and (3) the *cultural relativity hypothesis*, in which psychopathology manifests itself differently across racial/ethnic groups, and current diagnostic practices are not sensitive to detect these differences. The literature examining the evidence for and against the abovementioned hypotheses is reviewed below.

Utilizing data from the US Census and the Department of Mental Health ($n = 18,533$), Kposowa, Tsunokai, Butler, and Butler (2002) found that African-Americans, Asians, and Hispanics/Latinos were significantly more likely to be diagnosed with schizophrenia when compared to Whites. Similarly, a medical record review study of over 2,000 patients conducted by Choi et al. (2012) revealed that African-American and Hispanics/Latinos males were more commonly diagnosed with schizophrenia spectrum disorders when compared with Whites. A chart review study conducted by Delbello, Lopez-Larson, Soutullo, and Strakowski (2001) also observed that when compared with African-American women and White males and females, African-American males were diagnosed more frequently with schizophrenia spectrum disorders. A study conducted utilizing the National Psychosis Registry comprised of 134,523 veterans (Blow et al., 2004) found that African-Americans were more than four times as likely (4.05) and Hispanic/Latino patients were more than three times as likely (3.15) to be diagnosed with schizophrenia when compared with White patients.

While diagnostic disparities of schizophrenia spectrum disorders have been observed among

all racial/ethnic minority groups, this pattern appears most pronounced for Blacks. Reviewing data from Indiana state psychiatric hospitals over an 8-year period, Barnes (2004) found that African-Americans were four times as likely as their White counterparts to be diagnosed with schizophrenia. However, these results should be interpreted with caution, as this study did not control for potential covariates (e.g., age, gender, symptom severity, number of previous hospitalizations) that could have impacted findings. A longitudinal study (from 1981 to 1997), which followed individuals born to mothers in the USA who identified as either African-American or White, also confirms this pattern such that African-Americans were approximately three times as likely as Whites to be diagnosed with schizophrenia (Bresnahan et al., 2007). Eack and Newhill (2012) found comparable results in their sample in which African-Americans were more than three times as likely as Whites to be diagnosed with schizophrenia. A host of other studies also support this finding (e.g., Minsky, Vega, Mishkimen, Gara, & Escobar, 2003; Neighbors et al., 1999; Neighbors, Trierweiler, Ford, & Muroff, 2003; Strakowski et al., 1996; Strakowski, McElroy, Keck, & West, 1996).

While several studies demonstrate higher prevalence of schizophrenia spectrum disorders for Hispanics/Latinos as well (Blow et al., 2004; Choi et al., 2012; Kposowa et al., 2002), a handful of studies have demonstrated contradictory findings for this racial/ethnic group. For example, Minsky et al. (2003) found that both European-Americans and Hispanics/Latinos were less likely to be diagnosed with schizophrenia spectrum disorders than African-Americans. Results of this study demonstrated that Hispanic/Latino patients had diagnostic patterns more similar to Whites than to African-Americans. Thus, further research with Hispanic/Latino populations is warranted to clarify contradictory findings regarding the prevalence of schizophrenia spectrum disorders in this group. Similarly, research examining diagnostic patterns among Asians is sparse and additional research in this area is needed as well. Though further research using Hispanic/Latino and Asian populations is warranted, the bulk of the literature base, including

several studies with large samples, suggests that Blacks are more likely to receive a schizophrenia spectrum diagnosis than are Whites. The evidence for other racial/ethnic groups appears inconclusive at this time.

Diagnostic Patterns Abroad and Among Immigrants to the USA

The studies reviewed above have all been conducted in the USA. Thus, a logical next question may be, does this diagnostic disparity exist in other countries? And, what about individuals who migrate to the USA? In other words, are the differential patterns due to diagnostic practices specific to the USA or are there more universal racial/ethnic differences in prevalence rates of schizophrenia spectrum disorders?

