RACE BIAS IN THE DIAGNOSIS OF SCHIZOPHRENIA

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ABSTRACT

Accuracy of diagnoses appears to be influenced by the client's race. Previous research indicates that African Americans are overdiagnosed with Schizophrenia, whereas findings for Hispanic patients have been inconsistent. However, there is evidence that the diagnostic approach used by the clinician may influence accuracy and that bias may be reduced by using a structured assessment of symptoms prior to assigning a diagnosis. There is also some limited evidence for the role of clinician race in diagnosis, with Caucasian clinicians more likely than non-Caucasian clinicians to diagnose African American patients with Schizophrenia. This study utilized a vignette methodology to examine the effects of race of the client, diagnostic approach, and clinician race on diagnoses. A national sample of psychologists read two cases containing a mixture of psychotic and mood disorder features in which patient race was varied, rated the symptoms in the cases, and assigned diagnoses. Diagnostic approach was manipulated by asking half of the clinicians to rate symptoms before assigning a diagnosis (i.e., simulated DSM-IV approach) and half to assign a diagnosis before rating the symptoms in the case (i.e., simulated prototype approach). It was hypothesized that the African American version of the cases would receive more diagnoses of Schizophrenia, particularly by Caucasian clinicians and when clinicians utilized the prototype approach. The results of the study provided little support for the hypotheses. There were few differences based on patient race, diagnostic approach, or significant interactions between them, and the best predictors of diagnoses were the symptom ratings. There also were no significant interactions between clinician race and patient race, although minority clinicians assigned more mood disorder diagnoses and fewer Schizophrenia diagnoses than

Caucasian clinicians, regardless of patient race. This latter finding may be a function of the particular symptoms included in the two cases or the low number of minority clinicians, despite efforts to recruit a diverse sample. Overall, clinicians were reasonably consistent in their assessment of the symptoms and the assigned diagnosis, and were not biased by patient race or diagnostic approach. This is an encouraging finding and suggests that these clinicians may be more aware of concerns about misdiagnosis than in the studies conducted in the past, although the limitations of the study design may have contributed to the lack of significant findings. Despite the mostly negative findings and failure to support the hypotheses, the influence of race and other individual differences on assessment and diagnosis is an important topic and worthy of continued research.

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INTRODUCTION

Overview

The conceptualization of Schizophrenia has undergone a number of changes since it was first introduced as a mental illness. Kraeplin suggested that this illness was a broad category of "illogical disorders" including dementia praecox. This category of disorders was later labeled as Schizophrenia by Bleuler (Cancro, 2003; Maxmen & Ward, 1995). Schizophrenia is presently described by symptoms indicative of the presence of abnormal functioning (i.e., positive prominent symptoms), the absence of normal functioning (i.e., negative symptoms), and disorganization. Typical symptoms include hallucinations, delusions, flat or blunted affect, social withdrawal, catatonia, and incoherent speech or loose associations (Fowles, 1992; Maxmen & Ward, 1995). Despite the severe nature of these symptoms, diagnosis of this illness continues to be difficult (Freedman, 2003; Maxmen & Ward, 1995). Differential diagnosis is especially challenging when the client comes from a minority background and/or the race of the client differs from the clinician.

Two seminal reviews addressing this issue were published by Adebimpe (1981) and Jones and Gray (1986) in the 1980's. According to Jones and Gray (1986), one reason that differential diagnosis is difficult is that the diagnostic criteria for Schizophrenia overlap with a number of other psychological disorders. The most salient symptoms of Schizophrenia, such as hallucinations and delusions, may be demonstrated by individuals diagnosed with mood

disorders as well as acute organic brain syndromes (delirium), and chronic alcoholism (Adebimpe, 1981). Determining whether the presentation of symptoms is indicative of Schizophrenia or a mood disorder with psychotic features is perhaps the most difficult differential diagnosis, as negative symptoms of Schizophrenia may be confused with the difficulty thinking, anhedonia, social withdrawal and decreased energy of a mood disorder, and the blunted affect of Schizophrenia may be misinterpreted as depressed affect (Barnes & McPhillips, 1995). Positive symptoms of Schizophrenia may also be confused with the delusions and hallucinations of a major depressive episode with psychotic features, and grandiose delusions characteristic of a manic episode may be particularly difficult to differentiate from positive symptoms of Schizophrenia. Moreover, nearly half of all individuals diagnosed with Schizophrenia also report symptoms of depression, which are more frequently present during the acute phase of Schizophrenia, making differential diagnosis more difficult (Barnes & McPhillips, 1995; Maxmen & Ward, 1995).

Client race and differences in symptom presentation among various racial groups serve to complicate differential diagnosis further (Adebimpe, 1981; Jones & Gray, 1986). Researchers have found that hallucinations and delusions are more likely to be displayed by African American patients during schizophrenic and mood disorder episodes compared to Caucasian patients, and may result in a misdiagnosis (Adebimpe, 1981; Dixon, Green-Paden, Delahanty, Lucksted et al., 2001). Moreover, adaptive suspiciousness, reluctance to build rapport with the clinician, resistance to the interview process, and strict control over affect may be misinterpreted as paranoia, social withdrawal, impoverishment of speech, and flat or inappropriate affect, resulting in an inaccurate diagnosis of Schizophrenia in minority clients (Adebimpe, 1981; Jones & Gray, 1986). These findings suggest that clinicians are unfamiliar with cultural differences and

what is considered adaptive, or normal, by different racial groups (Neighbors, Trierweiler, Ford, & Muroff, 2003), which may contribute to misdiagnosis. Furthermore, Trierweiler, Neighbors, Munday, Thompson, Binion, and Gomez (2000) found that hallucinations and paranoia/suspiciousness were more often attributed to African American inpatients, and attributions commonly related to a mood disorder were associated with a diagnosis of Schizophrenia among these patients, indicating that clinicians view the expression of symptoms differently for different racial groups. As a result, minority clients, particularly African American clients, tend to receive different diagnoses than Caucasian clients and are more likely to be diagnosed with a more stigmatizing disorder (Adebimpe, 1981; Baskin, Bluestone, & Nelson, 1981; Kposowa, Tsunokai, & Butler, 2002).

A considerable amount of research on diagnostic differences among African American and Caucasian clients has been conducted and has yielded fairly consistent results, demonstrating that African Americans are more likely than Caucasians to receive a diagnosis of Schizophrenia or another psychotic disorder, despite evidence that this disorder equally affects both groups (Kposowa et al., 2002; Maxmen & Ward, 1995). In addition, researchers have found that African American patients are more frequently diagnosed with a Schizophrenia spectrum disorder than Caucasian patients (Adebimpe, 1981; Barnes, 2008; Baskin et al., 1981; Dixon et al., 2001; Kposowa et al., 2002). However, research on diagnostic disparities among Hispanic clients is sparse and results are mixed. Whereas some researchers demonstrated an increased number of Hispanic patients diagnosed with Schizophrenia, others have demonstrated that Hispanic patients are less likely to be diagnosed with Schizophrenia or a mood disorder, and more likely to be diagnosed with less severe, transient psychological disorders (Flaskerud & Hu, 1992; Garb, 1997; Kposowa et al., 2002). Another study found that Hispanic patients were also more likely to

undergo a change in diagnosis from Schizophrenia to a less stigmatizing disorder (Chen, Swann, & Burt, 1996).

The likelihood of inaccurate diagnoses among minorities may be further increased when the race of the client differs from the clinician. One study found that Caucasian therapists tended to diagnose more African American patients with Schizophrenia and Hispanic patients with mood disorders, whereas African American clinicians diagnosed African American clients with less stigmatizing disorders and Hispanic clinicians diagnosed all cultural groups with less stigmatizing disorders (Baskin et al., 1981). However, minority clinicians can also assign inaccurate diagnoses, and may be subject to some of the same decision making errors as Caucasian clinicians as a result of receiving training from Caucasian supervisors and having most of their clinical experience with Caucasian clients (Norona, 2000).

Bias, specifically race bias, is present when the accuracy of clinical judgments varies by client race (Garb, 1997). However, real differences among various racial groups do exist, such as the differences in symptom presentation discussed above. Nevertheless, the above research suggests that normal behaviors may be pathologized, that symptoms may be interpreted differently based on a client's race, and that symptoms may be differentially weighted to arrive at a diagnosis. Further, clinicians may demonstrate a confirming bias in which they gather information that supports their hypothesis and ignore disconfirming evidence (Garb, 1997). However, there is some evidence that such bias can be decreased by using structured interviews (Aklin & Turner, 2006; Whaley & Geller, 2007) and that research diagnoses may be more accurate for minorities than clinical diagnoses (Simon, 1973 as cited in Adebimpe, 1981). This may be because symptoms are carefully evaluated in the structured interview before a diagnosis

is assigned, whereas clinicians may rely on prototypes rather than carefully assessing the number of diagnostic criteria met (Herkov & Blashfield, 1995).

The current study examined racial bias in the diagnosis of Schizophrenia using case vignettes in which client race was manipulated in two cases that contained a mixture of psychotic and mood disorder symptoms. This study also compared the diagnoses made using a prototype approach versus a more structured approach in which symptoms are evaluated before assigning a diagnosis; half of the clinicians were asked to assign a diagnosis and then rate symptoms while the other half rated symptoms and then assigned a diagnosis. In addition, the effect of clinician race on diagnosis was also examined. First, an overview of Schizophrenia and differential diagnosis will be presented, followed by a review of the literature on racial bias and differences in the diagnosis of Schizophrenia. Literature on diagnostic decision making processes and the effect of clinician race on assigned diagnoses will also be reviewed. Finally, a study examining clinician bias in the diagnosis of Schizophrenia will be presented, followed by a discussion of the results and their implications.

Overview of Schizophrenia

Historically, Schizophrenia is one of the least understood disorders (Ho, Black & Andreasen, 2004). Emil Kraeplin was one of the first to identify Schizophrenia as a mental illness and included this disorder in a category of "illogical disorders." Included in this category was what he termed "dementia praecox," characterized by the deterioration in an individual's condition (Cancro, 2003). Bleuler later relabeled this category of illogical disorders as Schizophrenia (Maxmen & Ward, 1995).

Symptoms characteristic of Schizophrenia are categorized into positive symptoms, negative symptoms, and disorganized behavior (American Psychiatric Association [APA], 1997,

2004; Mizenberg, Yoon & Carter, 2011). Positive symptoms indicate the "presence of abnormal functioning" and include hallucinations, delusions, and disorganized behavior (Fowles, 1992). Delusions are often incongruent with the individual's mood and are perceived as "bizarre" (Maxmen & Ward, 1995). Hallucinations are reported by a majority (75%) of individuals diagnosed with Schizophrenia, and are often demonstrated in one sensory modality, generally auditory, although simultaneous auditory, visual, olfactory, and tactile hallucinations are possible (Maxmen & Ward, 1995). The vast majority of individuals with Schizophrenia experience auditory hallucinations (90%), whereas less than half (40%) experience visual hallucinations (Maxmen & Ward, 1995). Negative symptoms are evidenced by an absence, or "quantitative insufficiency," of normal functioning, and include avolition, emotional and social withdrawal, blunted or flat affect, apathy, and poverty of speech (Fowles, 1992; Ho et al., 2004; Maxmen & Ward, 1995; Mizenberg et al., 2011). Stable negative symptoms are predictive of poor outcome (Barnes & McPhillips, 1995). Negative symptoms can be further divided into primary and secondary symptoms, where blunted affect and poverty of speech are considered primary negative symptoms and social and emotional withdrawal are secondary (Barnes & McPhillips, 1995). Primary negative symptoms typically persist beyond the acute phase of Schizophrenia, whereas secondary negative symptoms tend to improve (Barnes & McPhillips, 1995). Disorganized behavior may be demonstrated as catatonic stupor or excitement; disorganized speech, such as incoherent verbalizations, loose associations and tangentiality; or illogical thought patterns (Fowles, 1992; Ho et al., 2004; Maxmen & Ward, 1995; Mizenberg et al., 2011).

Although the onset of Schizophrenia is usually first identified in adolescence or young adulthood, symptoms may retrospectively be identified in early childhood, suggesting this

disorder is often quite chronic in nature (Freedman, 2003; Maxmen & Ward, 1995). Furthermore, individuals in the acute phase of Schizophrenia are likely to experience more severe negative symptoms, resulting in an inability to care for oneself (APA, 1997, 2004). Schizophrenia afflicts approximately one percent of the general population, with approximately two million new cases in a given year (Freedman, 2003; Maxmen & Ward, 1995). However, some research suggests that Schizophrenia may be overdiagnosed in the general population, and in African American and minority individuals in particular (Jones & Gray, 1986).

Early studies of the diagnostic reliability of the Diagnostic and Statistical Manual of Mental Disorders- Second Edition (DSM-II; APA, 1968) suggested that Schizophrenia was overdiagnosed by American psychiatrists compared to European psychiatrists (Kendell, Cooper, Gourlay, Copeland, Sharpe, & Gurland, 1971). As a result, the diagnostic criteria were narrowed in the DSM-III (APA, 1980) to require psychotic symptoms, significant deterioration, and a six-month duration of symptoms. The many subtypes of Schizophrenia in the DSM-II (APA, 1968) were reduced to Krapelin's original three (paranoid, catatonic, and disorganized [hebephrenic]), and other subtypes were reclassified as other psychotic disorders (e.g., schizophreniform) and personality disorders (e.g., schizoid, schizotypal). The DSM-III-R (APA, 1987), DSM-IV (APA, 1994) and DSM-IV-TR (APA, 2000) maintained the more narrow definition of Schizophrenia. Nevertheless, research continues to suggest that Schizophrenia may be overdiagnosed in African Americans (Barnes, 2004, 2008; Garb, 1997; Kposowa et al., 2002).

There has also been a shift of emphasis from the negative symptoms of Schizophrenia to the positive symptoms. Bleuler considered the primary or fundamental symptoms of Schizophrenia to be disordered associations (loose associations or thought disorder), disordered affect (blunted or inappropriate affect), ambivalence, and autism (withdrawal) (Andreasen, 1982;

Andreasen, Arndt, Alliger, Miller, & Flaum, 1995). He considered positive symptoms, such as delusions and hallucinations, secondary or accessory symptoms because they can be present in other disorders (Bleuler, 1950).

Others, such as Schneider, emphasized the positive symptoms of Schizophrenia because they were more overt and presumably easier to identify and thus, more reliable. Due to criticisms of poor reliability of psychiatric disorders in the DSM-II (APA, 1968), there has been increased emphasis on positive symptoms of Schizophrenia in the diagnostic criteria, particularly the bizarre delusions and hallucinations described by Schneider (1959).

Differential Diagnosis of Schizophrenia

The DSM-III (APA, 1980) and subsequent editions of the manual utilized a descriptive approach to diagnosis. Although the intent was to increase reliability, reliance on symptoms and overt behaviors in assigning a diagnosis can be a disadvantage since Schizophrenia and a number of other psychological disorders have highly similar symptoms and overlapping diagnostic criteria (Jones & Gray, 1986). The expression of Schizophrenia may, in fact, consist of nonspecific symptoms of various other psychological disorders rather than specific symptoms of Schizophrenia (Chen et al., 1996; Jones & Gray, 1986; Pope & Lipinski, 1978). Adebimpe (1981) argued that the hallmark symptoms of Schizophrenia (hallucinations and delusions) are not sufficient to assign a diagnosis, and pointed out that hallucinations and delusions are also demonstrated by individuals diagnosed with mania and psychotic depression, as well as chronic alcoholism and acute organic brain syndromes (delirium). Maxmen and Ward (1995) added that an individual who appears to fit the diagnostic criteria for the catatonic subtype of Schizophrenia may actually have catatonia due to a general medical condition, but is most likely to have a mood

disorder. In fact, a specifier for catatonic features was only added to the mood disorder criteria in the DSM-IV (APA, 1994).

One of the more difficult differential diagnoses is between Schizophrenia and mood disorders with psychotic features. For instance, negative symptoms of Schizophrenia, such as an inability to pay attention, loss of a sense of pleasure, disorganization, impoverishment of thoughts and speech, flat affect, and social withdrawal may be confused with similar symptoms of a major depressive disorder such as difficulty thinking, concentrating, or making decisions, loss of interest or pleasure in nearly all activities, decreased energy, or social withdrawal. Barnes and McPhillips (1995) stated that blunted affect must be distinguished from depressed affect, which can appear restricted and may be misinterpreted as blunted affect. It is necessary to differentiate depressive symptoms such as lethargy, lack of energy, and anhedonia from negative symptoms, a task that may be completed via reliable report from the client; however, obtaining a reliable report is complicated by the fact that actively psychotic or severely depressed patients may not be accurate in describing their experience and that a report of depressed mood may not be accompanied by depressed affect (Barnes & McPhillips, 1995).

Positive symptoms of Schizophrenia, including hallucinations and bizarre delusions (i.e., thought insertion, thought broadcasting, delusions of control), may also be confused with symptoms of a major depressive episode with psychotic features, while grandiose delusions are commonly identified in individuals experiencing a manic episode. Pope and Lipinski (1978) noted that symptoms of Schizophrenia, such as delusions and hallucinations, are demonstrated by approximately 20 to 50 percent of individuals diagnosed with manic-depressive (bipolar) disorder, and argued that these key symptoms of Schizophrenia are nonspecific and not effective in assigning the diagnosis. Harrow, Grossman, Silverstein, and Meltzer (1982, as cited in

Roukema, Fadem, James, & Rayford, 1984) found that 95% of manic patients demonstrated thought disorder and bizarre thinking to the extent that without treatment, these individuals' behavior and thought patterns would be virtually indistinguishable from Schizophrenia. The presence of bizarre delusions and hallucinations in patients with mood disorders is recognized by the inclusion of the specifier for mood incongruent psychotic features for the major mood disorders in the DSM-IV (APA, 1994).

Further contributing to the difficulty in determining a diagnosis of Schizophrenia or a mood disorder is that nearly half of all individuals diagnosed with Schizophrenia also report symptoms of depression (Barnes & McPhillips, 1995; Maxmen & Ward, 1995). Symptoms of depression are most frequently demonstrated during the acute phase of Schizophrenia; however, they may also occur during remission (Barnes & McPhillips, 1995). If depressive symptoms are present during the active phase, a differential diagnosis must be made between Schizophrenia, Schizoaffective disorder, Schizophrenia with a mood disorder not otherwise specified (NOS), or psychotic disorder not otherwise specified (NOS). Further complicating the diagnostic procedure is that following the active phase of Schizophrenia, individuals may experience a "post-psychotic depression" as a result of becoming more aware of their mental illness, leading to increased risk of poor social functioning and suicide (APA, 1997, 2004; Maxmen & Ward, 1995). Post-psychotic depressive disorder of Schizophrenia has been included as a proposed category in the DSM-IV (APA, 1994) appendix for categories requiring further research, and is diagnosed as mood disorder not otherwise specified (NOS).

Racial Differences in Symptom Presentation

The confusion between Schizophrenia and the mood disorders becomes even more problematic when racial and cultural factors are taken into consideration. Racial and cultural

factors affect the presentation of symptoms, thus further complicating differential diagnosis. A number of differences in symptoms among racially different individuals with major mood and psychotic disorders have been identified.

A review of hospital records by Vitols, Waters, and Keeler (1963, as cited in Adebimpe, 1981) revealed that there is a higher incidence of hallucinations and delusions among African American patients who are not diagnosed with Schizophrenia, increasing the possibility of misdiagnosis with Schizophrenia. More recently, Dixon et al. (2001) found that during schizophrenic or mood disorder episodes, hallucinations and delusions are more likely to be displayed by African American patients than Caucasian patients, increasing the difficulty of differential diagnosis.

In addition, normal behaviors may be overpathologized in minority patients (Garb, 1997). African Americans may exhibit flat or inappropriate affect due to efforts to maintain control over displays of affect as a result of the patient's reluctance to build rapport with the clinician (Jones & Gray, 1986), which may result in misdiagnosis (Adebimpe, 1981). Moreover, African American clients may display suspiciousness toward the clinician, particularly when the clinician is of a different racial background. Although suspiciousness may be adaptive and healthy for an individual in a situation where he or she may be exposed to racism, such a reaction toward the clinician may be perceived as paranoia, a symptom of Schizophrenia (Aklin & Turner, 2006; Carter, 1974 as cited in Adebimpe, 1981; Jones & Gray, 1986; Whaley & Geller, 2007). Thus, rigid control over affective displays may be misperceived as flattened affect and paranoia rather than adaptive suspiciousness and resistance to the interview process. An inability to develop rapport with the clinician as a result of a high degree of suspiciousness may be misinterpreted as social withdrawal (Jones & Gray, 1986). Moreover, a lack of communication about the

presenting problem due to suspiciousness may be inaccurately perceived as impoverishment of speech. In sum, Jones and Gray's (1986) review of the literature suggests that misinterpretation of thought content (hallucinations and delusions), thought process (flight of ideas, loose associations), and cultural differences in language, mannerisms, and interpersonal styles complicates the differential diagnosis of Schizophrenia and mood disorders in African Americans. Aklin and Turner (2006) identified differences in communication, SES and life experiences, cultural mistrust and paranoia, as well as biases in clinical judgment as barriers to accurate diagnosis of ethnic minorities.

Based on previous data obtained from the National Institute of Mental Health's (NIMH) statistical reports on differences in psychiatric diagnosis between Caucasians and individuals of minority races, Baskin et al. (1981) reported that Caucasians have a lower frequency of diagnosis of Schizophrenia than all other races. In their study examining 1968 African American, Caucasian, and Hispanic outpatients, Baskin et al. (1981) found significant differences in diagnosis based on the race of the patient. A higher proportion of African American patients received a diagnosis of Schizophrenia, while Hispanic patients more frequently received a diagnosis of a mood disorder and the "distribution of psychiatric diagnosis for the white patients did not clearly parallel either that of the black patients or of the Hispanic-American patients" (Baskin et al., 1981, p. 533).

Diagnostic Bias: Bias vs. Real Differences

The difference in diagnosis of Schizophrenia and mood disorders between clients of different races raises the possibility of diagnostic bias when a client comes from a minority racial or cultural background. Client race and culture affect symptom expression and interaction with the clinician, influencing the perception of the client's symptoms and the resulting diagnosis.

Although actual differences may occur, race bias is said to occur when the accuracy of clinical judgments varies as a function of the client's race (Garb, 1997). Generally, when race bias is present, clinical judgments made for Caucasian clients are more accurate than judgments made for a client of a minority group (Garb, 1997). Race bias may occur when diagnostic criteria are more suited to a particular racial group, through the use of biased assessment tools, or when clinicians attempt to gather information that fits their hypotheses and attend only to confirmatory information (Garb, 1997). According to Garb's (1997) review of the literature on bias, African American patients are more likely to be assigned a diagnosis of Schizophrenia even when that diagnosis is not justified.

One of the earliest reviews of racial bias in diagnosis was published by Lopez (1989). Lopez (1989) suggested that bias in diagnosis may be due to information processing strategies used by clinicians that contribute to inaccurate diagnosis (i.e., ignoring disconfirming information) and not necessarily bias on the part of the clinicians. Lopez (1989) also emphasized the need to consider both over- and under-diagnostic biases.

An article by Widiger and Spitzer (1991) on sex bias in diagnosis of personality disorders provides a useful framework for examining diagnostic bias and potential sources of bias. First, they noted that differential rates of diagnosis are not necessarily evidence of bias, but may represent actual differences in the prevalence of diagnosis between different groups. In addition, socio-cultural factors may result in different symptoms and diagnoses between groups, a type of bias they referred to as socio-cultural etiological bias because socio-cultural factors such as poverty, discrimination, and differences in opportunities for education (i.e., bias in society) may cause differences in the rate of diagnoses. A second type of bias is sampling bias in which disproportionate representation of groups in certain settings may bias research findings regarding

actual prevalence of the diagnosis. In diagnostic bias, the systematic influence of a variable unrelated to the diagnostic construct (i.e., sex or race) influences the accuracy of diagnosis. Widiger and Spitzer (1991) identified two sources of diagnostic bias, assessment bias and criterion bias. Assessment bias includes both bias related to assessment measures (tests) and bias in clinical judgment. Criterion bias refers to bias in the diagnostic criteria so that the accuracy of diagnosis varies for groups. Behaviors that are more frequently associated with a group may be incorporated in the diagnostic criteria resulting in an increased rate of false positives (overdiagnostic bias) for members of that group, or the diagnostic criteria may describe the prototypic presentation of the diagnosis for one group resulting in an increased rate of false negatives (underdiagnostic bias) for other groups.

There is some evidence that differences in diagnoses among varying racial groups may be attributable to actual differences. For example, two studies demonstrated that being African American predicted a diagnosis of Schizophrenia when a structured or semi-structured interview was used, presumably a method less subject to bias (Neighbors, Trierweiler, Munday, Thompson, Jackson, Binion, & Gomez, 1999; Pavkov, Lewis, & Lyons, 1989). In the Pavkov et al. (1989) study, African Americans were still more likely to be diagnosed with Schizophrenia when a multiple regression removed variance attributable to the structured interview.

There is also some evidence that race differences in the diagnosis of Schizophrenia found in research may be the result of sampling bias. For example, Garb (1997) reported that although research suggests clinicians are not biased when deciding to hospitalize or involuntarily commit clients, African Americans are overrepresented in hospital settings. As a result, reviews of hospital records are likely to include more African American patients than Caucasian patients and more patients diagnosed with a severe psychological disorder, such as Schizophrenia.

Therefore, research based on the examination of hospital records is likely to be skewed and results should be viewed with caution. Yet, much of the research examining differences in the diagnosis of Schizophrenia in African Americans versus Caucasians uses this methodology.

There is also support for the role of bias in the assessment measures typically used in clinical settings, which may contribute to misdiagnosis, including objective personality tests. Gynther (1972, as cited in Adebimpe, 1981) found that African Americans obtained higher baseline scores on the MMPI scales, particularly the Schizophrenia scale (scale 8). If cultural differences are not taken into consideration, African American individuals might receive a misdiagnosis of Schizophrenia based on their responses to test items. Assigning an inaccurate diagnosis based on test results confirms existing biases about minorities and mental illness, a process that can result in a self-fulfilling prophecy and inflate base rates (Lopez, 1989). Adebimpe (1981) concluded that normal African American individuals may appear to have Schizoid Personality Disorder and individuals with Schizophrenia will appear more mentally ill than they are.

Other research has focused on bias in clinical judgment, in particular, how clinicians assess symptoms and combine them to result in a diagnosis. Some research has suggested that the effect of race on diagnosis is not significant when ratings of symptoms are made or structured interviews are used (Simon et al., 1973). Based on his review, Garb (1997) concluded that clinician bias in the collection and integration of client background information is either absent or expressed in the form of positive bias toward those groups that have been discriminated against. Other studies, however, have found differential weighting of symptoms in arriving at a diagnosis based on a client's race (e.g., Trierweiler et al., 2000).

According to Herkov and Blashfield (1995), there are two methods of assigning diagnoses, comparing a patient's presentation to a prototype of the disorder or carefully evaluating and counting up symptoms to see if the patient meets DSM criteria. These authors demonstrated that clinicians often utilize a prototype approach. Similarly, Garb (1997) stated that clinicians tend to use the representativeness heuristic in which they compare the client's symptom expression with that of the typical patient, and assign the diagnosis if the client appears to be similar in presentation. However, there is some evidence that bias is decreased by carefully evaluating diagnostic criteria, whereas the prototype method is more prone to diagnostic bias (Garb, 1997). When Herkov and Blashfield (1995) compared the two methods, they found that clinicians are often inconsistent in their symptom ratings and the diagnosis assigned. Crosby and Sprock (2004) also compared clinicians' assigned diagnoses to an "objective" diagnosis based on their symptom ratings. Half of the subjects were instructed to assign a diagnosis and then rate symptoms (prototype approach) and the other half were asked to rate symptoms and then assign a diagnosis (DSM-IV approach). The researchers found that clinicians were more likely to show an overdiagnostic bias when they assigned diagnoses before making symptom ratings, and accurate diagnoses (or underdiagnostic bias) if they rated symptoms and then assigned a diagnosis.

Aklin and Turner (2006) and Whaley and Geller (2007) concluded that a prototype approach is particularly prone to result in misdiagnosis for minority clients, and recommended the use of a structured or semi-structured diagnostic interview. Neighbors et al. (2003) pointed out that African American clients do not present the prototypical picture of a disorder. Therefore, the use of prototypes is potentially hazardous when determining whether the diagnosis should be one of Schizophrenia or a mood disorder for African Americans. This approach does not

consider cultural differences, such as culturally appropriate suspiciousness in African Americans and other minorities, or differences in thought process, thought content, language, mannerisms, or interpersonal style noted by Jones and Gray (1986) and others.

More recently, Dixon et al. (2001) found that during schizophrenic or mood disorder episodes, hallucinations and delusions are more likely to be displayed by African American patients than Caucasian patients. This raises the possibility of criterion bias in the DSM-IV (i.e., the DSM-IV criteria are more reflective of the presentation of these disorders in Caucasian clients than minority clients). However, there is no known research that directly assesses the possibility of criterion bias as an explanation for the differential diagnosis of Schizophrenia in African American and Caucasian patients.

Diagnosis of Schizophrenia in African Americans and Hispanics

Research on race differences and possible bias in the diagnosis of Schizophrenia has focused on African Americans, but there has been some limited research examining individuals of Hispanic background. In general, the research has demonstrated an increased likelihood of a diagnosis of Schizophrenia or another psychiatric disorder rather than a mood disorder in African American individuals compared to Caucasians (Adebimpe, 1981; Garb, 1997; Kposowa et al., 2002; Maxmen & Ward, 1995). In addition, compared with other racial groups, African Americans are more likely to receive a misdiagnosis of Schizophrenia when a mood disorder or organic brain disease is actually present (APA, 1997). Research examining this issue in Hispanic individuals has yielded mixed results, with some studies suggesting increased diagnosis of Schizophrenia (Mukherjee, Shukla, Woodle, Rosen, & Olarte, 1983) and other research showing no differences or even fewer diagnoses of Schizophrenia or other psychological disorders than non-Hispanic Caucasians (Flaskerud & Hu, 1992).

Much of the research has examined differences in clinical diagnoses between African Americans and Caucasians based on reviews of hospital records or archival data. Overall, these studies demonstrated that African Americans are more likely to be diagnosed with Schizophrenia than Caucasians, whereas the results for Hispanics are more inconclusive. However, these results should be viewed with caution because of the concerns of sampling bias discussed earlier. In one of the earliest studies, Simon et al. (1973, as cited in Adebimpe, 1981) examined diagnoses given by hospital clinicians, and found that African American patients were given the diagnosis of Schizophrenia significantly more often than Caucasian patients. In addition, the hospital clinicians diagnosed 15% of the Caucasian patients with a mood disorder and failed to diagnose any of the African American patients with a mood disorder. However, when research psychiatrists used a structured interview to assign diagnoses, the resulting diagnoses were not influenced by race. Whereas the hospital clinicians diagnosed 80% of the African American patients with Schizophrenia, the research psychiatrists diagnosed Schizophrenia in only 27% of the African American patients. Furthermore, the research psychiatrists diagnosed 42% of the African American patients with a mood disorder. Similar results were reported by Mukherjee et al. (1983). Among patients diagnosed as bipolar by the research team, 86% of African Americans were diagnosed with Schizophrenia compared to 51% of Caucasian patients. Raskin et al. (1975, as cited in Adebimpe, 1981) compared ratings of depression and diagnoses among depressed African American and Caucasian patients. Controlling for age, sex, and socioeconomic status, Raskin et al. found that African American patients were diagnosed with a Schizophrenia spectrum disorder more frequently than Caucasian patients despite the absence of significant differences in clinical features of Schizophrenia; 39% of African American men were diagnosed with Schizophrenia, compared to 18% of the Caucasian men. In another older record

review study, Pavkov et al. (1989, as cited in Garb, 1997) found that African American patients were more likely to be diagnosed with Schizophrenia than Caucasian patients even after controlling for the variance from a structured interview.

Some researchers have included Hispanic patients in their comparisons of racial differences in diagnosis. The Mukherjee et al. (1983) study cited above found a similar percentage of misdiagnosis of Schizophrenia in Hispanics (83%) as in African Americans. More recently, Flaskerud and Hu (1992) examined archival data on diagnoses assigned to adult inpatients and outpatients in Los Angeles. They found that Hispanic subjects received fewer diagnoses of Schizophrenia than Caucasians and that Caucasian patients more frequently received a diagnosis of major mood disorder than Hispanics. Chen, Swann, and Burt (1996) examined stability of diagnosis in different racial groups and found that African American and Caucasian subjects were less likely to undergo a change in diagnosis from Schizophrenia to another disorder than Hispanic subjects. Although Hispanics tended to have less stable diagnoses, they were more likely to undergo a change in diagnosis from Schizophrenia to a less stigmatizing disorder.

The Schizophrenia Patient Outcomes Research Team study compared self-reported diagnoses of African American and Caucasian subjects receiving treatment for Schizophrenia (Dixon et al., 2001). The researchers demonstrated that African Americans were less likely to have received a previous diagnosis of a mood disorder and more likely to have been diagnosed with a psychotic disorder than Caucasians. In addition, the African American participants were less likely to report ever having a diagnosis of bipolar disorder or an anxiety disorder, whereas the Caucasian patients were more likely to report having received a diagnosis and treatment for

depression (Dixon et al., 2001). However, one limitation of the study is that the diagnoses were based on patient report, which may be biased, especially for retrospective information.

Kposowa et al. (2002) examined the records of 18,533 individuals who received inpatient or outpatient services from community mental health clinics or hospitals in Riverside County, California over a one-year time span. Of the 4,093 patients who received a diagnosis of Schizophrenia, 43% were of a minority background (Kposowa et al., 2002). Using logistic regression, Kposowa et al. (2002) found that African American patients were 85% more likely to be diagnosed with Schizophrenia than were Caucasian patients, and Hispanic patients were 33% more likely to be diagnosed with Schizophrenia than Caucasian patients.

In an archival study of Indiana hospital admissions between 1988 and 1995, Barnes (2004) examined individuals with single admissions who were diagnosed with Schizophrenia or a mood disorder. Barnes (2004) found that African American patients were approximately five times more likely to receive a diagnosis of Schizophrenia than a mood disorder. Given the disparity in diagnoses, Barnes (2004) concluded that African American patients were overdiagnosed with Schizophrenia and underdiagnosed with a mood disorder, indicating that a significant relationship exists between patient race and diagnosis.

Although the results have consistently shown that African Americans receive more clinical diagnoses of Schizophrenia and fewer diagnoses of mood disorders than Caucasians, there are significant limitations of record review studies. In particular, differences in diagnoses may reflect differences in admission rates and attitudes toward use of mental health resources. Rates of admission may vary by type of facility, with patients with less severe psychological disorders, such as a mood disorder, seeking outpatient treatment and patients with more severe psychological disorders, such as Schizophrenia, requiring hospitalization. A study by Minsky,

Vega, Miskimen, Gara, and Escobar (2003) suggested that Hispanic patients seek treatment in outpatient settings from physicians for depressive symptoms more often than other psychological symptoms. Kuno and Rothbard (2002) reported that compared to Caucasian patients, African American patients are less likely to seek treatment in outpatient settings and have more emergency room visits. Caucasian patients are also more likely than African Americans to seek treatment for less severe disorders, whereas African American patients tend not to seek treatment until symptoms become severe, leading to higher rates of inpatient hospitalization and diagnosis with a more severe disorder (Sohler & Bromet, 2003). Furthermore, the severity of symptoms and severity of diagnosis may lead to more involuntary admissions to inpatient treatment centers among African American patients compared to Caucasian patients (Garb, 1997).