It appears that the differential diagnostic pattern is not observed solely in the USA. A study that examined medical records from psychiatric wards of general hospitals in Montreal, Canada, and Padua, Italy, showed similar results (Jarvis, Toniolo, Ryder, Sessa, & Cremonese, 2011). The authors found that Black patients at both sites were three to four times more likely to be diagnosed with a schizophrenia spectrum disorder when compared with patients from other racial/ethnic groups. Similarly, the literature demonstrates that African and Caribbean Blacks living in England are at increased risk for both schizophrenia and mania (Sharpley, Hutchinson, McKenzie, & Murray, 2001). Importantly, the authors noted that even when adhering to strict diagnostic criteria, the higher rates of psychotic disorders among Black patients remained. Consistent with these findings, in England, Coid et al. (2008) report a raised prevalence of psychotic disorders for Blacks and other racial/ethnic minorities when compared with White, British counterparts. It should be noted that the aforementioned studies have all been conducted in developed countries. Thus, it is possible that the developed nations share a common thread, which leads to the diagnostic pattern commonly observed. However, a clear underlying cause has yet to be identified.

Cantor-Graae and Selten (2005) conducted a meta-analysis which found that a personal or family history of migration is a risk factor for the development of schizophrenia. Bourque, van der Ven, and Malla (2011) also conducted a meta-analysis which similarly found an increased risk for development of schizophrenia spectrum disorders for first-generation immigrants and that this risk persists for second-generation immigrants as well. Veling's (2014) meta-analysis also found that immigrants (both first and second generation) were at a twofold increased risk for schizophrenia spectrum disorders. Interestingly, Weiser et al. (2008) note that immigrants that differ in culture and physical appearance may be at a higher risk for development of schizophrenia. Similarly, Berg et al. (2011) found that "visible minority status" was associated with increased and more severe symptomatology.

Results suggest that post-migration factors may play a role in the development of schizophrenia spectrum disorders. Contrary to these findings, however, Snowden, Hastings, and Alvidrez (2009) compared the likelihood of lifetime psychiatric hospitalization among foreign-born Caribbean Blacks, US-born Caribbean Blacks, US-born African-Americans, and non-Hispanic Whites. They found that overall, Black patients were more likely to be hospitalized than non-Hispanic Whites. When separated out by nativity, US-born Caribbean Blacks had the greatest odds of hospitalization, followed by African-Americans. However, the odds of hospitalization for foreign-born Caribbean Blacks were considerably lower and not significantly different from the non-Hispanic Whites.

Taken together, the empirical evidence seems to clearly demonstrate that Blacks in the USA are three to four times as likely to be diagnosed with a schizophrenia spectrum disorder when compared to their White counterparts. While a similar pattern for other racial/ethnic minorities including Asian and Hispanic/Latino patients has been observed (Blow et al., 2004; Choi et al., 2012; Kposowa et al., 2002), further research with these populations is required to clarify contradictory findings. Additionally, studies from other developed countries also suggest diagnostic disparities

in racial/ethnic minority patients (Coid et al., 2008; Jarvis et al., 2011; Sharpley et al., 2001). Thus, this does not appear to be a pattern that is limited only to the USA.

Racial/Ethnic Differences in Symptomatology

When examining the literature on diagnostic disparities among racial/ethnic groups, an important question that emerges is whether differences in diagnosis are the result of racial/ethnic differences in the severity or presentation of symptoms. The WHO, among others, has suggested that there are no major racial/ethnic differences in symptom expression or in presentation of the core symptoms of schizophrenia (e.g., Hutchinson, Takei, Sham, Harvey, & Murray, 1999; Sartorius et al., 1986). However, other studies that have compared racial/ethnic groups both within countries as well as between countries, have found differing levels of symptom severity as well as different symptom expression profiles, depending on one's racial/ethnic background. For example, Chang, Newman, D'Antonio, McKelvey, and Serper (2011) found that when comparing symptom severity, Chinese Americans had the fewest symptoms and hospitalizations, whereas both African-Americans and Hispanic/Latino patients had the highest (Euro-American patient scores fell between Chinese-American and African-American and Hispanic/Latino scores). Furthermore, several studies have demonstrated that Black patients often present with greater symptom severity and are more likely than White patients to endorse experiencing Schneiderian first-rank symptoms, which include specific types of auditory hallucinations and delusions of control (e.g., Cheng & Goldstein, 2004; Ihara et al., 2009; Strakowski et al., 2003).