Despite fairly consistent findings of increased diagnoses of Schizophrenia among African Americans compared to Caucasians in clinical diagnoses, some studies have suggested that there are fewer differences in diagnoses when structured diagnostic interviews are used (i.e., Mukherjee et al., 1983; Simon et al., 1973). For example, the study by Simon et al. (1973), discussed earlier, found that use of a structured interview by research psychiatrists resulted in a similar rate of Schizophrenia in African Americans (27%) and Caucasians (31%), while clinical diagnoses were significantly higher for African Americans (80% vs. 55%). Research psychiatrists also diagnosed more African American patients than Caucasian patients with a mood disorder (42% vs. 29%), while no African American patients had a clinical diagnosis of mood disorder. In contrast, Neighbors et al. (1999) failed to find any differences in diagnoses when they compared semi-structured to unstructured diagnostic interviews. Fifteen trained psychiatric residents who were blind to the patients' admitting diagnoses interviewed 956 patients admitted with a diagnosis of Schizophrenia, Schizoaffective disorder, or a major mood

disorder. In the first phase of the study, 35-40 minute unstructured interviews were conducted by seven residents with 291 patients to approximate normal clinical procedures. In phase two, semi-structured interviews (short version of the DSM-III-R Symptom Checklist, Hudziak et al., 1993) were conducted by eight residents with 665 patients. Contrary to expectations, they found that African Americans were more frequently diagnosed with Schizophrenia than Caucasians regardless of the interview method, whereas Caucasians were more likely to be diagnosed with a mood disorder.

A major complication with respect to the assessment and diagnosis of Hispanic clients is language. Malgady and Constantino (1998) cited two studies that compared interviews conducted in English or Spanish but found opposite results. One case study by Del Castillo (1970, as cited in Malgady & Constantino, 1998) demonstrated that Hispanic patients appeared more psychotic when the interview was conducted in Spanish and appeared less psychotic when interviewed in English. Del Castillo suggested that patients demonstrated increased vigilance and greater control over emotions when interviewed in their nondominant language as a result of differences in communication and thus expressed less symptomatology in English. However, Marcos, Alpert, Urcuyo, and Kesselman (1973, as cited in Malgady & Constantino, 1998) found that the symptoms of Hispanic patients with Schizophrenia were rated as more severe when they were interviewed in English compared to an interview in Spanish. Malgady and Constantino (1998) pointed out a potential confound in this study, in that a non-Hispanic clinician evaluated the interviews conducted in English while a Hispanic clinician evaluated the interviews conducted in Spanish. Malgady and Constantino's (1998) own research demonstrated that Hispanic clinicians rated patients as more impaired than Caucasian clinicians when bilingual and Spanish interviews were conducted. Malgady and Constantino's (1998) conclusion was similar

to that of Del Castillo's, suggesting that Hispanic patients appear more pathological when interviewed in Spanish. However, Malgady and Constantino (1998) did not examine whether the difference in level of perceived impairment was the result of bias (overpathologizing) or increased sensitivity to patient symptoms on the part of Hispanic clinicians.

Finally, some studies have examined the role of symptoms in the differential diagnosis of Schizophrenia as a way of explaining the disparity in diagnoses between African Americans and Caucasians. An early study by Mukherjee et al. (1983) suggested that age, and the presence of delusions and auditory hallucinations during mood disorder episodes, increases the risk of misdiagnosis of Schizophrenia among Hispanics as well as African Americans and that Hispanics were more likely to be misdiagnosed with Schizophrenia. More recently, Trierweiler et al. (2000) examined clinician attributions associated with the diagnosis of Schizophrenia among African American and non-African American inpatients. African American and non-African American clinical residents who were experienced in diversity affairs interviewed 292 inpatients admitted to two hospitals. Interviewers were instructed to consider all diagnoses, including depression, mania, and substance abuse disorders. Following the interview and diagnosis, clinicians were asked to report how speech patterns, behaviors, and inferences influenced their diagnostic decision. Consistent with previous findings, results demonstrated that hallucinations and paranoid/suspicious attitude were more often attributed to African American inpatients, whereas a combination of negative symptoms and dysphoric mood were more often attributed to non-African American inpatients. Attributions commonly linked to a mood disorder diagnosis were associated with a diagnosis of Schizophrenia among African American patients, suggesting that clinicians attribute and weigh the expression of symptoms differently for different racial groups (Trierweiler et al., 2000).

Arnold et al. (2000) randomly selected a sample of 195 African-American and Caucasian patients who were admitted to a hospital with at least one psychotic symptom not attributable to dementia or substance abuse. Audiotaped structured interviews were completed by doctoral or master's level psychologists or a master's level social worker and interviewers rated the presence of first-rank symptoms. The interviews were transcribed, and references to patient ethnicity were removed from the transcripts and medical records. Board certified psychiatrists blind to the patients' ethnicity reviewed the patients' medical records and transcripts, and ratings of first-rank symptoms were compared with the unblinded structured interview. First-rank symptoms were more likely among African American men than African American women, Caucasian men, and Caucasian women. The researchers suggested that the increased presence of first-rank symptoms in African American men may lead to an overemphasis on psychotic symptoms and overdiagnosis of Schizophrenia. However, the psychiatrists found that the rate of Schizophrenia diagnoses among African American men was similar to the other groups. The authors suggested that when psychotic and first-rank symptoms are considered in conjunction with affective symptoms, African American men do not have an increased rate of Schizophrenia (Arnold et al., 2000).

Neighbors et al. (2003) reanalyzed the data from phase two of their previous study, conducted in 1999, to examine the role of symptom ratings in the diagnosis of racially different individuals. Using logistic regression, they found that Caucasian inpatients were more likely to be diagnosed with bipolar disorder and African American inpatients were slightly more likely to be diagnosed with Schizophrenia; loose associations, inappropriate affect, auditory hallucinations, and vague speech increased the likelihood of a diagnosis of Schizophrenia among African American patients, while only loose associations and vague speech predicted a diagnosis

of Schizophrenia among Caucasian patients. The authors concluded that the presence of hallucinations or delusions without the indication of a mood disorder predicted the diagnosis of Schizophrenia among African American patients, but not Caucasian patients (Neighbors et al., 2003). The authors suggested that although the use of less experienced interviewers may be considered a limitation of the study, the use of clinical residents may have been an asset, as the residents were more recently trained and could be expected to be more likely to adhere to diagnostic guidelines than more experienced clinicians.

Role of Clinician and Race in Diagnosis of Schizophrenia

Research also suggests that the race and ethnic background of the clinician can influence diagnosis (Kposowa et al., 2002; Takeuchi, Uehara, & Maramba, 1999). An early study by Wallace (1977, as cited in Baskin et al., 1981), found that compared to African American clinicians, Caucasian clinicians diagnosed African American clients with more severe emotional problems. Thomas and Sillen (1972, as cited in Adebimpe, 1981) proposed that a Caucasian psychiatrist may weight symptoms differently depending on the client's race resulting in an overpathologizing of African American patients. In addition, differences in symptoms and how they are displayed by culturally different groups are compounded by differences in vocabulary, modes of communication, mannerisms, life experiences, and values, which may be misunderstood by clinicians of majority culture, resulting in misinterpretation of the client's psychopathology (Adebimpe, 1981; Aklin & Turner, 2006; Jones & Gray, 1986). Thus, clinicians from the same racial or ethnic background as the client would be expected to more accurately assess their symptoms and assign a diagnosis.

In their study examining diagnostic differences among various races, Baskin et al. (1981) also found that diagnoses were related to the clinician's race. Caucasian therapists diagnosed

more African American patients with Schizophrenia and more Hispanic patients with a mood disorder or situational problems compared to African American clinicians. African American clinicians diagnosed more African American patients with alcohol-related disorders and none with Schizophrenia, and also diagnosed more Hispanic clients with more transient situational disorders. Hispanic clinicians diagnosed more African American patients with alcohol-related disorders and, similar to the Caucasian clinicians, diagnosed a higher proportion of Hispanic patients with a mood disorder or transient problems. Baskin et al. (1981) concluded that the overdiagnosis of Schizophrenia among African American patients is due to the diagnosis being made by Caucasian clinicians or clinicians of an unknown racial background.

More recently, Trierweiler et al. (2006) found that clinician race failed to account for differences in symptom attributions and diagnoses for African American versus non-African American patients. They did find differences in decision making models based on clinician race, with a diagnosis of Schizophrenia being most strongly associated with hallucinations for African American clinicians and with negative symptoms for Caucasian clinicians.

Other studies have suggested that minority clinicians are as likely as majority clinicians to misdiagnose a minority client. Norona (2000) found no differences in Schizophrenia and psychotic disorder diagnoses assigned by Hispanic and Caucasian clinicians when diagnosing an Hispanic patient with bipolar disorder with psychotic features, even though the Hispanic clinicians reported having had more training and clinical experience with patients from minority backgrounds. Carter (1974, as cited in Adebimpe, 1981) suggested that a majority of African American clinicians receive their training from Caucasian supervisors and gain clinical experience working with Caucasian clients, resulting in a training experience composed of and tailored to the dominant group's perspective. Such an approach to training severely limits a

minority clinician's ability to apply knowledge of his or her own cultural beliefs in a clinical setting. Thus, as the minority trainee goes on to supervise other clinicians in training, the problem is perpetuated.

The Present Study

There is considerable evidence that clinicians differentially assess symptoms and assign diagnoses of Schizophrenia versus mood disorder based on a patient's race. Although the evidence is strongest for African American patients, there is some suggestion that Hispanic patients may receive different diagnoses than Caucasian patients. In addition, there is some evidence that racial differences in diagnosis may relate to the clinician's diagnostic approach and racial and ethnic background.

The purpose of this study was to examine the influence of patient race (African American, Hispanic, and Caucasian) on the diagnosis of Schizophrenia using a case vignette methodology in which client race was manipulated. Specifically, clinicians were presented with two cases that included a combination of positive (psychotic) and negative symptoms of Schizophrenia and symptoms of the major mood disorders, and were identified as African American, Hispanic, or Caucasian. For each case, participants were asked to assign a diagnosis and rate confidence in that diagnosis, and rate the representativeness of the psychotic and mood disorder diagnoses for the case. Participants were also asked to rate the symptoms in the case in order to examine the predictive value of the symptoms for a diagnosis of Schizophrenia or mood disorder. Furthermore, this study examined differences in diagnosis between a structured "DSM-IV approach" to diagnosis (i.e., assessing the presence of diagnostic criteria before assigning a diagnosis) and a prototype approach to diagnosis (i.e., assigning a diagnosis based on resemblance to a prototype). The two diagnostic approaches were simulated by asking half of

the participants to assess the presence of psychotic and mood disorder symptoms before assigning a diagnosis (i.e., simulated DSM-IV approach) and half of the participants to assign a diagnosis before assessing the symptoms in the case (i.e., simulated prototype approach). Finally, the effect of clinician race on diagnosis was also examined. The following hypotheses were proposed:

1. Client race will influence the frequency of diagnosis and the level of diagnostic representativeness ratings.
    a. Minority (African American and Hispanic) clients will be diagnosed with Schizophrenia more frequently than Caucasian clients and will receive higher Schizophrenia representativeness ratings.
    b. African American clients will receive more diagnoses of Schizophrenia than Hispanic clients and will receive higher Schizophrenia representativeness ratings.
    c. Caucasian clients will receive more mood disorder diagnoses than African American clients and will receive higher mood disorder representativeness ratings.
2. Clinicians will rate the symptoms of the case differently based on the race of the client.
    a. Schizophrenia symptoms (both positive and negative symptoms) will be rated higher for African American and Hispanic clients than for Caucasian clients.
    b. Schizophrenia symptoms (both positive and negative symptoms) will be rated higher for African American clients than for Hispanic clients.
    c. Mood symptoms will be rated higher for Caucasian clients than for African American clients.

3. Patient race will be a significant predictor of a diagnosis of Schizophrenia versus mood disorder, and Schizophrenia representativeness ratings, even after any differences in symptom ratings are taken into account.

a. Specifically, minority status will be associated with increased likelihood of a diagnosis of Schizophrenia when symptom ratings are used to predict the assigned diagnosis, and being African American will be associated with increased likelihood of a diagnosis of Schizophrenia than being Hispanic.

b. Minority status will also be associated with higher Schizophrenia representativeness ratings when symptom ratings are used as predictors, and being African American will be associated with higher Schizophrenia ratings than being Hispanic.

4. Diagnostic approach (i.e., simulated DSM-IV vs. simulated prototype approach) will influence the diagnoses assigned and diagnostic representativeness ratings. Clinicians who are asked to assign a diagnosis prior to rating the symptoms (i.e., simulated prototypic approach) will diagnose the client less accurately (i.e., more over- and under-diagnosis of minority patients) than those who are asked to rate symptoms prior to assigning a diagnosis (i.e., simulated DSM-IV approach).

a. Clinicians assigned to the prototype approach condition will assign more diagnoses of Schizophrenia and fewer diagnoses of mood disorder to minority clients compared to participants assigned to the DSM-IV approach.

b. Clinicians assigned to the prototype approach condition will assign higher Schizophrenia representativeness ratings to minority clients than participants assigned to the DSM-IV approach.

c. The simulated prototype approach will be associated with increased likelihood of a diagnosis of Schizophrenia compared to the DSM-IV approach when symptom ratings are used to predict a diagnosis of Schizophrenia versus mood disorder.

d. The simulated prototype approach will be associated with higher diagnostic ratings than the DSM-IV approach when symptom ratings are used to predict Schizophrenia representativeness ratings.

5. Clinician race will influence the diagnosis and diagnostic representativeness ratings for the minority versions of the cases.

a. For minority clients, Caucasian clinicians will diagnose Schizophrenia more frequently than minority clinicians and will assign higher Schizophrenia representativeness ratings.

b. For minority clients, minority clinicians will diagnose mood disorder more frequently than Caucasian clinicians and will assign higher mood disorder representativeness ratings.

c. Clinician race will be a significant predictor of a diagnosis of Schizophrenia versus mood disorder after controlling for symptom ratings, with majority status of the clinician being associated with increased likelihood of a diagnosis of Schizophrenia and minority status associated with increased likelihood of a diagnosis of a mood disorder.

d. Clinician race will be a significant predictor of Schizophrenia representativeness ratings after controlling for symptom ratings, with majority

status of the clinician associated with higher Schizophrenia representativeness ratings.

CHAPTER 2

METHOD

Design

The study was a 3 x 3 x 2 between subjects design. The independent variables were race of client described in the vignettes (Caucasian, African American, or Hispanic), clinician race (Caucasian, African American, or Hispanic), and diagnostic approach (DSM-IV approach - symptoms rated prior to assigning a diagnosis, or prototype approach - diagnosis assigned prior to rating symptoms). The primary dependent variables were the diagnosis assigned to the client described in the case vignette and diagnostic representativeness ratings for Schizophrenia. Additional dependent measures included diagnostic representativeness ratings for the major mood disorders, positive and negative symptom ratings, and ratings of severity and prognosis. Other information obtained included the clinicians' years of clinical experience, experience working with psychotic and mood disorders, and clinical experience in working with specific minority groups (African Americans and Hispanics). Predictors of a diagnosis of Schizophrenia entered into the regression analyses included patient race, diagnostic approach (DSM-IV *vs.* prototype), ratings for the symptoms found to be predictive of a diagnosis of Schizophrenia versus mood disorder in the Trierweiler et al. (2000) study, and clinician race.

Power Analysis

A power analysis was conducted in order to determine the appropriate sample size for the proposed study. Previous research (Arnold et al., 2004; Barnes, 2004; Flaskerud & Hu, 1992;

Trierweiler et al., 2000) examining the assignment of diagnoses and the influence of client race in diagnostic decisions has demonstrated effect sizes using chi-squares ranging from small (r_m = .15) to medium (r_m = .47). In addition, effect sizes in Barnes' (2004) research examining the influence of client race on diagnosis ranged from small for Caucasian clinicians (r_m = .27) to large for African American therapists (r_m = .53). Based on the effect sizes obtained in previous studies, a medium effect size estimate was used. According to Cohen (1992), a sample size of 68 clinicians is required to find a medium effect size with alpha set at .05 and power set at .80. However, regression analysis requires a minimum of 6 participants per predictor variable so that a somewhat larger number of subjects may be necessary. Given the expected response rate of approximately 15%, a minimum of 750 clinicians were invited to participate to obtain the necessary number of participants for the study.

Participants

Participants consisted of a national, representative sample of 111 doctoral level psychologists who are licensed to practice and have a doctoral degree in clinical or counseling psychology. An initial sample of 1200 psychologists was randomly selected from the American Psychological Association Directory. Based on the demographics of the APA and results of previous studies, the majority of these (i.e., 90%) were expected to be Caucasian. In order to attempt to obtain a sufficient number of clinicians from minority backgrounds, licensed psychologists were recruited from the National Association of Black Psychologists. Fifty-five provided email addresses and were invited to participate. Additional efforts to recruit clinicians from minority backgrounds or with experience working with minority groups included recruiting authors of published research articles on minority groups (n = 22) and individuals from Internet searches from websites (i.e., Findatherapist.com, NetworkTherapy.com) listing providers of

minority background or who serve minority populations (n = 25). Because the number of respondents was insufficient (n = 54), a second sample of 1200 psychologists was randomly selected from the APA directory and invited to participate. Fifty-nine participants responded to the second invitation. Data from two respondents was discarded due to incomplete data. Although the response for the sample was approximately 4.5% (4% for the first sample, 4.9% for the second sample), approximately one-third of the emails were returned due to the address no longer being valid or because there was a spam block on emails from unknown individuals.

Table 1 contains frequencies and percentages for participant demographic information. There were an approximately equal number of men and women. Despite efforts to oversample for clinicians from ethnic minority backgrounds, the majority of participants were Caucasians. The participants were generally middle-aged (M = 53.75 years, SD = 10.39), and quite experienced (M = 18.87 years, SD = 10.43). Most had a Ph.D. degree. The most frequently reported theoretical orientations were eclectic and cognitive-behavioral, and the most frequent employment setting was private practice, although a variety of settings were represented. Nearly all participants reported working with mood disorders in their clinical practice (93.69%), but only a third indicated that they work with Schizophrenia or other psychotic disorders (34.23%). The majority of participants reported working with individuals from various racial and ethnic minority groups in their practice (74.77%).

Analyses were conducted to determine if there were any significant differences in demographic or professional variables for participants assigned to each of the three versions of the first case and the three versions of the second case. T-tests were used to compare participant age and years of experience, and chi-square analyses were used to compare the participants on categorical variables (i.e., sex, ethnicity, theoretical orientation, experience working with mood

Table 1. Demographic and Professional Characteristics of the Participants (n = 111)

Demographic	Frequency	Percent
Gender		
Male	56	50.5%
Female	54	48.6%
Not Reported	1	0.9%
Ethnicity		
Caucasian	92	82.9%
African American	6	5.4%
Hispanic	2	1.8%
Asian American/Pacific Islander	1	0.9%
Native American	1	0.9%
Other	9	8.1%
Highest Degree		
PhD	92	82.9%
PsyD	18	16.2%
EdD	1	0.9%
Specialty		
Clinical	89	80.2%
Counseling	13	11.7%
Other	9	8.1%
Theoretical Orientation		
Eclectic	48	43.2%
Cognitive Behavioral	35	31.5%
Psychodynamic	16	14.4%
Humanistic	3	2.7%
Other	9	8.1%
Primary Work Setting		
Private Practice	57	51.4%
University Academic Department	11	9.9%
University Medical Center	8	7.2%
Community Mental Health	5	4.5%
State Psychiatric Facility	4	3.6%
VA Medical Center	3	2.7%
Correctional Facility	2	1.8%
Private Psychiatric Facility	1	0.9%
Other	20	18.0%

disorders, experience working with Schizophrenia or psychotic disorders, and experience working with individuals from ethnic minority groups). None of the differences were significant suggesting that participants assigned to the three conditions for each case were similar in demographic and professional characteristics.

Instruments

Vignettes

Clinicians were asked to read two case vignettes, one of a man, the other of a woman, each approximately 450 words in length, that were excerpted from published case studies where they were used as examples of Schizophrenia with mood symptoms and bipolar disorder with psychotic features (Spitzer, Gibbon, Skodol, Williams, & First, 1994, pp. 383-386; Weiner, 2004, pp. 269-291; Weiner, 2004, pp. 295-311). The cases were modified so that the client presents with both psychotic and mood disorder symptoms but the symptoms are ambiguous enough so that the vignettes are unlikely to receive the same diagnoses from all clinicians. Symptoms of a third case were added to the bipolar case in order to make the case more ambiguous. The case vignettes can be found in Appendices A and B. There were three versions of each vignette in which client race was manipulated (African American, Caucasian, and Hispanic) and clinicians received clients of two different races (i.e., Caucasian and African American, Caucasian and Hispanic, African American and Hispanic). Order of presentation of the cases was partially counterbalanced. A pilot study (ratings of the symptoms in the cases by four doctoral students) suggested that the cases did not meet criteria for Schizophrenia or a major mood disorder (bipolar disorder, major depressive disorder).

Diagnostic Questionnaire

The diagnostic questionnaire accompanying each case vignette is presented in Appendix C. For each case vignette, clinicians were asked to rate the presence of symptoms taken from the DSM-IV criteria for a major depressive episode, bipolar disorder (manic episode and mixed episode), Schizophrenia (plus paranoid, disorganized, catatonic, undifferentiated, and residual subtypes), and Schizoaffective disorder. Ratings were made on a Likert-type scale ranging from

0 (not present) to 4 (present- severe). Clinicians were also asked to rate the representativeness of a series of diagnoses for the case using a Likert-type scale ranging from 1 (not at all representative) to 5 (highly representative) and then assign a diagnosis for each case from a list of major Axis I disorders. Half of the clinicians were asked to rate the symptoms first and then assign a diagnosis (DSM-IV approach), and half of the clinicians were asked to assign a diagnosis first and then rate the symptoms (prototype approach). Finally, clinicians were asked to rate their level of confidence in their diagnosis (0 = not at all confident to 4 = very confident), the overall severity of the symptoms in the case (0 = not at all severe to 4 = very severe), and the prognosis of the client in the vignette (0 = poor prognosis to 4 = very good prognosis).

Demographic Questionnaire

Clinicians were also asked to complete a demographic questionnaire (see Appendix D). Clinicians were asked to provide their age, sex, ethnicity, degree (Ph.D., Psy.D., Ed.D., M.D.), year they received their degree, number of years of clinical experience, and area of specialty (clinical or counseling). The questionnaire also obtained information regarding their theoretical orientation, current work setting, clinical experience working with specific minority groups (African Americans and Hispanics), and experience working with individuals with psychotic and mood disorders.

Procedure

Licensed psychologists listed in the National Association of Black Psychologists and the American Psychological Association directories were randomly selected for participation and email addresses were obtained. Additional psychologists were recruited from on-line lists of providers and authors of articles with interests and expertise in working with ethnic minority patients, as described above. Each psychologist was randomly assigned to one of the 24 partially

counterbalanced conditions and was sent an email inviting him or her to participate (Appendix E). The email provided a brief description of the study stating that it was a study of clinician diagnostic decision making, the website address for the assigned condition, and the link to the page on the website. The email also provided a code to ensure that only those who were invited actually participated. Upon accessing the website, clinicians were instructed to enter the code they received with their invitation to participate. Participants were informed that submission of responses constituted informed consent (see Appendix F). There were three versions of each vignette in which client race was manipulated (African American, Caucasian, Hispanic) and clinicians received two cases of clients of two different races (i.e., Caucasian and African American, Caucasian and Hispanic, African American and Hispanic). Order of presentation of the cases was partially counterbalanced. Psychologists were asked to read the two cases, assign diagnoses and symptom ratings, and complete the demographic questionnaire. Upon completion of the study, participants were provided a link to the email of the investigator to enroll in a raffle for a $50 Amazon.com gift card and to obtain the results of the study. A second email reminding clinicians of the study was sent after two weeks.

Pilot Studies

Pilot studies of the case vignettes were conducted to ensure that the cases were clearly written and understandable, as well as to ensure that the cases contained the intended psychotic and mood symptoms, but did not meet criteria for Schizophrenia and were sufficiently ambiguous. Graduate students from the Psy.D. program read the vignettes and questionnaire to assess for comprehension and representativeness. The website was also tested to assure that the responses were automatically entered into the data file.

CHAPTER 3

RESULTS

Results are presented first for the LK case and then for the MW case. Frequencies and percentages of assigned diagnoses are presented along with the results of chi-square analyses examining the effect of patient race (African American, Caucasian, Hispanic) and diagnostic approach (simulated DSM-IV approach - symptoms rated first *vs.* simulated prototype approach - diagnosis first) on diagnoses. Means and standard deviations for the diagnostic representative ratings are presented next, followed by the symptom ratings. Two-way analysis of variances (ANOVAs) were used to examine the effect of patient race and diagnostic approach on the diagnostic representativeness ratings and the symptom ratings. Although the intent was to examine the effect of clinician race as a primary predictor of diagnostic bias, due to the low percentage of minority clinicians, the effect of clinician ethnicity was examined as a secondary variable along with other clinician demographic and professional variables to determine how these factors contribute to the decision-making process. Due to a low number of respondents from minority groups, clinician ethnicity was divided into two categories, majority (n = 92) and minority (n = 19). The effect of case order as a potential confounding variable was also examined. Regressions are then presented using patient race, diagnostic approach, and symptom ratings to predict a categorical diagnosis of Schizophrenia (i.e., logistic regressions), and to predict diagnosis of a psychotic disorder versus a mood disorder. The symptom ratings used are those that were significant predictors of a diagnosis of Schizophrenia in the Trierweiler et al.

(2000) study (i.e., hallucinations, delusions, negative symptoms), including those negatively associated with a diagnosis of Schizophrenia (i.e., depressed mood, elevated mood, and due to the effects of substance use). A second step added clinician ethnicity as a predictor because it was initially a variable of interest in the study. Additional exploratory logistic regression analyses were conducted to examine the predictive value of the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study. Finally, multiple regressions were conducted using the same predictors with the Schizophrenia representativeness ratings as the criterion.

LK Case

This case described a 25 year old man (LK) who was admitted to an inpatient unit for bizarre behavior and depressed mood and who has a history of manic-like symptoms (see Appendix A).

Diagnoses

Frequencies and percentages of assigned diagnoses overall and by patient race are presented in Table 2. Schizoaffective Disorder was the most frequently assigned diagnosis for the case, followed by Schizophrenia and Bipolar I, Mixed. A chi-square analysis was conducted to examine the effect of patient race on assigned diagnosis. Although the most frequent diagnosis for the African American and Caucasian versions of the case was Schizoaffective Disorder, and the Hispanic case was most frequently diagnosed with Schizophrenia, the chi-square analysis was not statistically significant for patient race, $\chi^2(18, N = 110) = 10.56, p = .91$. The effect of diagnostic approach on diagnoses was examined to determine if there was a significant difference in diagnoses using a simulated DSM-IV approach versus a simulated prototype

Table 2. Frequencies and Percentages of Assigned Diagnoses for LK Case

	Patient Race			
	African American (n = 37)	Hispanic (n = 38)	Caucasian (n = 36)	Total (n = 111)
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Diagnosis				
Schizoaffective	10 (27.03%)	10 (26.32%)	14 (38.89%)	34 (30.63%)
Schizophrenia	9 (24.32%)	11 (28.95%)	7 (19.44%)	27 (24.32%)
Bipolar I, Mixed	9 (24.32%)	7 (18.42%)	7 (19.44%)	23 (24.32%)
Major Depression	2 (5.41%)	2 (5.26%)	2 (5.56%)	6 (5.41%)
Delusional	2 (5.41%)	1 (2.63%)	2 (5.56%)	5 (4.50%)
Schizophreniform	2 (5.41%)	1 (2.63%)	1 (2.78%)	4 (3.60%)
Bipolar I, Depressed	1 (2.70%)	1 (2.63%)	2 (5.56%)	4 (3.60%)
Other diagnosis	2 (5.41%)	4 (10.53%)	1 (2.78%)	7 (6.31%)
No diagnosis	0 (0.00%)	1 (2.63%)	0 (0.00%)	1 (0.90%)

Note. “Other diagnosis” included Bipolar I, Manic, Bipolar II, Depressed, and Bipolar II Hypomanic.

approach. The most frequently assigned diagnosis was Schizoaffective Disorder, followed by Schizophrenia and Bipolar I, Mixed, regardless of which ratings (symptoms or diagnoses) were presented first, and the chi-square analysis was not statistically significant, $\chi^2(9, N = 110) = 6.12$, $p = .73$. Results also were not significant for patient race or diagnostic approach when the assigned diagnostic choices were grouped into fewer categories based on type of psychopathology (i.e., Schizophrenia *vs.* other diagnosis; psychotic *vs.* mood disorder; psychotic, mood and Schizoaffective disorders; psychotic, mood, Schizoaffective, substance induced, and due to a general medical condition).

Diagnostic Representativeness Ratings

Means and standard deviations for the diagnostic representativeness ratings by patient race and overall are presented in Table 3. Results were similar to the assigned diagnoses. The most representative diagnosis overall was Schizoaffective Disorder, followed by Schizophrenia.

Table 3. Means and Standard Deviations for Diagnostic Representativeness Ratings for LK Case

	Patient Race			
	African American (n = 37)	Hispanic (n = 38)	Caucasian (n = 36)	Total (n = 111)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Diagnosis				
Schizoaffective	3.49 (1.04)	3.11 (1.30)	3.51 (1.12)	3.37 (1.16)
Schizophrenia	3.23 (1.06)	3.27 (1.41)	2.97 (1.49)	3.16 (1.33)
Delusional	2.94 (1.12)	3.03 (1.34)	3.09 (1.34)	3.02 (1.26)
Bipolar I, Mixed	2.86 (1.34)	2.97 (1.22)	3.11 (1.16)	2.98 (1.23)
Major Depression	2.78 (1.21)	2.69 (1.13)	2.69 (1.13)	2.72 (1.15)
Bipolar I, Depressed	2.31 (1.02)	2.40 (1.14)	2.42 (1.18)	2.38 (1.11)
Bipolar I, Manic	2.35 (1.09)	2.06 (0.95)	2.34 (1.14)	2.25 (1.06)
Schizophreniform	2.42 (1.20)	2.00 (1.01)	2.17 (1.18)	2.20 (1.14)
Bipolar II, Depressed	2.08 (1.03)	2.25 (1.23)	1.80 (0.87)	2.05 (1.06)
Bipolar II, Hypomanic	2.03 (0.96)	2.03 (1.13)	1.69 (0.83)	1.92 (0.99)
Cyclothymic	2.00 (1.03)	1.72 (0.85)	1.36 (0.68)	1.70 (0.90)
Brief Psychotic	1.78 (0.95)	1.61 (0.80)	1.64 (0.93)	1.68 (0.89)
Sub. Ind. Psy.	1.62 (0.72)	1.86 (0.95)	1.56 (0.94)	1.68 (0.88)
Sub. Ind. Mood	1.62 (0.79)	1.72 (1.00)	1.51 (0.85)	1.62 (0.88)
Psy. Gen. Med.	1.59 (0.64)	1.61 (0.93)	1.56 (0.70)	1.59 (0.76)
Dysthymic	1.81 (1.14)	1.52 (0.83)	1.31 (0.62)	1.54 (0.91)
Mood Gen. Med.	1.46 (0.56)	1.57 (0.90)	1.33 (0.59)	1.45 (0.70)

Note. Ratings were made on a scale of 1 (Not at all representative), 3 (Moderately representative), 5 (Highly representative). Sub. Ind. Psy. = Substance Induced Psychotic Disorder, Sub. Ind. Mood = Substance Induced Mood Disorder, Psy. Gen. Med. = Psychotic Disorder due to a General Medical Condition, Mood Gen. Med. = Mood Disorder due to a General Medical Condition

When the patient race was African American or Caucasian, the most representative diagnosis was Schizoaffective Disorder, whereas when the patient race was specified as Hispanic, the most representative diagnosis was Schizophrenia. A series of two-way ANOVAs were conducted to examine the effect of patient race and diagnostic approach on each of the diagnostic representativeness ratings. Due to the multiple comparisons, a Bonferroni correction was used and the alpha level was set at .0025 for these analyses.

There were no significant effects of patient race, diagnostic approach (i.e., DSM-IV approach vs. prototype approach), or any significant interactions between patient race and diagnostic approach on any of the ratings for the diagnoses of interest (i.e., Schizophrenia, psychotic disorders, major mood disorders), and none of the results approached significance (all $p > .05$). The African American version of the case was rated higher for Cyclothymic Disorder than the Caucasian version of the case; however, the difference in ratings based on patient race failed to reach the corrected level of statistical significance, $F(2, 108) = 5.35$, $p = .006$, and Cyclothymic Disorder was rated as not very representative of the case. Ratings were higher for the DSM-IV approach than the prototype approach for Mood Disorder due to a General Medical Condition ($M = 1.69$ *vs*. 1.27), $F(1, 108) = 10.88$, $p = .001$, and Psychotic Disorder due to a General Medical Condition ($M = 1.78$ *vs*. 1.45), $F(1, 108) = 5.07$, $p = .027$, but the latter difference did not achieve the corrected level of statistical significance and neither diagnostic dimension was rated as representative of the case.

Table 4 presents several additional ratings of the case, including participants' confidence in their diagnosis, severity of the psychopathology in the case, and prognosis of the patient. Overall, participants were moderately confident in their diagnoses, severity of the psychopathology in the case was rated moderately high, and prognosis of the patient was rated

low (see Table 4). Two-way ANOVAs revealed no statistically significant effects of patient race, diagnostic approach, or interactions between patient race and diagnostic approach on these ratings.

Table 4. Means and Standard Deviations for Confidence, Severity, and Prognosis Ratings for LK Case

	Patient Race			
	African American	Hispanic	Caucasian	Total
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Confidence	3.22 (0.79)	3.27 (0.96)	3.31 (1.01)	3.26 (0.92)
Severity	4.22 (0.75)	4.49 (0.67)	4.47 (0.74)	4.39 (0.72)
Prognosis	2.36 (0.76)	2.19 (0.88)	2.22 (0.72)	2.26 (0.79)

Symptom Ratings

Means and standard deviations for the symptom ratings for the case overall and based on patient race are presented in Appendix G paraphrased and listed in descending order. The highest rated symptoms for the case were suicidal thoughts, odd or bizarre behavior, feelings of worthlessness, and delusions. In addition, the overall psychopathology in the case was rated as severe and the patient was rated as having moderately decreased functioning. A series of two-way ANOVAs were conducted to examine the effect of patient race and diagnostic approach on each of the symptom ratings. A Bonferroni correction was used due to the multiple comparisons and the alpha level was set at .0012.