Strakowski and colleagues (1996) speculated that their observed differences in diagnostic patterns (African-American patients were significantly more likely than White patients to be diagnosed with schizophrenia) may have been due to African-American patients presenting with more severe first-rank symptoms. In a subsequent

study, Strakowski et al. (2003) attempted to replicate results previously found and test this hypothesis. Although first-rank symptoms were in fact more common in African-American men, Strakowski et al. (2003) report that this finding did not explain the differential diagnostic pattern. The authors speculated that differences may instead be attributed to clinician perceptions about the chronicity of psychotic symptoms, as African-Americans were perceived to be less likely to have periods of recovery. Relatedly, Arnold et al. (2004) attempted to determine whether African-Americans presented with more first-rank symptoms and whether this affected clinician diagnostic decisions. The authors were examining whether results supported the presence of “true” racial/ethnic group differences or clinician tendencies to more frequently assign first-rank symptoms to African-American patients. Results indicated that in both the race/ethnicity-blind consensus rating and unblinded structured interview conditions, African-American males had higher total psychotic scores as well as higher first-rank symptom scores when compared to Euro-American male counterparts (Arnold et al., 2004).

The literature on symptom presentation seems to suggest that different racial/ethnic groups (particularly Blacks) do in fact have differing symptom profiles. Strakowski and colleagues (1996) observed that African-American patients had symptom profiles in which they more frequently endorsed experiencing hallucinations whereas their White counterparts had increased persecutory delusions. Previous research has also demonstrated that White patients tend to express more negative symptoms and behavioral problems when compared with Black and Hispanic/Latino patients (Brekke & Barrio, 1997). Weisman et al. (2000) found differences in symptom expression in patients with schizophrenia based on race/ethnicity, such that Mexican-Americans presented with more somatic symptoms whereas their Anglo-American counterparts presented with more blunted affect and persecutory delusions. Interestingly, in a study that examined the expression of negative symptoms in Anglo-American and Mexican-American

patients with schizophrenia, the authors did not find any significant differences in negative symptom profiles (Dassori et al., 1998). Weisman de Mamani and Caldas (2013) similarly found that when comparing African-American, Hispanic/Latino, and Anglo patients, no differences were observed in negative symptoms profiles. However, African-American patients were found to have greater positive symptom severity.

Contrary to the previously discussed studies, but in line with Sartorius et al. (1986), Barrio et al. (2003) did not find any overall differences in positive, negative, or general psychopathology scores when comparing African-American, Euro-American, and Hispanic/Latino patients. However, when examining individual items, the authors found that African-Americans had higher hallucination and suspiciousness scores when compared to Euro-American patients. The authors also found that Hispanics/Latinos scored higher on the somatic concern items when compared with both Euro-American and African-American patients.

Whaley and Hall (2008) conducted a content analysis of African-American delusions and hallucinations in an attempt to better understand diagnostic racial disparities. The authors found evidence for racial/ethnic themes (i.e., racism) present within African-American hallucinations and delusions. They also found that delusions were more commonly endorsed and also tended to have more cultural content, such as general racial/ethnicity issues (e.g., “White men can see me through the radio and TV”) and racism (e.g., “White men are lying to keep me down”), than hallucinations (Whaley & Hall, 2008). Whaley and Hall (2009a) replicated and extended their findings in an unrelated sample of African-American patients and found that race/ethnicity-related and religious themes were present in their content analyses of African-American hallucinations and delusions. Results demonstrated that race/ethnicity-related themes were most prevalent in persecutory delusions and religious content was most prevalent in other types of delusions (Whaley & Hall, 2009a). As a way to expound upon their prior work, Whaley and Hall (2009b) designed a study to determine if the content of

African-American hallucinations and delusions impacted clinician diagnostic decisions. Results indicated that when comparing diagnoses from medical records, structured interviews, and cultural experts, the data did not demonstrate any significant differences. In fact, contrary to their hypothesis, the authors noted that the presence of race/ethnicity-related themes actually decreased the frequency of receiving a paranoid schizophrenia diagnosis (Whaley & Hall, 2009b). Consequently, while the content of delusions and hallucinations may differ based on one's race/ethnicity, content does not appear to be an explanation as to why clinicians make differential diagnoses based on race/ethnicity.