There were no statistically significant effects of patient race, diagnostic approach, or significant interactions between patient race and diagnostic approach on any of the symptom ratings. The ratings for the symptom, poor concentration, were higher for the Hispanic than the

Caucasian version of the case; however, the effect of patient race on the ratings failed to reach the corrected level of statistical significance, $F(2, 105) = 3.59$, $p = .03$, and this symptom was rated moderately low for the case. Several symptoms were rated higher when the symptoms were rated first (DSM-IV approach) compared to when the diagnosis was assigned first (prototype approach). However, none of the differences reached the corrected level of statistical significance, i.e., more talkative, $F(1, 106) = 6.99$, $p = .01$; prominent hallucinations or delusions, $F(1, 105) = 5.11$, $p = .026$; delusions $F(1, 107) = 4.89$, $p = .029$; odd or bizarre behavior, $F(1, 106) = 4.48$, $p = .037$.

Case Order

Although the order of the cases was counterbalanced, the effect of case order on the diagnoses and ratings was examined as a potential confounding variable. A chi-square analysis conducted to examine the effect of case order on assigned diagnosis was not statistically significant, $\chi^2(9, N = 110) = 10.53$, $p = .31$. Results were similar when the diagnostic choices were grouped according to type of psychopathology (i.e., Schizophrenia *vs.* other diagnosis; psychotic *vs.* mood disorder; psychotic, mood and Schizoaffective disorders; psychotic, mood, Schizoaffective, substance induced, and due to a general medical condition).

A series of ANOVAs were conducted to examine the effect of case order on the diagnostic representativeness ratings and other ratings (confidence, severity, prognosis) for this case. Statistically significant effects of case order were found for two diagnostic representativeness ratings. Substance Induced Psychotic Disorder, $F(1, 109) = 10.27$, $p = .002$, and Schizophreniform Disorder, $F(1, 106) = 9.80$, $p = .002$, were rated less representative of the case when LK was the second case. Participants' ratings of confidence in their diagnosis was significantly higher when LK was the second case, $F(1, 109) = 10.44$, $p = .002$. However, none

of these dimensional ratings were significantly different based on patient race or diagnostic approach. In addition, when the two-way ANOVAs (patient race, diagnostic approach) for the diagnostic representativeness and other ratings were repeated using case order as a covariate, there were no changes in the significance of any of the results.

ANOVAs were also conducted to examine the effect of case order on each of the symptom ratings. When LK was the second case, the symptom, suicidal thoughts, was rated higher, $F(1, 106) = 10.21$, $p = .002$, overall severity was rated higher, $F(1, 107) = 5.20$, $p = .025$, decreased functioning was rated higher, $F(1, 109) = 4.36$, $p = .039$, and the psychopathology in the case was rated as less likely due to the effect of a substance, $F(1, 107) = 6.13$, $p = .015$; however, none of these differences reached the corrected level of statistical significance. Nevertheless, the effects of patient race and diagnostic approach were re-examined using case order as a covariate for suicidal thoughts, since it was the highest rated symptom for the case, and for the symptoms that had approached significance in the earlier analyses. There were no changes in the significance of any of the results, suggesting that case order did not have an effect on the findings.

Effect of Clinician Variables

The effect of clinician variables on the diagnoses and diagnostic representativeness ratings was also examined. For the purpose of these analyses, clinician ethnicity was divided into two categories, majority ($n = 92$) and minority ($n = 19$), which included African American, Hispanic, Asian/Pacific Islander, Native American, biracial, and other. Years of experience was divided into four categories (0-9, 10-19, 20-29, and 30+), age was divided into three categories (<49, 50-59, 60+), and theoretical orientation was divided into three categories (CBT: $n = 35$; eclectic/integrative: $n = 48$; other: $n = 28$). Clinical experience with different minority groups

was collapsed into a single dichotomous variable, with the majority of participants (n = 83, 74.8%) having experience with one or more minority groups.

A series of chi-square analyses were conducted to examine the effects of clinician ethnicity, age, years of experience, experience with minority populations, and theoretical orientation on assigned diagnosis (i.e., Schizophrenia *vs.* other diagnosis; psychotic *vs.* mood disorder; psychotic, mood and Schizoaffective disorders; psychotic, mood, Schizoaffective, substance induced, and due to a general medical condition).There was a significant effect of clinician ethnicity in the diagnosis of a psychotic disorder versus a mood disorder, $\chi^2(2, N = 111) = 7.13$, $p = .008$. Caucasian clinicians diagnosed a psychotic disorder (n = 63; 68.5%) more often than non-Caucasian clinicians (n = 7; 36.8%) and more often than a mood disorder (n = 28; 30.4%). Non-Caucasian clinicians diagnosed a mood disorder (n =12; 63.2%) more often than Caucasian clinicians (n = 28; 30.4%) and more often than a psychotic disorder (n =7; 36.8%). None of the other analyses were statistically significant, regardless of the grouping of diagnostic categories.

A series of ANOVAs were conducted to examine the effect of the same clinician variables (i.e., ethnicity, theoretical orientation, experience with minority populations, age, number of years of experience) on the diagnostic representativeness ratings. None of the clinician variables examined had a statistically significant effect on the Schizophrenia representativeness ratings, mood disorder representativeness ratings, or any of the other diagnostic representativeness ratings (all $p > .05$).

Multivariate Analyses

Multivariate analyses were used to determine whether a diagnosis of Schizophrenia or Schizophrenia representativeness ratings were predicted by patient race, diagnostic approach,

and symptoms previously found to be associated with a diagnosis of Schizophrenia (i.e., hallucinations, delusions, negative symptoms) including those negatively associated with a diagnosis of Schizophrenia (i.e., dysphoric mood, elevated mood, due to the effects of substance use). A second step added clinician ethnicity. Additional exploratory analyses were conducted to examine the predictive value of the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized behavior, affective flattening, disorganized speech, and prominent hallucinations or delusions). A final set of logistic regressions examined predictors of a psychotic disorder versus a mood disorder using the same predictors described above.

Logistic Regression

Logistic regression was used to determine which factors were most predictive of a diagnosis of Schizophrenia versus other diagnosis. Predictors included patient race, diagnostic approach, and the ratings for the symptoms (i.e., hallucinations, delusions, negative symptoms, dysphoric mood, elevated mood, due to effects of a substance). The model successfully predicted a diagnosis of Schizophrenia ($\chi^2 = 25.13$ $df = 8$, $p = .001$), and accounted for between 23.9% and 35.0% of the variance (Cox and Snell R Square = .239; Negelkerke R Square = .350). The rating for negative symptoms of Schizophrenia was a significant predictor of a diagnosis of Schizophrenia, as were depressed mood and elevated mood (both negatively associated with the diagnosis). The model correctly predicted the diagnosis of Schizophrenia versus other diagnosis 79.3% of the time, which represented only a slight improvement over a model in which none of the predictors were used (i.e., base rates, 73.9%). Patient race and diagnostic approach were not significant predictors of a diagnosis of Schizophrenia. A second step added clinician ethnicity. The model successfully predicted a diagnosis of Schizophrenia ($\chi^2 = 26.28$, $df = 9$, $p = .002$), and

accounted for between 24.8 and 36.4% of the variance (Cox and Snell *R* Square = .248; Negelkerke *R* Square = .364). Negative symptoms and depressed mood (negatively associated with the diagnosis) remained significant predictors of a diagnosis of Schizophrenia. The overall model correctly predicted the diagnosis of Schizophrenia versus other diagnosis only 77.2% of the time, as clinician ethnicity was not a significant predictor and did not increase accuracy of prediction. Table 5 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Table 5. Logistic Regression Analysis Predicting a Diagnosis of Schizophrenia (N = 92)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	.564	.387	2.118	1	.146
Diagnostic Approach	-0.045	.600	.006	1	.956
Hallucinations	-0.114	.312	0.134	1	.715
Delusions	0.596	.325	3.364	1	.067
Negative Symptoms	0.908	.338	7.232	1	.007
Depressed Mood	-0.525	.249	4.441	1	.035
Elevated Mood	-0.602	.298	4.080	1	.043
Effects of a Substance	-0.483	.576	0.703	1	.402
Step 2					
Patient Race	0.508	.389	1.709	1	.191
Diagnostic Approach	-0.251	.627	0.161	1	.688
Hallucinations	-0.110	.317	0.120	1	.729
Delusions	0.619	.330	3.525	1	.060
Negative Symptoms	0.914	.338	7.323	1	.007
Depressed Mood	-0.552	.252	4.794	1	.029
Elevated Mood	-0.556	.300	3.433	1	.064
Effects of Substance	-0.447	.580	0.595	1	.441
Clinician Ethnicity	-0.871	.848	1.056	1	.304

A second logistic regression was conducted to examine the predictive value of the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized

speech, and prominent hallucinations or delusions). The predictors in the logistic regression included these symptoms plus the independent variables (i.e., patient race, diagnostic approach). The model successfully predicted a diagnosis of Schizophrenia versus other disorder (χ^2 = 30.850, df = 10, p = .001). The model accounted for between 28.8% and 43.0% of the variance (Cox & Snell R Square = .288; Negelkerke R Square = .430). The model correctly predicted the diagnosis 80.2% of the time, a small improvement over a model in which none of the predictors were used (i.e., base rates, 75.8%). The factors found to significantly predict the diagnosis of Schizophrenia were prominent hallucinations or delusions, as well as depressed mood and elevated mood (both negatively associated with a diagnosis of Schizophrenia). Affective flattening just missed reaching significance (p =.057). A second step added clinician ethnicity. The model successfully predicted the primary diagnosis (χ^2 = 30.863, df = 11, p = .001) and accounted for between 28.8% and 43.0% of the variance (Cox and Snell R Square = .288; Negelkerke R Square = .430). However, the accuracy of prediction was slightly lower (79.1%) and clinician ethnicity did not contribute to the prediction of the diagnosis. Patient race and diagnostic approach were not significant predictors of Schizophrenia. Table 6 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Additional logistic regressions were used to determine which factors were most predictive of a diagnosis of a psychotic disorder versus a mood disorder using the same predictors as above (i.e., patient race, diagnostic approach, ratings for hallucinations, delusions, negative symptoms, dysphoric mood, elevated mood, due to effects of a substance). The model successfully predicted the diagnosis (χ^2 = 38.554, df = 8, p < .001) and accounted for between

34.2% and 46.4% of the variance (Cox and Snell *R* Square = .342; Negelkerke *R* Square = .464). Delusions, negative symptoms, elevated mood (negative) and the effects of a substance

Table 6. Logistic Regression Analysis Predicting a Diagnosis of Schizophrenia (N = 91)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	0.448	.416	1.161	1	.281
Diagnostic Approach	0.265	.648	0.167	1	.683
Depressed Mood	-0.924	.304	9.263	1	.002
Elevated Mood	-0.652	.320	4.153	1	.042
Effects of Substance	-0.492	.620	0.630	1	.427
Odd or Bizarre Behavior	-0.118	.567	0.043	1	.835
Disorg. or Cat. Behavior	0.373	.309	1.462	1	.227
Affective Flattening	0.560	.294	3.627	1	.057
Disorganized Speech	-0.241	.342	0.499	1	.480
Prom. Halluc. or Del.	0.947	.413	5.255	1	.022
Step 2					
Patient Race	0.442	.419	1.111	1	.292
Diagnostic Approach	0.242	.678	0.128	1	.721
Depressed Mood	-0.922	.304	9.197	1	.002
Elevated Mood	-0.646	.325	3.962	1	.047
Effects of Substance	-0.486	.623	0.608	1	.435
Odd or Bizarre Behavior	-0.126	.573	0.048	1	.826
Disorg. or Cat. Behavior	0.372	.310	1.442	1	.230
Affective Flattening	0.563	.295	3.632	1	.057
Disorganized Speech	-0.240	.341	0.496	1	.481
Prom. Halluc. or Del.	0.947	.412	5.270	1	.022
Clinician Ethnicity	-0.100	.897	0.012	1	.912

Note. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

(negative) were significant predictors. A second step added clinician ethnicity. The model successfully predicted a diagnosis of Schizophrenia ($\chi^2 = 51.250$, $df = 9$, $p < .001$). The model accounted for between 42.7% and 57.9% of the variance (Cox and Snell *R* Square = .427; Negelkerke *R* Square = .579) and showed 84.8% accuracy in prediction compared to only 60.9% accuracy using base rates alone. The symptoms that were significant predictors of a diagnosis of a psychotic disorder versus a mood disorder remained significant. Clinician ethnicity was also a

significant predictor, with majority membership predictive of a diagnosis of a psychotic disorder and minority status associated with a diagnosis of mood disorder. Table 7 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Table 7. Logistic Regression Analysis Predicting a Diagnosis of a Psychotic Disorder versus a Mood Disorder (N = 91)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.002	.344	0.000	1	.996
Diagnostic Approach	0.193	.575	0.112	1	.737
Hallucinations	0.196	.354	0.306	1	.580
Delusions	0.914	.296	9.523	1	.002
Negative Symptoms	0.760	.255	8.838	1	.003
Depressed Mood	-0.404	.259	2.438	1	.118
Elevated Mood	-1.063	.342	9.663	1	.002
Effects of a Substance	-1.408	.600	5.502	1	.019
Step 2					
Patient Race	-0.157	.390	0.161	1	.688
Diagnostic Approach	-0.360	.666	0.292	1	.589
Hallucinations	0.165	.357	0.214	1	.644
Delusions	1.090	.349	9.731	1	.002
Negative Symptoms	0.936	.303	9.560	1	.002
Depressed Mood	-0.460	.287	2.570	1	.109
Elevated Mood	-1.277	.419	9.269	1	.002
Effects of Substance	-1.970	.707	7.756	1	.005
Clinician Ethnicity	-2.784	.894	9.708	1	.002

A second logistic regression was conducted predicting a diagnosis of a psychotic versus a mood disorder using the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized speech, and prominent hallucinations or delusions) plus patient race and diagnostic approach. The model successfully predicted the diagnosis ($\chi^2 = 30.839$, $df = 10$, $p = .001$). The model accounted for between 28.7% and 39.2% of the variance (Cox & Snell R

Square = .287; Negelkerke *R* Square = .392). The only factors found to significantly predict the diagnosis were affective flattening, elevated mood (negative) and depressed mood (negative); surprisingly, the symptom, prominent hallucinations or delusions, was not significant. A second step added clinician ethnicity. The model successfully predicted the diagnosis ($\chi^2 = 41.181$, $df = 11$, $p < .001$) and accounted for between 36.4% and 49.6% of the variance (Cox and Snell *R* Square = .364; Negelkerke *R* Square = .496). The overall model correctly predicted the diagnosis of a psychotic disorder versus a mood disorder 81.3% of the time, an improvement of 20.7% over base rates (62.6%). Clinician ethnicity was a significant predictor, with minority status associated with a diagnosis of mood disorder. Table 8 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Multiple Regression

Multiple regression analyses were conducted using the same predictors as for the logistic regressions (patient race; diagnostic approach; symptoms associated with increased diagnoses of Schizophrenia - hallucinations, delusions, negative symptoms; and those associated with decreased diagnoses of Schizophrenia - dysphoric mood, elevated mood, effects of substance use) and using the Schizophrenia representativeness ratings as the criterion. The model was significant in predicting the Schizophrenia ratings, $F(8, 89) = 5.383$, $p < .001$. Delusions and negative symptoms were significant predictors of Schizophrenia ratings, as were depressed mood and elevated mood (both negatively associated). Neither patient race nor diagnostic approach were significant predictors. Clinician ethnicity was added in the second step. The model was

Table 8. Logistic Regression Analysis Predicting a Diagnosis of a Psychotic Disorder versus a Mood Disorder (N = 111)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.035	.320	0.012	1	.912
Diagnostic Approach	0.129	.569	0.051	1	.821
Depressed Mood	-0.540	.273	3.919	1	.048
Elevated Mood	-0.646	.301	4.608	1	.032
Effects of Substance	-0.639	.556	1.319	1	.251
Odd or Bizarre Behavior	0.109	.376	0.083	1	.773
Disorg. or Cat. Behavior	0.387	.270	2.055	1	.152
Affective Flattening	0.766	.245	9.732	1	.002
Disorganized Speech	0.121	.343	0.124	1	.724
Prom. Halluc. or Del.	0.198	.247	0.642	1	.423
Step 2					
Patient Race	-0.108	.345	0.098	1	.754
Diagnostic Approach	-0.458	.658	0.485	1	.486
Depressed Mood	-0.558	.297	3.517	1	.061
Elevated Mood	-0.690	.344	4.029	1	.045
Effects of Substance	-1.012	.626	2.615	1	.106
Odd or Bizarre Behavior	-0.120	.421	0.081	1	.776
Disorg. or Cat. Behavior	0.238	.288	0.684	1	.408
Affective Flattening	0.946	.293	10.413	1	.001
Disorganized Speech	0.199	.360	0.305	1	.581
Prom. Halluc. or Del.	0.309	.281	1.212	1	.271
Clinician Ethnicity	-2.547	.884	8.296	1	.004

Note. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

significant $F(9, 89) = 4.962$, $p < .001$. The same symptoms remained significant and clinician ethnicity was not a significant predictor (see Table 9).