Bauer et al. (2011) examined different types of hallucinations in schizophrenia in order to determine if the prevalence of hallucinations varied and might be influenced by culture. Bauer et al. (2011) examined the 1-year prevalence of hallucinations in seven different countries: Austria, Poland, Lithuania, Georgia, Pakistan, Nigeria, and Ghana. The authors found higher rates of visual hallucinations in the developing cultures, with the highest rates in West Africa (Bauer et al., 2011). In line with prior research, auditory hallucinations were the most prevalent hallucination across sites. The highest rates of both auditory and visual hallucinations were found in West Africa (i.e., Nigeria and Ghana). The authors note that while age and duration of the illness may impact the prevalence and types of certain hallucinations, culture also appears to play a role in symptom expression.

Utilizing a unique sample of Pakistanis living in Britain, Pakistanis living in Pakistan, and British Whites living in Britain, Suhail and Cochrane (2002) examined the impact of culture on types of schizophrenia symptoms commonly expressed. Results demonstrated the greatest differences in delusions and hallucinations when comparing the British Pakistani and Pakistanis living in Pakistan groups. The two groups that were both living in Britain showed similar symptoms. Results seem to suggest a greater impact of the immediate environment as opposed to one's culture of origin on symptom expression (Suhail & Cochrane, 2002). The authors suggest that

British Pakistanis living in Britain do not reflect a high degree of assimilation to Western culture and values. However, despite socio-religious and cultural differences, British Pakistanis actually demonstrate close proximity to Western beliefs and perceptions similar to those of British Whites. For example, both British Whites and British Pakistanis demonstrate similar beliefs regarding thought insertion via the television, radio, and other electronic devices (which are more common in developed Britain versus developing Pakistan). In summary, several studies suggest that one's culture of origin may influence rates and types of symptoms expressed. However, the results of Suhail and Cochrane's (2002) study suggest that one's current environment may be what is most influential in symptom expression.

Biases in Diagnostic Decision-Making?

Many have speculated that diagnostic disparities may be due to the overdiagnosis or misdiagnosis of schizophrenia spectrum disorders among racial/ethnic minorities. The empirical studies that have attempted to identify the factors that impact clinician diagnostic decisions are reviewed below. Previous research has demonstrated that in clinical practice, many clinicians fail to use semi-structured interviews, adhere to Diagnostic and Statistical Manual for Mental Disorders (DSM) criteria, or ask about key symptoms when diagnosing (Garb, 2005). In fact, Miller, Dasher, Collins, Griffiths, & Brown (2001) found that even when using semi-structured interviews, the mental health professionals in their study only assessed 50% of the key criteria for a disorder. While this is an issue that needs to be further examined, a handful of studies have attempted to determine whether clinician biases or differential decision-making processes play a role in the diagnostic disparities observed. In a two-phase study design which varied patient race/ethnicity and diagnosis, Neighbors et al. (1999) utilized two diagnostic interview styles: clinician-structured (phase one) and semi-structured diagnostic instrument (phase two). In both

types of interview styles, Black patients were more likely to receive a diagnosis of schizophrenia, whereas White patients were more likely to be diagnosed with a mood disorder. Neighbors et al. (2003) found the same pattern using a semi-structured interview and DSM criteria. Schwartz and Feisthmel (2009) tested the hypothesis that mental health counselors make differential diagnoses based on a patient's race/ethnicity. Consistent with previous literature, the authors found that African-Americans were in fact diagnosed with psychotic disorders at a disproportionately high rate. While the authors believe the results suggest a "subconscious bias" toward diagnosing more severe disorders when assessing African-Americans, the authors note that treatment recommendations were more objective (Schwartz & Feisthmel, 2009).

Trierweiler, Muroff, Jackson, Neighbors, and Munday (2005) tested whether clinician race/ethnicity affected diagnostic decisions. In this study, African-American and non-African-American clinicians administered diagnostic interviews to adult inpatients at two urban Midwestern psychiatric hospitals. A total of 234 patients diagnosed with either schizophrenia or a mood disorder (bipolar, major depression) were included in the analyses. Upon completion of the diagnostic interview, all clinicians completed a questionnaire which assessed the most important factors influencing their diagnostic decision-making process (Trierweiler et al., 2005). The authors found that while African-American clinicians relied more heavily upon situational factors (e.g., stability/change in psychiatric condition, aggressive behavior, substance use) than non-African-American clinicians, this was not associated with diagnostic decision-making among this group. However, when non-African-American clinicians relied more heavily on situational factors during the diagnostic interview, the patient was more likely to be diagnosed with a mood disorder than with schizophrenia (Trierweiler et al., 2005). In a similar study, Trierweiler et al. (2006) found differential diagnostic decision-making processes depending on the race/ethnicity of the clinician. Specifically, they noted that African-American clinicians tended to pay more

attention to positive symptoms, whereas non-African-American clinicians were more likely to associate negative symptoms with a schizophrenia diagnosis. However, in this study, clinician judgment patterns were not found to be affected by patient race/ethnicity.

Whaley (1997) attempted to determine whether the racial/ethnic differences seen in diagnostic patterns were due to either the *clinician bias hypothesis*, which states that Blacks and Whites have similar symptom presentation but clinicians judge them differently, or the *cultural relativity hypothesis*, which states that Blacks and Whites have culturally differing ways of expressing psychopathology, but clinicians are either unaware or not sensitive to these racial/ethnic differences. Results demonstrated racial/ethnic variations in paranoid symptom expression suggesting that Blacks and Whites have different ways of expressing psychopathology which therefore supported the *cultural relativity hypothesis*. Whaley (1997) further argued that these sociocultural differences in paranoid symptoms may, at times, contribute to the misdiagnosis of psychosis, as clinicians may misconstrue "normal" paranoid behavior as indicative of psychosis rather than as cultural differences in the expression of normal behavior (Whaley, 1997). To further clarify this differentiation, Whaley (1997) asserts that normative paranoia reflects mild and reality-based issues of trust, suspicion, and self-consciousness (e.g., concern that someone intends to take advantage of you), whereas pathological paranoia consists of fully formed delusions of persecution and grandiosity (e.g., concern that the CIA is following you and intends to do you harm).

However, when Sohler and Bromet (2003) compared research diagnoses with hospital diagnoses in a sample of patients with psychosis, the authors reported that they did not observe a racial/ethnicity bias in the assignment of diagnoses of either schizophrenia or mood disorders. They did note that hospital clinicians had a more difficult time diagnosing Black patients, as Blacks were more likely to be discharged without a definitive diagnosis or with a psychosis not otherwise specified (NOS) diagnosis (Sohler &

Bromet, 2003). However, since low agreement between hospital and research diagnoses was observed for both Black and White patients, the authors report that the issue of low agreement was not a problem unique to Black patients, and therefore, no evidence for racial/ethnicity bias in the diagnostic decision-making process was observed. Thus, study results seem to suggest that overt racial/ethnic bias is not playing a major role in diagnostic decision-making.

The majority of the literature has examined whether Black patients are more likely than White patients to be diagnosed with schizophrenia. However, a few studies indicate that other racial/ethnic minority groups, including Hispanics/Latinos, have also been found to have disproportionately higher rates of being diagnosed with schizophrenia spectrum disorders. Vega, Sribney, Miskimen, Escobar, and Aguilar-Gaxiola (2006) found that auditory hallucinations and delusions of persecution were fairly common among Mexican-American individuals. However, they caution that although the prevalence rates of psychotic disorders among Mexican-Americans are higher when compared to Mexican immigrants or Mexicans living in Mexico, clinicians must proceed with care to determine whether the presence of symptoms is related to psychosis or is merely a cultural expression of emotional distress (Vega et al., 2006). Similarly, consistent with prior research on African-Americans, Contreras et al. (2009) found that Hispanic/Latino patients were often diagnosed with schizophrenia, but when additional assessments, including family interviews and psychiatric records, were consulted, an affective disorder diagnosis was instead often applied. The authors note that the additional information helped clinicians to further pinpoint specific diagnoses and also provided them with etiological information that assisted in diagnostic decision-making (Contreras et al., 2009).