A second multiple regression used the symptoms most highly correlated with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized speech, prominent hallucinations or delusions) in addition to patient race and diagnostic approach. The model was significant, $F(10, 87) = 4.780$, $p < .001$. Affective flattening was a significant predictor of Schizophrenia ratings, as were

Table 9. Multiple Regression Analysis for Variables Predicting Schizophrenia Representativeness Ratings (N = 111)

	β	*t*	*p*
Variable			
Step 1			
Patient Race	0.072	0.476	.635
Diagnostic Approach	0.055	0.215	.830
Hallucinations	0.053	0.397	.693
Delusions	0.370	3.316	.001
Negative Symptoms	0.398	3.535	.001
Depressed Mood	-0.259	-2.463	.016
Elevated Mood	-0.273	-2.222	.029
Effects of Substance	-0.067	-0.273	.785
Step 2			
Patient Race	0.047	0.306	.760
Diagnostic Approach	-0.008	-0.031	.976
Hallucinations	0.049	0.370	.712
Delusions	0.370	3.323	.001
Negative Symptoms	0.388	3.446	.001
Depressed Mood	-0.260	-2.479	.015
Elevated Mood	-0.265	-2.161	.034
Effects of Substance	-0.097	-0.394	.695
Clinician Ethnicity	-0.373	-1.178	.242

Note: Step1 $R = .589$, $R^2 = .347$, Adjusted $R^2 = .283$; Step 2 $R = .599$, $R^2 = .358$, Adjusted $R^2 = .286$

depressed mood and elevated mood (both negative). Clinician ethnicity was again added in the second step. The model was significant, $F(11, 87) = 4.439$, $p < .001$, and the symptoms remained significant, and clinician ethnicity contributed to the prediction of the Schizophrenia representativeness ratings (see Table 10).

MW Case

This case described a 30 year old woman admitted to a psychiatric inpatient unit with depression and psychotic symptoms.

Table 10. Multiple Regression Analysis for Variables Predicting Schizophrenia Representativeness Ratings (N = 111)

	β	*t*	*p*
Variable			
Step 1			
Patient Race	-0.007	-0.117	0.907
Diagnostic Approach	0.011	0.109	0.913
Depressed Mood	-0.098	-2.260	0.027
Elevated Mood	-0.107	-2.276	0.025
Effects of Substance	-0.091	-0.978	0.331
Odd or Bizarre Behavior	0.007	0.098	0.922
Disorg. or Cat. Behavior	0.069	1.509	0.135
Affective Flattening	0.135	3.355	0.001
Disorganized Speech	0.016	0.287	0.775
Prom. Halluc. or Del.	0.042	0.957	0.342
Step 2			
Patient Race	-0.030	-0.540	0.591
Diagnostic Approach	-0.063	-0.661	0.511
Depressed Mood	-0.086	-2.082	0.041
Elevated Mood	-0.098	-2.195	0.031
Effects of Substance	-0.125	-1.404	0.164
Odd or Bizarre Behavior	-0.017	-0.265	0.791
Disorg. or Cat. Behavior	0.051	1.174	0.244
Affective Flattening	0.136	3.531	0.001
Disorganized Speech	0.018	0.338	0.736
Prom. Halluc. or Del.	0.048	1.156	0.251
Clinician Ethnicity	-0.371	-3.077	0.003

Note: Step 1 $R = .543$, $R^2 = .295$, Adjusted $R^2 = .207$; Step 2 $R = .609$, $R^2 = .371$, Adjusted $R^2 = .283$. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

Diagnoses

Frequencies and percentages of assigned diagnoses overall and by patient race are presented in Table 11. Schizophrenia was the most frequently assigned diagnosis for the case, followed by Schizoaffective Disorder. A chi-square analysis was conducted to examine the effect of patient race on assigned diagnosis of this case. Schizophrenia was most frequently diagnosed

Table 11. Frequencies and Percentages of Assigned Diagnoses for MW Case

	Patient Race			
	African American (n = 40)	Hispanic (n = 32)	Caucasian (n = 39)	Total (n = 111)
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Diagnosis				
Schizophrenia	14 (35.00%)	9 (28.13%)	11 (28.21%)	34 (30.63%)
Schizoaffective	7 (17.50%)	6 (18.75%)	11 (28.21%)	24 (21.62%)
Sub. Ind. Psy.	3 (7.50%)	3 (9.38%)	5 (12.82%)	11 (9.91%)
Major Depression	4 (10.00%)	2 (6.25%)	4 (10.26%)	10 (9.01%)
Bipolar I, Mixed	4 (10.00%)	3 (9.38%)	2 (5.13%)	9 (8.11%)
Bipolar I, Depressed	2 (5.00%)	2 (6.25%)	1 (2.56%)	5 (4.50%)
Delusional	1 (2.50%)	1 (3.13%)	3 (7.69%)	5 (4.50%)
Sub. Ind. Mood	2 (5.00%)	3 (9.38%)	0 (0.00%)	5 (4.50%)
Other diagnosis	2 (5.00%)	3 (9.38%)	2 (5.13%)	7 (6.31%)
No diagnosis	1 (2.50%)	0 (0.00%)	0 (0.00%)	1 (0.90%)

Note. Sub. Ind. Psy. = Substance Induced Psychotic Disorder, Sub. Ind. Mood = Substance Induced Mood Disorder. "Other diagnosis" included Bipolar II, Depressed, Bipolar II, Hypomanic, Mood Disorder due to a General Medical Condition, and Schizophreniform Disorder.

for the African American and Hispanic versions of this case, and the Caucasian case was most frequently diagnosed as Schizophrenia or Schizoaffective Disorder. The result of the chi-square analysis was not statistically significant, χ^2 (22, N = 110) = 15.53, p = 0.84. The effect of diagnostic approach on diagnoses and ratings was examined to determine if there was a significant difference in diagnoses using a simulated prototype approach or a simulated DSM-IV approach. Results of chi-square analysis indicated that there was not a statistically significant effect of diagnostic approach on the diagnoses assigned to the MW case, χ^2 (11, N = 110) = 5.67, p = 0.90. There also were no significant effects of patient race or diagnostic approach on

assigned diagnoses when the diagnoses were grouped into two, three, or five categories according to the type of psychopathology (i.e., Schizophrenia *vs.* other diagnosis; psychotic *vs.* mood disorder; psychotic, mood and Schizoaffective disorders; psychotic, mood, Schizoaffective, substance induced, and due to a general medical condition).

Diagnostic Representativeness Ratings

Means and standard deviations for the diagnostic representativeness ratings for the MW case are presented in Table 12. The ratings for this case were also similar to the assigned diagnoses. For MW, the most representative diagnosis overall was Schizophrenia. When the case specified the patient race as African American or Hispanic, the most representative diagnosis was Schizophrenia, whereas the most representative diagnosis was Schizoaffective Disorder when the patient was specified as Caucasian. A series of two-way ANOVAs were conducted to test for the effect of patient race and diagnostic approach on each of the diagnostic representativeness ratings for the case. Due to the multiple comparisons, a Bonferroni correction was used and the level was set at .0025.

There were no significant effects of patient race, diagnostic approach, or any significant interaction effects on any of the ratings for the diagnoses of interest (i.e., Schizophrenia, psychotic disorders, major mood disorders). Mood Disorder due to a General Medical Condition was rated more representative of the case when the DSM-IV approach was used rather than the simulated prototype approach (M = 1.76 vs. 1.41), $F(1, 104) = 5.56$, $p = .02$; however, this result failed to meet the corrected level of statistical significance. In addition, there was an interaction between diagnostic approach and patient race for Dysthymic Disorder representativeness ratings,

Table 12. Means and Standard Deviations for Diagnostic Representativeness Ratings for MW Case

	Patient Race			
	African American (n = 40)	Hispanic (n = 32)	Caucasian (n = 39)	Total (n = 111)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Diagnosis				
Schizophrenia	3.24 (1.34)	3.21 (1.29)	2.26 (1.07)	3.25 (1.29)
Major Depression	3.15 (1.27)	3.10 (1.22)	2.68 (1.23)	2.97 (1.25)
Schizoaffective	2.76 (1.34)	2.97 (1.22)	3.03 (1.31)	2.92 (1.29)
Delusional	2.87 (1.20)	2.77 (1.26)	2.74 (1.27)	2.80 (1.23)
Sub. Ind. Mood	2.50 (1.06)	2.20 (1.13)	2.50 (1.01)	2.42 (1.06)
Bipolar I, Depressed	2.38 (1.16)	2.53 (1.11)	2.32 (1.04)	2.40 (1.10)
Sub. Ind. Psy.	2.49 (1.05)	2.10 (1.22)	2.55 (1.25)	2.40 (1.18)
Bipolar I, Mixed	2.28 (1.30)	2.13 (1.26)	2.24 (1.24)	2.22 (1.26)
Schizophreniform	1.95 (1.23)	1.97 (1.18)	2.26 (1.07)	2.07 (1.16)
Bipolar II, Depressed	2.11 (1.09)	1.97 (1.02)	1.95 (0.97)	2.01 (1.02)
Bipolar I, Manic	1.53 (0.76)	1.90 (1.01)	1.82 (0.76)	1.74 (0.85)
Dysthymic	1.67 (0.93)	1.70 (0.95)	1.67 (0.84)	1.68 (0.89)
Mood Gen. Med.	1.47 (0.69)	1.69 (0.85)	1.61 (0.79)	1.58 (0.77)
Psy. Gen. Med.	1.51 (0.68)	1.53 (0.78)	1.62 (0.75)	1.56 (0.73)
Bipolar II, Hypomanic	1.56 (0.82)	1.43 (0.63)	1.56 (0.64)	1.53 (0.70)
Brief Psychotic	1.59 (0.82)	1.43 (0.77)	1.46 (0.76)	1.50 (0.78)
Cyclothymic	1.37 (0.68)	1.27 (0.45)	1.41 (0.55)	1.36 (0.57)

Note. Ratings were made on a scale of 1 (Not at all representative), 3 (Moderately representative), 5 (Highly representative). Sub. Ind. Mood = Substance Induced Mood Disorder, Sub. Ind. Psy. = Substance Induced Psychotic Disorder, Mood Gen. Med. = Mood Disorder due to a General Medical Condition, Psy. Gen. Med. = Psychotic Disorder due to a General Medical Condition.

$F(2, 105) = 4.77$, $p = .01$, with Dysthymic Disorder rated more representative for the African American case using the prototype approach and higher for the Caucasian version of the case

using the DSM-IV approach. However, this result also failed to meet the corrected level of statistical significance. Also, neither diagnosis was rated as very representative of the case. Table 13 presents ratings of diagnostic confidence, severity, and prognosis. Overall, participants were confident in their diagnoses, psychopathology of the patient was rated as severe, and prognosis of the patient was rated low. There were no significant effects of patient race, diagnostic approach, or a significant interaction between the two, on the ratings. Prognosis was rated higher for the simulated DSM-IV approach (i.e., when the symptoms were rated before the diagnosis was assigned; $M = 2.57$ vs. 2.11), $F(1, 109) = 8.23$, $p = .005$, but the difference did not reach the corrected level of statistical significance.

Table 13. Means and Standard Deviations for Confidence, Severity, and Prognosis Ratings for MW Case

	Patient Race			
	African American	Hispanic	Caucasian	Total
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Confidence	3.05 (0.99)	3.19 (0.86)	3.36 (0.74)	3.20 (0.88)
Severity	3.97 (0.72)	4.12 (0.66)	4.00 (0.77)	4.03 (0.72)
Prognosis	2.25 (0.93)	2.48 (0.77)	2.28 (0.83)	2.33 (0.85)

Symptom Ratings

Means and standard deviations were also calculated for the symptom ratings for the MW case and are listed in Appendix H, paraphrased and in descending order. The highest rated symptoms were loss of interest, depressed mood most of the day, and odd or bizarre behavior. A series of two-way ANOVAs were conducted to examine the effect of patient race and diagnostic

approach on each of the symptom ratings for this case. A Bonferroni correction was used due to the multiple comparisons and the alpha level was set at .0012.

There were no statistically significant effects of patient race on the symptom ratings. The ratings for the symptom, excessive involvement, were higher for the African American case than the Hispanic case, but the effect of patient race on the ratings did not reach the corrected level of statistical significance, $F(2, 109) = 5.19$, $p = .007$, and the symptom was rated low for the case. Diagnostic approach (i.e., DSM-IV *vs*. prototype) had a significant effect on ratings of decreased functioning, $F(1, 109) = 12.17$, $p = .001$. Decreased functioning was rated significantly higher ($M = 3.00$) when the diagnosis was assigned before the symptom ratings than when the symptom ratings were made first ($M = 2.85$). The symptom, more talkative, was rated lower when the DSM-IV approach was used ($M = 1.20$) compared to the prototype approach ($M = 1.50$), $F(1, 106) = 4.34$, $p = .04$, and severity of the symptoms was rated lower using the DSM-IV approach ($M = 3.88$) than the prototype approach ($M = 4.16$), $F(1, 107) = 4.06$, $p = .05$; however, neither reached the corrected level of statistical significance. There were no significant interactions between patient race and diagnostic approach on any of the symptom ratings.

Case Order

The effects of case order on diagnoses and ratings were examined as a potential confounding variable. A chi-square analysis conducted to examine the effect of case order on assigned diagnosis was statistically significant, $\chi^2(11, N = 110) = 22.78$, $p = .02$, although Schizophrenia was the most frequent diagnosis for both case orders. Examination of the results revealed that MW was more likely to be diagnosed as a substance-induced disorder, particularly a substance-induced psychotic disorder, when the case was presented second. Grouping of the diagnostic choices according to type of psychopathology showed a significant effect of case

order only when substance-induced disorder was separated from the general categories of mood and psychotic disorders.

A series of ANOVAs were also conducted for this case to examine the effect of case order on each of the diagnostic representativeness ratings. Statistically significant effects of case order were found for several diagnostic representativeness ratings, including Substance Induced Mood Disorder, $F(1, 107) = 13.45$, $p < .001$, and Substance Induced Psychotic Disorder, $F(1, 107) = 10.82$, $p = .001$. Like the assigned diagnoses, substance induced disorders were seen as more representative when MW was the second case ($M = 2.73$ and $M = 2.72$ *vs*. $M = 2.02$ and $M = 2.00$). Participants' confidence in their diagnosis was higher when MW was the first than the second case ($M = 3.42$ vs 3.02), but the result failed to reach the corrected level of significance, $F(1, 109) = 6.05$, $p = .015$. When the two-way ANOVAs (patient race, diagnostic approach) were repeated for the diagnostic representativeness ratings and other dimensional ratings using case order as a covariate, there was no change in the significance of any of the results.

A series of ANOVAs were conducted to examine the effect of case order on each of the symptom ratings for this case. Symptom ratings for Low Self-Esteem, $F(1, 107) = 6.10$, $p = .015$, Decreased Need for Sleep, $F(1, 106) = 5.86$, $p = .017$, Worthlessness, $F(1, 106) = 5.32$, $p = .023$, and Flight of Ideas, $F(1, 105) = 4.84$, $p = .03$, were all rated lower when MW was the first case, but the differences did not reach the corrected level of statistical significance. A series of two-way ANOVAs were then conducted to examine the effect of patient race and diagnostic approach using case order as a covariate for these symptoms. There were no changes in the significance of any of the results, indicating that case order did not have an effect on the findings.

Effect of Clinician Variables

The effect of clinician variables on the diagnoses and diagnostic representativeness ratings was also examined for the MW case. For the purpose of these analyses, clinician ethnicity was divided into two categories, majority (n = 92) and minority (n = 19), years of experience was divided into four categories (0-9, 10-19, 20-29, and 30+), age was divided into three categories (<49, 50-59, 60+), and theoretical orientation was divided into three categories (CBT: n = 35; eclectic/integrative: n = 48; other: n = 28). Clinical experience with different minority groups was collapsed into a single dichotomous variable, with the majority of participants (n = 83, 74.8%) having experience with one or more minority groups.

A series of chi-square analyses were conducted to examine the effect of clinician ethnicity, age, years of experience, experience with minority populations, and theoretical orientation on assigned diagnosis for the MW case. None of the analyses were statistically significant regardless of the grouping of diagnostic categories (i.e., Schizophrenia *vs.* other diagnosis; psychotic *vs.* mood disorder; psychotic, mood and Schizoaffective disorders; psychotic, mood, Schizoaffective, substance induced, and due to a general medical condition).

A series of ANOVAs were then conducted to examine the effect of these clinician variables on diagnostic representativeness ratings. There was a significant effect of theoretical orientation on the ratings for Bipolar I, Depressed, $F(2, 106) = 6.97$, $p = .001$, and Bipolar I, Mixed, $F(2, 107) = 7.98$, $p = .001$, with clinicians with an eclectic orientation rating these diagnoses more representative of the case than clinicians with a cognitive-behavioral orientation (M = 2.68 *vs*. 1.85 and 2.27 *vs.* 1.63, respectively). There was also a significant effect of years of experience on the ratings for Substance Induced Mood Disorder, $F(3, 106) = 4.28$, $p = .007$. Post-hoc analyses indicated that clinicians with more years of experience (10-19 years and 20-29

years) rated Substance Induced Mood Disorder as more representative of the case than clinicians with less experience (0-9 years), but the finding did not reach the corrected level of statistical significance.

Multivariate Analyses

Multivariate analyses were used to determine whether a diagnosis of Schizophrenia or Schizophrenia representativeness ratings were predicted by patient race, diagnostic approach, and symptoms previously found to be associated with a diagnosis of Schizophrenia (i.e., hallucinations, delusions, negative symptoms) including those negatively associated with a diagnosis of Schizophrenia (i.e., dysphoric mood, elevated mood, due to the effects of substance use). A second step added clinician ethnicity. Additional exploratory analyses were conducted to examine the predictive value of the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized behavior, affective flattening, disorganized speech, and prominent hallucinations or delusions). A final set of logistic regressions examined predictors of a psychotic disorder versus a mood disorder using the same predictors described above.