Some research suggests, however, that clinicians may be more accurate in diagnosing Hispanic/Latino patients than in diagnosing patients from other racial/ethnic groups. Anglin and Malaspina (2008) found the highest agreement between clinical and research diagnoses for

Hispanics/Latinos, followed by White patients. Clinical and research diagnoses for African-American patients showed the lowest agreement. It is unclear as to why clinicians in this study were able to most reliably diagnose Hispanic/Latino patients, especially considering potential language and cultural differences. The authors speculate that the location of the inpatient unit in a predominantly Hispanic/Latino community may have sensitized clinicians to diagnostic issues in Hispanic/Latino populations, as they have increased exposure and opportunities to learn about specifics of this culture.

Cultural Mistrust, Paranoia

Some research has demonstrated that Black patients have higher levels of paranoia (e.g., Combs, Penn, & Fenigstein, 2002) as well as higher levels of schizotypy (Sharpley & Peters, 1999). However, it is unclear whether these higher levels reflect an increased risk for schizophrenia or are simply and accurately reflecting the social reality for these groups (Sharpley & Peters, 1999). The previously reviewed studies suggest that overt racial/ethnic bias is not likely to be playing a role in the differential diagnostic patterns observed but it is possible that clinicians may view factors such as historical mistrust, wariness of discrimination, or perceived racism as indicative of psychosis (Combs et al., 2002). Iacovino, Jackson, and Oltmanns (2014) conducted a study which suggests that racial/ethnic differences in paranoia may be partially explained by problems that are more commonly experienced by Black individuals (e.g., lower socioeconomic status (SES), childhood traumas) and the impact of these factors (e.g., unequal access to social and economic resources, perceived discrimination, etc.) on symptom expression. Due to the history of slavery and colonization in the USA and the Caribbean islands, being more wary of Whites, especially for older Black individuals who may have experienced overt racism and discrimination firsthand, may reflect an accurate and adaptive reaction. Research has also demonstrated that an oral tradition in which these types

of accounts are passed down from generation to generation are common in African-American culture (Ball, Lawson, & Alim, 2013). Further, racial discrimination is a dynamic process, such that its effects amass not only in individual lives but also across generations (Hammond, 2011). Past and present negative experiences with certain organizations (e.g., medical institutions, law enforcement) may perpetuate beliefs such as medical mistrust and distrust of the police (Ball et al., 2013; Brunson & Gau, 2015). In fact, evidence suggests that Black youths not only expect poorer treatment from certain groups (e.g., law enforcement) but actually receive poorer treatment when compared to other racial and ethnic groups (Hagan, Shedd, & Payne, 2005; Lee, Steinberg, & Piquero, 2010; Lee, Steinberg, Piquero, & Knight, 2011). Thus, it appears that these cultural beliefs remain relevant for both older Black individuals and today's Black youth. Accordingly, Whaley (1998) cautions that cultural mistrust should not automatically be interpreted as psychopathology. In further support of Whaley (1998), Combs et al. (2006) found that perceived racism by African-American patients predicted cultural mistrust and subclinical, but not clinical levels of paranoia in those patients.

Other studies suggest that high levels of cultural mistrust in African-Americans are associated with greater psychopathology. In fact, based on results from the Cultural Mistrust Inventory and content analyses, Bell and Tracey (2006) found that a curvilinear model best explained the relationship between cultural mistrust and psychological health with moderate levels of trust in Whites being associated with the greatest levels of psychological health in their sample of African-Americans (Bell & Tracey, 2006). Thus, these results suggest that both low and high levels of mistrust of Whites may not be psychologically healthy for African-Americans. Additionally, studies have shown that higher levels of cultural mistrust and perceived discrimination are associated with increased rates of psychosis (McKenzie, 2006), and a diagnosis of schizophrenia in African-Americans (Whaley, 2002). In fact, Whaley (2002) demonstrated that even among African-American cultural experts, paranoid schizophrenia was more frequently diag-

nosed in African-American patients who endorsed high levels of cultural mistrust. Thus, it seems that cultural mistrust may contribute to a schizophrenia spectrum diagnosis (McKenzie, 2006; Whaley, 2002). However, while cultural mistrust may be a factor that contributes to an increased rate of schizophrenia in Black populations, cultural mistrust has not been found to contribute to the diagnostic disparities that have also been observed, at times, in other racial/ethnic minority groups (e.g., Asians, Hispanics/Latinos). It is clear that additional research is needed to confirm the diagnostic patterns seen in other groups and identify underlying or contributing causes.