Logistic Regression

Logistic regression was used to determine which factors were most predictive of a diagnosis of Schizophrenia versus other diagnosis for the second case (i.e., MW). Predictors included patient race, diagnostic approach, and the ratings for the symptoms (i.e., hallucinations, delusions, negative symptoms, dysphoric mood, elevated mood, due to effects of a substance). The model successfully predicted a diagnosis of Schizophrenia ($\chi^2 = 25.49$ $df = 8$, $p = .001$), and accounted for between 23.1% and 32.8% of the variance (Cox and Snell R Square = .231; Negelkerke R Square = .328). The rating for negative symptoms of Schizophrenia was a

significant predictor of a diagnosis of Schizophrenia, as was depressed mood, which was negatively associated with the diagnosis. The model correctly predicted the diagnosis of Schizophrenia versus other diagnosis 80.4% of the time, which represented an improvement over a model in which none of the predictors were used (i.e., base rates, 70.1%). Patient race and diagnostic approach were not significant predictors of a diagnosis of Schizophrenia. A second step added clinician ethnicity. The model successfully predicted a diagnosis of Schizophrenia (χ^2 = 26.44, *df* = 9, *p* = .002), and accounted for between 23.9 and 33.9% of the variance (Cox and Snell *R* Square = .239; Negelkerke *R* Square = .339). Negative symptoms and depressed mood (negatively associated with the diagnosis) remained significant predictors of a diagnosis of Schizophrenia. Elevated mood, also negatively associated with the diagnosis, was just below the level of significance. The overall model correctly predicted the diagnosis of Schizophrenia versus other diagnosis only 79.4% of the time, as clinician ethnicity was not a significant predictor and did not increase accuracy of prediction. Table 14 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

A second logistic regression was conducted to examine the predictive value of the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized speech, and prominent hallucinations or delusions). The predictors in the logistic regression included the symptoms plus the independent variables (i.e., patient race, diagnostic approach). The model successfully predicted a diagnosis of Schizophrenia versus other disorder (χ^2 = 31.174, *df* = 10, *p* = .001). The model accounted for between 26.8% and 38.3% of the variance(Cox & Snell *R* Square = .268; Negelkerke *R* Square = .383). The model correctly

Table 14. Logistic Regression Analysis Predicting a Diagnosis of Schizophrenia (N = 111)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.392	.342	1.318	1	.251
Diagnostic Approach	0.214	.523	0.168	1	.682
Hallucinations	-0.072	.246	0.086	1	.769
Delusions	0.388	.235	2.720	1	.099
Negative Symptoms	0.593	.239	6.136	1	.013
Depressed Mood	-0.718	.248	8.385	1	.004
Elevated Mood	-0.395	.213	3.447	1	.063
Effects of a Substance	-0.915	.569	2.591	1	.107
Step 2					
Patient Race	-0.381	.346	1.214	1	.271
Diagnostic Approach	0.142	.528	0.073	1	.787
Hallucinations	-0.083	.248	0.112	1	.737
Delusions	0.405	.240	2.847	1	.092
Negative Symptoms	0.650	.250	6.747	1	.009
Depressed Mood	-0.746	.255	8.579	1	.003
Elevated Mood	-0.416	.213	3.816	1	.051
Effects of Substance	-0.941	.569	2.733	1	.098
Clinician Ethnicity	-0.704	.741	.903	1	.342

predicted the diagnosis 79% of the time, a small improvement over a model in which none of the predictors were used (i.e., base rates, 71%). The variables found to significantly predict the diagnosis of Schizophrenia were affective flattening, prominent hallucinations or delusions, depressed mood (negative) and elevated mood (negative). A second step added clinician ethnicity. The model successfully predicted the primary diagnosis ($\chi^2 = 31.302$, $df = 11$, $p = .001$) and accounted for between 26.9% and 38.4% of the variance (Cox and Snell *R* Square = .269; Negelkerke *R* Square = .384). The accuracy of prediction was similar (78%) and clinician ethnicity did not contribute to the prediction of the diagnosis. Patient race and diagnostic approach were not significant predictors of Schizophrenia. Table 15 provides coefficients, the

Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Table 15. Logistic Regression Analysis Predicting a Diagnosis of Schizophrenia (N = 111)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.581	.372	2.433	1	.119
Diagnostic Approach	0.358	.556	0.414	1	.520
Depressed Mood	-0.620	.243	6.497	1	.011
Elevated Mood	-0.538	.247	4.731	1	.030
Effects of Substance	-0.791	.604	1.718	1	.190
Odd or Bizarre Behavior	0.119	.324	0.134	1	.714
Disorg. or Cat. Behavior	0.094	.238	0.155	1	.694
Affective Flattening	0.577	.254	5.171	1	.023
Disorganized Speech	0.094	.238	0.155	1	.694
Prom. Halluc. or Del.	0.661	.290	5.205	1	.023
Step 2					
Patient Race	-0.584	.374	2.440	1	.118
Diagnostic Approach	0.323	.563	0.329	1	.566
Depressed Mood	-0.626	.246	6.490	1	.011
Elevated Mood	-0.548	.250	4.823	1	.028
Effects of Substance	-0.794	.605	1.726	1	.189
Odd or Bizarre Behavior	0.115	.325	0.126	1	.723
Disorg. or Cat. Behavior	0.079	.241	.107	1	.744
Affective Flattening	0.597	.261	5.238	1	.022
Disorganized Speech	0.419	.291	2.071	1	.150
Prom. Halluc. or Del.	0.682	.298	5.251	1	.022
Clinician Ethnicity	-0.252	.710	0.126	1	.722

Note. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

Additional logistic regressions were used to determine which factors were most predictive of a diagnosis of a psychotic disorder versus a mood disorder using the same predictors used above (i.e., patient race, diagnostic approach, ratings for hallucinations, delusions, negative symptoms, dysphoric mood, elevated mood, due to effects of a substance). The model successfully predicted the diagnosis ($\chi^2 = 29.341$, $df = 8$, $p < .001$) and accounted for

between 26.1% and 36.1% of the variance (Cox and Snell *R* Square = .261; Negelkerke *R* Square = .361). Delusions and depressed mood (negative) were significant predictors. A second step added clinician ethnicity. The model successfully predicted the diagnosis (χ^2 = 30.068, *df* = 9, *p* < .001). The model accounted for between 26.7% and 36.9% of the variance (Cox and Snell *R* Square = .267; Negelkerke *R* Square = .369) and showed 73.2% accuracy in prediction compared to only 66 % accuracy using base rates alone. The symptoms that were significant predictors of a diagnosis of a psychotic disorder versus a mood disorder remained significant. Clinician ethnicity was not a significant predictor. Table 16 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Table 16. Logistic Regression Analysis Predicting a Diagnosis of a Psychotic Disorder versus a Mood Disorder (N = 111)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.308	.319	0.931	1	.335
Diagnostic Approach	-0.183	.514	0.126	1	.722
Hallucinations	0.389	.263	2.181	1	.140
Delusions	0.816	.257	10.113	1	.001
Negative Symptoms	0.063	.201	0.100	1	.752
Depressed Mood	-0.911	.342	7.092	1	.008
Elevated Mood	-0.331	.222	2.219	1	.136
Effects of a Substance	-0.843	.582	2.096	1	.148
Step 2					
Patient Race	-0.308	.323	0.905	1	.342
Diagnostic Approach	-0.058	.535	0.012	1	.913
Hallucinations	0.394	.265	2.213	1	.137
Delusions	0.826	.257	10.342	1	.001
Negative Symptoms	0.029	.205	0.019	1	.889
Depressed Mood	-0.877	.341	6.610	1	.010
Elevated Mood	-0.336	.223	2.280	1	.131
Effects of Substance	-0.851	.585	2.116	1	.146
Clinician Ethnicity	0.630	.757	0.692	1	.405

A second logistic regression was conducted predicting a diagnosis of a psychotic versus a mood disorder using the symptoms that correlated most highly with a diagnosis of Schizophrenia in the current study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized speech, and prominent hallucinations or delusions) plus patient race and diagnostic approach. The model successfully predicted the diagnosis ($\chi^2 = 42.234$, $df = 10$, $p < .001$). The model accounted for between 34.4% and 47.4% of the variance (Cox & Snell *R* Square = .344; Negelkerke *R* Square = .474). The only factors found to significantly predict the diagnosis were depressed mood (negative) and prominent hallucinations or delusions.

A second step added clinician ethnicity. The model successfully predicted the diagnosis ($\chi^2 = 43.079$, $df = 11$, $p < .001$) and accounted for between 35% and 48.2% of the variance (Cox and Snell *R* Square = .350; Negelkerke *R* Square = .482). The overall model correctly predicted the diagnosis of a psychotic disorder versus a mood disorder 74% of the time, an improvement of 9% over base rates (65%). Again, depressed mood (negative) and prominent hallucinations or delusions were significant predictors of the diagnosis; clinician ethnicity was not a significant predictor. Table 17 provides coefficients, the Wald statistic, associated degrees of freedom, and probability values for each of the predictor variables.

Multiple Regression

Multiple regression analyses were conducted using the same predictors as for the logistic regressions (patient race; diagnostic approach; symptoms associated with increased diagnoses of Schizophrenia - hallucinations, delusions, negative symptoms; and those associated with decreased diagnoses of Schizophrenia - dysphoric mood, elevated mood, effects of substance use) and using the Schizophrenia representativeness ratings as the criterion. The model was

Table 17. Logistic Regression Analysis Predicting a Diagnosis of a Psychotic Disorder versus a Mood Disorder (N = 111)

	B	SE	Wald	*df*	*p*
Variable					
Step 1					
Patient Race	-0.249	.342	0.527	1	.468
Diagnostic Approach	0.186	.583	0.102	1	.749
Depressed Mood	-1.171	.440	7.103	1	.008
Elevated Mood	-0.375	.239	2.453	1	.117
Effects of Substance	-1.125	.682	2.718	1	.099
Odd or Bizarre Behavior	0.466	.321	2.107	1	.147
Disorg. or Cat. Behavior	0.436	.265	2.713	1	.100
Affective Flattening	-0.174	.245	0.504	1	.478
Disorganized Speech	0.274	.382	0.515	1	.473
Prom. Halluc. or Del.	0.809	.321	6.361	1	.012
Step 2					
Patient Race	-0.273	.346	0.625	1	.429
Diagnostic Approach	0.336	.607	0.307	1	.579
Depressed Mood	-1.157	.441	6.881	1	.009
Elevated Mood	-0.382	.241	2.516	1	.113
Effects of Substance	-1.130	.688	2.700	1	.100
Odd or Bizarre Behavior	0.523	.333	2.462	1	.117
Disorg. or Cat. Behavior	0.451	.268	2.835	1	.092
Affective Flattening	-0.205	.249	0.674	1	.412
Disorganized Speech	0.214	.387	0.306	1	.580
Prom. Halluc. or Del.	0.756	.334	5.130	1	.024
Clinician Ethnicity	0.696	.774	0.808	1	.369

Note. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

significant in predicting the Schizophrenia ratings, $F(8, 85) = 4.214$, $p < .001$. Delusions and effects of a substance (negative) were significant predictors of Schizophrenia ratings. Neither patient race nor diagnostic approach were significant predictors. Clinician ethnicity was added in the second step. The model was significant $F(9, 84) = 3.892$, $p < .001$. The same symptoms remained significant, although clinician ethnicity was not a significant predictor (see Table 18). Elevated mood and negative symptoms just missed significance.

Table 18. Multiple Regression Analysis for Variables Predicting Schizophrenia Representativeness Ratings (N = 111)

	β	*t*	*p*
Variable			
Step 1			
Patient Race	-0.155	-0.999	.321
Diagnostic Approach	-0.081	-0.332	.741
Hallucinations	0.116	1.039	.302
Delusions	0.411	3.969	<.001
Negative Symptoms	0.169	1.728	.088
Depressed Mood	-0.061	-0.543	.589
Elevated Mood	-0.186	-1.862	.066
Effects of Substance	-0.607	-2.365	.020
Step 2			
Patient Race	-0.153	-0.987	.326
Diagnostic Approach	-0.138	-0.553	.582
Hallucinations	0.124	1.109	.271
Delusions	0.408	3.942	<.001
Negative Symptoms	0.196	1.944	.055
Depressed Mood	-0.069	-0.614	.541
Elevated Mood	-0.198	-1.977	.051
Effects of Substance	-0.608	-2.372	.020
Clinician Ethnicity	-0.375	-1.106	.272

Note: Step 1 $R = .533$, $R^2 = .284$, Adjusted $R^2 = .217$; Step 2 $R = .542$, $R^2 = .294$, Adjusted $R^2 = .219$

A second multiple regression used the symptoms most highly correlated with a diagnosis of Schizophrenia in this study (i.e., odd or bizarre behavior, disorganized or catatonic behavior, affective flattening, disorganized speech, prominent hallucinations or delusions) in addition to patient race and diagnostic approach. The model was significant, $F(10, 86) = 4.535$, $p < .001$. The symptom, prominent hallucinations or delusions, was a significant predictor of Schizophrenia ratings, as were elevated mood and effects of a substance (both negative). The symptom, odd or bizarre behavior, just missed statistical significance. Clinician ethnicity was again added in the second step. The model was significant, $F(11, 85) = 4.294$, $p < .001$, and the symptom, prominent hallucinations or delusions, remained significant, as did elevated mood (negative), although

effects of a substance was just below statistical significance. Clinician ethnicity did not contribute to the prediction of the Schizophrenia representativeness ratings (see Table 19).

Table 19. Multiple Regression Analysis for Variables Predicting Schizophrenia Representativeness Ratings (N = 111)

	β	*t*	*p*
Variable			
Step 1			
Patient Race	-0.032	-0.207	.837
Diagnostic Approach	-0.028	-0.112	.911
Depressed Mood	-0.042	-0.403	.688
Elevated Mood	-0.212	-2.092	.039
Effects of Substance	-0.531	-1.992	.050
Odd or Bizarre Behavior	0.287	1.955	.054
Disorg. or Cat. Behavior	-0.014	-0.128	.898
Affective Flattening	0.154	1.514	.134
Disorganized Speech	0.106	0.767	.445
Prom. Halluc. or Del.	0.440	3.700	<.001
Step 2			
Patient Race	-0.021	-0.138	.891
Diagnostic Approach	-0.090	-0.361	.719
Depressed Mood	-0.046	-0.437	.663
Elevated Mood	-0.225	-2.219	.029
Effects of Substance	-0.521	-1.963	.053
Odd or Bizarre Behavior	0.275	1.880	.063
Disorg. or Cat. Behavior	-0.034	-0.306	.761
Affective Flattening	0.176	1.711	.091
Disorganized Speech	0.116	0.836	.405
Prom. Halluc. or Del.	0.476	3.904	<.001
Clinician Ethnicity	-0.411	-1.257	.212

Note: Step 1 $R = .588$, $R^2 = .345$, Adjusted $R^2 = .269$; Step 2 $R = .598$, $R^2 = .357$, Adjusted $R^2 = .274$. Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions

CHAPTER 4

DISCUSSION

The purpose of this study was to examine diagnostic processes as an explanation for the reported over-diagnosis of Schizophrenia and under-diagnosis of mood disorders in African Americans. Specifically, this study sought to determine if patient race, diagnostic decision making approach (i.e., simulated DSM-IV approach or simulated prototype approach), or clinician race influenced the diagnosis of Schizophrenia in two case vignettes that contained a mixture of psychotic and mood symptoms. The effect of patient race on diagnosis was examined by manipulating the race of the patient (i.e., African American, Hispanic, or Caucasian) in the cases, and diagnostic approach was examined by varying the order of rating symptoms and assigning diagnoses (i.e., simulated DSM-IV approach: symptoms rated first *vs*. simulated prototype approach: diagnosis assigned first).

It was hypothesized that patient race would have a significant effect on diagnoses, diagnostic representativeness ratings, and symptom ratings such that the minority versions of the cases, particularly the African American cases, would be seen as having Schizophrenia (i.e., more diagnoses of Schizophrenia, higher Schizophrenia representativeness ratings and symptom ratings), whereas Caucasian cases would be seen as having a mood disorder (i.e., more diagnoses of mood disorder, higher mood disorder representativeness ratings and symptom ratings). Patient race was hypothesized to be a significant predictor of a diagnosis of Schizophrenia and Schizophrenia representativeness ratings even when symptom ratings were taken into account.

The diagnostic approach was also predicted to have a significant influence on diagnoses and diagnostic ratings. Assigning a diagnosis prior to rating the symptoms (i.e., simulated prototypic approach) was expected to result in less accurate diagnosis (i.e., over-diagnosis of Schizophrenia and under-diagnosis of mood disorders) for the minority versions of the cases than rating symptoms prior to assigning a diagnosis (i.e., simulated DSM-IV approach). The diagnostic approach was hypothesized to be a significant predictor of a diagnosis of Schizophrenia and Schizophrenia ratings even when symptom ratings were taken into account. Finally, clinician race was expected to have a significant effect on diagnoses and representativeness ratings, with Caucasian clinicians being expected to assign more diagnoses of Schizophrenia and higher Schizophrenia representativeness ratings for minority clients, and minority clinicians assigning more diagnoses of mood disorders and higher mood disorder representativeness ratings. Clinician race was hypothesized to be a significant predictor of a diagnosis of Schizophrenia and Schizophrenia representativeness ratings even when symptom ratings were taken into account.

The results of the study generally failed to support the hypotheses, with little to no effect of any of these variables on diagnoses or diagnostic representativeness ratings. The most frequently assigned diagnoses for both cases were Schizoaffective Disorder and Schizophrenia, and diagnoses did not significantly differ based on patient race. Similar results were obtained for the diagnostic representativeness ratings and symptom ratings. There also were no significant findings for the effect of diagnostic approach on diagnoses, diagnostic representativeness ratings, or symptom ratings. There were a few differences in diagnostic ratings and symptom ratings based on patient race or diagnostic approach; however, these failed to reach the more stringent level of clinical significance set for the study due to the multiple comparisons. Moreover, they were generally for diagnoses and symptoms rated as not very representative of the cases, and

some were in the opposite direction of the hypotheses. Although clinician race did not influence the diagnosis of Schizophrenia and mood disorder in the minority versions of the cases, this may have been due to the very low number of minority clinicians in the study, despite efforts to recruit a more diverse sample. One finding was that compared to Caucasian clinicians, minority clinicians assigned more mood disorder diagnoses and higher mood disorder representativeness ratings regardless of patient race for the first (LK) case. Few other clinician variables examined influenced diagnoses, although clinicians' theoretical orientation and years of experience had a significant effect on a couple of the diagnostic representativeness ratings for the second (MW) case. There were also a few effects of case order. The results for each of the hypotheses, possible reasons for the findings, as well as limitations of the study and directions for future research are discussed below.