The Role of Stress and Environmental Factors in Diagnostic Disparities

The diathesis-stress model of schizophrenia asserts that environmental stressors interact with an underlying biological predisposition toward the development of schizophrenia to trigger and/or worsen psychiatric symptoms (Jones & Fernyhough, 2007; Walker, Mittal, & Tessner, 2008). Thus, examination of environmental stressors (e.g., SES, urban residence, discrimination) is warranted to determine whether the diagnostic disparities observed are the result of racial/ethnic group differences or whether these differences are a function of environmental stressors associated with racial/ethnic minority status. Several studies have identified environmental factors such as unemployment, parental separation, social isolation, discrimination, achievement-aspiration mismatch, and urban residence that are linked to the development of schizophrenia (Janssen et al., 2003; Kirkbride et al., 2006, 2012; Morgan et al., 2007, 2014; Reininghaus et al., 2008). While these studies overall found that the effects of these factors were similar across racial/ethnic groups, the authors also note a higher prevalence of these incidents among racial/ethnic minority, particularly Black, populations (Janssen et al., 2003; Kirkbride et al., 2006; 2012; Morgan et al., 2007, 2014; Reininghaus et al., 2008).

To examine this question further, several studies have examined the relationship between race/ethnicity and diagnosis of schizophrenia while controlling for relevant environmental factors. Blow et al. (2004) examined racial/ethnic differences in diagnostic patterns among war veterans with psychosis and found that Blacks and Hispanics/Latinos were more likely than Whites to receive a schizophrenia diagnosis over a bipolar diagnosis, when controlling for SES, urban residence, and substance use. Relatedly, Barrio et al. (2003) examined racial/ethnic group differences in symptom expression among White, Black, and Hispanic/Latino outpatients with schizophrenia. While controlling for education and income, the authors found racial/ethnic group differences in excitement (higher among Whites), somatic concern (higher among Hispanic/Latinos), as well as hallucinatory behavior and suspiciousness (higher among Blacks). Barnes (2008) examined admission diagnoses among Black and White patients at a psychiatric hospital in Indiana and found that, after controlling for demographic variables (e.g., education, income, prior hospital admission), race/ethnicity was the strongest predictor of an admission diagnosis of schizophrenia. Flaskerud and Hu (1992) also examined the relationship of racial/ethnic group identity to psychiatric diagnosis among 26,400 Black, White, Hispanic/Latino, and Asian patients who had received services at a county mental health center. The authors report that, even when controlling for SES and primary language, a larger number of schizophrenia diagnoses were found among Blacks and Asians when compared to Whites and Hispanics/Latinos (Flaskerud & Hu, 1992). Overall, the literature indicates that while the effects of environmental stressors are related to schizophrenia and are more common in racial/ethnic minority populations, these stressors are not likely to fully account for the diagnostic discrepancies observed among racial/ethnic groups.

Summary and Recommendations

This chapter summarized the literature on racial and ethnic disparities in diagnostic patterns, as well as factors that may underlie these dispari-

ties, including biases in diagnostic decision-making, cultural mistrust, as well as environmental factors that may exacerbate stress. Several key findings emerged. First, Black patients (in the USA as well as abroad) are three to four times as likely to receive a schizophrenia spectrum diagnosis. As this finding has been demonstrated in several studies with large sample sizes, it does not appear to be circumscribed to one area or country. While several studies also seem to point to diagnostic disparities for other racial/ethnic minority groups (e.g., Asians, Hispanics/Latinos), the literature is less clear on these findings. Therefore, additional research is needed before making any conclusions about these groups. Second, with regard to symptomatology, the literature seems to suggest that racial/ethnic differences do exist in symptom prevalence, severity, and expression. Specifically, it appears that Black patients often present with greater symptom severity and are more likely to endorse experiencing Schneiderian first-rank symptoms (e.g., specific types of auditory hallucinations and delusions of control). Additionally, some studies have found that Black patients tend to more frequently endorse experiencing hallucinations (Strakowski et al., 1996), whereas their White counterparts tend to report more persecutory delusions (Strakowski et al., 1996; Weisman, Rosales, Kymalainen, & Armesto, 2005). Previous research has also demonstrated that Hispanic/Latino patients tend to express more somatic symptoms. The literature seems to point to fewer differences in negative symptom profiles but instead, suggests racial/ethnic variations in positive profile symptoms. Third, the reviewed literature suggests that overt racial/ethnic bias is not likely playing a major role in diagnostic decision-making but that misconstruing cultural differences in the expression of normal behavior (e.g., nonclinical expressions of paranoia) may lead to diagnostic errors (Sohler & Bromet, 2003; Whaley, 1997). Finally, research suggests that higher levels of cultural mistrust and other environmental factors (e.g., urban residence, low SES) are associated with a greater likelihood of receiving a schizophrenia spectrum diagnosis (Janssen et al., 2003; Kirkbride et al., 2006, 2012; McKenzie, 2006; Morgan et al., 2007, 2014;

Reininghaus et al., 2008; Whaley, 2002). In sum, there is little evidence for racial/ethnic bias in diagnosis, but it appears that clinicians may, at times, diagnose schizophrenia without fully understanding the social milieu in which it occurs.

Clinical and Research Recommendations The literature reviewed in this chapter suggests that racial and ethnic differences in symptom expression and presentation, clinician decision-making factors, cultural mistrust, and other environmental factors may play a role in diagnostic practices in schizophrenia spectrum disorders. While clinicians are generally advised to consider racial and ethnic variations in symptom presentation in their assessment and treatment of an individual, it is not always clear how one goes about doing this (Whaley, 2001). The Cultural Formulation Interview (CFI) in DSM-5 has now developed into a semi-structured interview with explicit questions, explanations, and instructions that may provide more direction for clinicians regarding how to account for racial/ethnic group variations in symptom expression (Aggarwal, 2013). Through a person-centered approach, the CFI works to elicit information about a patient's views of his or her symptomatology (e.g., "How would *you* describe your problem?") and to encourage the clinician to better understand the patient's problem within his or her own words and understanding (APA, 2013, pg. 752). The CFI also emphasizes to the clinician the importance of considering cultural and societal norms when attempting to better understand a patient's experience by including questions such as, "What do others in your family, your friends, or others in your community think is causing your [PROBLEM]?" (APA, 2013, pg. 752). Finally, the CFI takes into consideration the likelihood that a clinician and patient may enter therapy with their own personal biases, backgrounds, or expectations by asking, "Have you been concerned about this and is there anything that we can do to provide you with the care you need?" (APA, 2013, pg. 754). These questions provide a clear framework for clinicians to consider their own potential biases, as well as to reflect on the patient's cultural understanding of his or her

symptoms. While research is limited on the CFI, some initial studies suggest that use of tools such as the CFI could help to improve diagnostic accuracy (e.g., Adeponle, Thombs, Groleau, Jarvis, & Kirmayer, 2012).

The use of analog studies may be one way to further evaluate whether the racial/ethnic disparities observed in schizophrenia spectrum disorders are a function of assessor bias. Analog approaches use vignettes or trained actors to display schizophrenia symptoms while varying only the race or ethnicity of the hypothetical patient. Although previous studies (e.g., Weisman & López, 1996, 1997) have used analog approaches to study schizophrenia, no research to our knowledge has varied solely the race/ethnicity of the hypothetical patient to examine the impact that this has on diagnoses, while holding all other variables constant (something that is nearly impossible to do with actual clinical samples). Observing diagnostic differences with this approach would suggest that the differences reflect assessor bias over actual racial/ethnic differences in the prevalence or presentation of schizophrenia spectrum disorders. The simplicity and low cost of analog designs, in addition to the fact that they offer complete experimental control over symptom presentation, makes them ideal for follow up cross-cultural research on this topic.

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