Patient Race

This study hypothesized that patient race would have a significant effect on diagnoses, diagnostic ratings and symptom ratings. It was expected that the minority versions of the cases (African American and Hispanic) would be diagnosed with Schizophrenia more frequently and receive higher Schizophrenia representativness ratings and symptom ratings than Caucasian versions, with Hispanic cases falling in between African American and Caucasian cases. The Caucasian versions of the cases were expected to be diagnosed with a mood disorder more frequently and to receive higher mood disorder representativeness and symptom ratings than the minority versions of the cases. These predictions were based on findings in the literature that African American patients tend to be over-diagnosed with Schizophrenia and underdiagnosed with mood disorders (e.g., Adebimpe, 1981; APA, 1997; Barnes, 2004, 2008; Baskin et al., 1981; Dixon et al., 2001; Garb, 1997; Kposowa et al, 2002; Pavkov et al., 1989). The research

findings with regard to diagnostic bias for Hispanic patients have been inconsistent (Chen et al., 1996; Flaskerud & Hu, 1992; Garb, 1997; Mukherjee et al., 1983).

Although Schizophrenia was diagnosed somewhat more frequently for the minority versions than the Caucasian version of the first (LK) case, the differences were not statistically significant for either case. Schizophrenia was the most frequent diagnosis for the Hispanic version of both cases, whereas the most frequently assigned diagnosis was Schizoaffective Disorder for the African American and Caucasian versions of the first case (LK), and Schizophrenia and Schizoaffective disorder for the Caucasian and African American versions of the second (MW) case. When logistic regressions were conducted examining predictors of Schizophrenia versus other diagnoses, or prediction of a psychotic disorder diagnosis versus a mood disorder diagnosis, patient race was not a significant predictor for either case.

There also was not a significant effect of patient race on the diagnostic representativeness ratings of Schizophrenia, Schizoaffective Disorder, or the major mood disorders (i.e., Major Depressive Disorder, Bipolar I Disorder) for either case. For the first (LK) case, the African American version received higher Cyclothymic representativeness ratings; however, the difference failed to reach the more stringent level of significance. For the second (MW) case, there was an interaction between diagnostic approach and patient race for Dysthymic Disorder representativeness ratings, with the diagnosis rated more representative for the African American version of the case using the prototype approach and higher for the Caucasian version of the case using the DSM-IV approach, but the result also failed to meet the corrected level of statistical significance. In addition, Cyclothymic Disorder and Dysthymic Disorder were not rated as very representative of the cases and these findings are in the opposite direction of the hypotheses (African American versions receiving lower mood disorder ratings, and particularly using a

prototype approach). Multiple regressions examining predictors of Schizophrenia representativeness ratings indicated that patient race was not a significant predictor for either case.

Patient race also did not have a significant effect on the symptom ratings for either the LK or MW case. Although one symptom (excessive involvement in activities) was rated higher for the African American version than the Caucasian of the second (MW) case, the difference did not reach the corrected level of significance, which was more stringent given the large number of symptom comparisons. Moreover, this symptom was not rated highly, and the direction of the difference was contrary to the hypothesis (i.e., lower mood disorders symptoms ratings for African Americans). Poor concentration was rated higher for the Hispanic version than the Caucasian version of the first (LK) case, but also failed to reach the corrected level of significance and was not rated as very representative of the case.

When the symptom ratings were used in the multivariate analyses to predict diagnoses (Schizophrenia, psychotic disorder versus mood disorder) or Schizophrenia representativeness ratings, the best predictors for both cases were the negative symptoms of Schizophrenia and delusions (affective flattening, prominent delusions or hallucinations when the more specific symptoms that correlated with a diagnosis of Schizophrenia in this study were examined). Depressed and elevated mood were also significant predictors and were negatively associated with a diagnosis of Schizophrenia (or psychotic disorder) and Schizophrenia representativeness ratings. Thus, the core symptoms of Schizophrenia and mood disorders were the best predictors, and patient race did not significantly influence diagnosis or diagnostic representativeness ratings. These findings are suggestive of clinician accuracy rather than race bias in diagnosis.

There are numerous possible reasons that this study did not find support for race bias in diagnosis including increased awareness of diversity among clinicians, the particular characteristics of the study group, and factors related to the study design which could potentially have played a role. One possibility is that indicating patient race in a case vignette is not sufficient to detect diagnostic bias based on patient race. Most of the studies that have reported race bias in diagnosis examined diagnoses assigned to patients. Clearly, patient race is a much more salient variable in an interview with a patient than a brief mention of race in a vignette. Moreover, differences in diagnosis based on race may be related to differences in symptom presentation and expression, language, and willingness to report symptoms, among other factors (Adebimpe, 1981; Aklin & Turner, 2006; Arnold et al., 2000; Dixon et al., 2001; Jones & Gray, 1986; Neighbors et al., 2003; Whaley & Geller, 2007). For example, black patients with mood disorders may exhibit more hallucinations and psychotic symptoms than Caucasian patients, resulting in over-diagnosis of Schizophrenia (Adebimpe, 1981; Dixon et al., 2001; Jones & Gray, 1986). In addition, clinician misinterpretation of symptoms and behaviors (e.g., cultural paranoia) and differential attribution and weighting of symptoms may contribute to diagnostic bias for African Americans (Adebimpe, 1981; Aklin & Turner, 2006; Garb, 1997; Jones & Gray, 1986; Trierweiler et al., 2000; Whaley & Geller, 2007). There is also evidence that Hispanic patients report different symptoms depending on the language of the interview resulting in different diagnoses (Malgady & Constantino, 1998). In the present study, however, the cases were identical except for patient race specified at the beginning of the case. Therefore, many of the factors thought to contribute to race bias in diagnosis were not examined.

It is also possible that current clinicians may be more attuned to racial bias in diagnosis compared to earlier research. Many of the studies reporting race bias were published decades

ago. There has been increased attention to diversity and cultural factors in diagnosis and treatment in professional training and continuing education programs for psychologists (Roysircar, Dobbins, & Malloy, 2010). The fact that diagnoses and diagnostic representativeness ratings were best predicted by the symptoms used in the diagnostic criteria for these diagnoses is encouraging, and suggests consistency between assessment of symptoms and diagnosis rather than diagnostic bias. Because of their increased awareness, it is also possible that the clinicians suspected the intent of the study and were careful not to over-pathologize the minority versions of the cases. For example, Sohler and Bromet (2003) found that black patients were more frequently discharged without a specific diagnosis than white patients, and suggested this might be due to clinician concerns about over-diagnosis. See below for further discussion of the limitations of the study design.

Diagnostic Approach

Another hypothesis was that diagnoses and diagnostic ratings would be affected by the diagnostic approach. Diagnostic approach was manipulated in this study by varying the order in which participants rated symptoms or assigned a diagnosis. Half of the clinicians were asked to rate symptoms before assigning a diagnosis which was intended to simulate the DSM-IV approach of assessing the presence of diagnostic criteria before assigning a diagnosis. The other half of the participants were asked to assign a diagnosis first in order to simulate a prototype approach in which clinicians compare the case to a hypothetical prototype (Herkov & Blashfield, 1995). A prototype method of diagnosis has been associated with diagnostic bias (Garb, 1997; Whaley & Geller, 2007) and over-diagnosis relative to symptom ratings (Crosby & Sprock, 2004). Use of a prototype approach may be especially problematic when diagnosing African Americans who often do not fit the prototype (Neighbors et al., 2003; Whaley & Geller, 2007).

A structured assessment of symptoms has been recommended to reduce race bias in diagnosis (Aklin & Turner, 2006; Whaley & Geller, 2007). In the present study, it was hypothesized that clinicians using the prototype approach would over-diagnose Schizophrenia and under-diagnose mood disorders in the minority versions of the cases, and that diagnostic approach would be a significant predictor of diagnoses and diagnostic representativeness ratings even after symptom ratings were taken into account.

This study found no significant effects of diagnostic approach on the diagnosis of Schizophrenia or mood disorder, and diagnostic approach was not a significant predictor in the logistic regressions predicting Schizophrenia versus other diagnoses (or a psychotic disorder versus a mood disorder). Further, diagnostic approach did not have a significant effect on the Schizophrenia representativeness ratings, nor was there a significant interaction between diagnostic approach and patient race, as predicted by the hypothesis. Participants assigned to the simulated DSM-IV approach provided higher representativeness ratings than those in the simulated prototype condition for two diagnoses, Mood Disorder due to a General Medical Condition and Psychotic Disorder due to a General Medical Condition, for the first (LK) case, and Mood Disorder due to a General Medical Condition for the second (MW) case. However, the results did not meet the more stringent level of statistical significance corrected for the study and none of these diagnoses were rated as highly representative of the cases. There also was not a significant interaction with patient race as hypothesized – the one interaction with patient race (Dysthymic Disorder for the second case) failed to meet the corrected level of statistical significance, was not rated as very representative of the case, and was in the opposite direction of the hypotheses. Moreover, diagnostic approach was not a significant predictor of Schizophrenia representativeness ratings in the regression analyses.

There are several possible explanations for the findings. First, it may be that assigning participants to a diagnostic condition did not result in the clinician actually using that diagnostic approach. Experienced clinicians tend to assign diagnoses based on a comparison with hypothetical prototypes (Herkov & Blashfield, 1995) and may have used a prototype approach regardless of whether they were asked to rate the symptoms first. Other clinicians who assign diagnoses based on assessment of the presence or absence of diagnostic criteria may have done so even when they were asked to assign a diagnosis before rating symptoms. In addition, the explanations for the lack of significant findings for patient race (e.g., lack of saliency of patient race in the vignettes) might also explain the failure to find a significant interaction between patient race and diagnostic approach. It is also possible that both approaches are valid means of assigning a diagnosis (Blashfield & Herkov, 1995), and result in similar diagnoses, even for minority patients.

Clinician Race

It was hypothesized that Caucasian clinicians would diagnose minority clients with Schizophrenia more frequently and assign higher Schizophrenia representativeness ratings than minority clinicians, whereas African American and Hispanic clinicians would not differ. These hypotheses were not supported. In contrast to previous findings that Caucasian clinicians tend to over-diagnose Schizophrenia for minority patients (Adebimpe, 1991; Baskin et al., 1981; Jones & Gray, 1986), no significant effects of clinician race on diagnoses were found for either case. There also were no significant interactions between patient race and clinician race for the diagnostic representativeness ratings as had been hypothesized. Again, the lack of a significant interaction could be explained by the limitations of the methodology of the present study. Differences in diagnoses between Caucasian and minority clinicians for minority patients have

been attributed to differences in understanding the culture, modes of communication, and life experiences of minority patients (Adebimpe, 1981; Aklin & Turner, 2006; Arnold et al., 2000; Dixon et al., 2001; Jones & Gray, 1986; Neighbors et al., 2003; Whaley & Geller, 2007). In the present study, the cases were identical except for the mention of patient race. In addition, it has been proposed that clinician race is not a significant factor in the accuracy of diagnoses for minority patients as both minority and majority clinicians generally receive training from Caucasian supervisors and have more experience with Caucasian patients (Adebimpe, 1981; Carter, 1974).

It is also possible that the sample of minority clinicians was too small, and therefore did not have enough power, to find any significant effects of clinician race. Unfortunately, the small number of minority clinicians resulted in clinician race being considered as a secondary variable along with other demographic and professional variables, rather than as a primary independent variable. The regressions were conducted without clinician race and then with clinician race added in the second step. In addition, the initial plan was to compare diagnoses of African American, Hispanic and Caucasian clinicians for the minority versions of the cases, but the small number of minority clinicians precluded clinician comparisons within each version of the cases. Moreover, the low number of minority clinicians in the sample necessitated combining the minority clinicians into a single group.

One significant finding with regard to clinician race was that minority clinicians assigned more mood disorder diagnoses and higher mood disorder representativeness ratings than Caucasian clinicians for the first (LK) case, regardless of patient race. Clinician race was also a significant predictor of a diagnosis of psychotic versus mood disorder as well as Schizophrenia representativeness ratings for that case. One possible explanation that was explored *post-hoc*

was that minority clinicians may have been trained more recently since there has been increasing recognition of psychotic symptoms in the mood disorders. However, there was not a significant difference between majority and minority clinicians in years of experience or the year in which they received their doctoral degree. Another explanation for this finding may relate to the symptoms in the two case vignettes used in this study. Trierweiler et al. (2006) found that a diagnosis of Schizophrenia was most associated with hallucinations for African American clinicians and with negative symptoms for non-African American clinicians. For both cases, hallucinations were rated as mild or subthreshold, whereas negative symptoms were rated as moderate. This symptom pattern might have resulted in African American clinicians being less likely to conceptualize the case as Schizophrenia and more likely to consider a mood disorder diagnosis than Caucasian clinicians, at least for the first case.

Other Demographic and Professional Variables

The effect of other clinician variables on diagnoses and representativeness ratings was also examined. When clinician theoretical orientation was examined, there were no significant effects for the first (LK) case. However, there was a significant effect of theoretical orientation for the second (MW) case, with clinicians who reported an eclectic approach diagnosing Bipolar I, Depressed and Bipolar I, Mixed as more representative of the case than clinicians with a cognitive-behavioral orientation. However, neither diagnosis was rated as very representative of the case. Additionally, clinicians with ten or more years of experience rated Substance-Induced Mood Disorder as more representative of the MW case than those with less than ten years of experience, but the difference did not reach the corrected level of significance. Overall, the effects of other demographic and professional variables on diagnoses and ratings were minimal.

Case Order

The order in which the clinicians received the cases was examined as a potential confounding factor. For the LK case, the effect of case order on diagnosis was not significant. However, there was an effect of case order on a couple of diagnostic representativeness ratings and symptom ratings. When the LK case was presented second, Substance-Induced Psychotic Disorder and Schizophreniform Disorder were rated less representative of the case, and participants were more confident in their diagnoses. Additionally, when this case was presented second, clinicians rated the symptom, suicidal thoughts, higher and the case was perceived as more severe, exhibiting a higher level of dysfunction, and less likely to be due to the effects of substances. There were also some order effects for the MW case. MW was more likely to be diagnosed with Substance-Induced Psychotic Disorder when this case was presented second, and both Substance-Induced Mood Disorder and Substance-Induced Psychotic Disorder were rated as more representative of the case when the case was presented second. In contrast to the LK case, participants' confidence in their diagnosis was higher when MW was the first case. When the MW case was presented first, several symptoms were rated lower, but the differences did not meet the corrected level of significance. A primary factor that seemed to be operating in the order effects was that the MW case included alcohol abuse and a history of abuse of illicit substances, which increased the likelihood of clinicians considering a substance-induced etiology for this case. When this case was presented first, it reduced the likelihood of clinicians considering a substance-induced disorder for the LK case.

Limitations

This study had several limitations. First, analog studies using case vignettes may not generalize to the actual diagnostic practices of clinicians (Garb, 1997; Garb, 2005). Vignettes

provide a limited amount of information and lack the face-to-face contact of a clinical interview that would provide clinicians with direct observation of non-verbal behaviors. This may be especially important when studying diagnosis of minority patients, as differences in patients' responses to the clinical interview, as well as differences language, and symptom reports may account for differences in diagnosis (Adebimpe, 1981; Aklin & Turner, 2006; Arnold et al., 2000; Dixon et al., 2001; Jones & Gray, 1986; Neighbors et al., 2003; Whaley & Geller, 2007). As noted earlier, the only difference between the cases was the mention of patient race so that the role of these other factors could not be examined. Simply mentioning a patient's race may not have been sufficient to trigger stereotypes about patient race. Further, the attempt to manipulate diagnostic approach by varying the order of assigning a diagnosis and rating symptoms may not have been successful, and the clinicians may have used their own preferred diagnostic approach. Another threat to the internal validity of the study was that participants may have suspected the purpose of the study, and therefore were careful not to over-diagnose minority versions of the cases.

Another limitation was the low response rate, which was only approximately 4.5%. It is possible that various self-selection factors may have influenced participation, therefore limiting the generalizability of the results to clinicians overall. As discussed earlier, the number of minority participants was particularly small, despite various efforts to recruit minority clinicians. As a result, clinician ethnicity was considered a secondary variable, and all minority clinicians were combined into one group. The total number of minority clinicians may not have provided sufficient power for the analyses, resulting in many non-significant findings for clinician race.

On the other hand, there were several strengths of this study. Vignettes are widely used in research on clinical decision making and have the advantage of allowing for the manipulation of

the variables of interest while holding other variables constant (Gutkind et al., 2001; Heverly, Fitt, & Newman, 1984; Skånér, Bring, & Strender, 2004). The vignettes that were used in the present study were taken from well-respected sources in the literature. The cases included a mixture of psychotic and mood symptoms, thus presenting an ambiguous diagnostic picture and increasing the likelihood of biases influencing the diagnostic process. In addition, a national sample of psychologists was recruited for the study and only licensed psychologists who are qualified to assign diagnoses were included in the sample.

Conclusions and Future Directions

Overall, results of this study suggest that the clinicians were reasonably consistent in their assessment of symptoms and assigned diagnosis, and were not biased by patient race or diagnostic approach. This is an encouraging finding and suggests that these clinicians may be more aware of concerns about misdiagnosis of minority patients than clinicians in the studies conducted in past decades, although the limitations of the study may have contributed to the lack of significant findings.

Despite the mostly negative findings and failure to support the hypotheses, the influences of race and other individual differences on assessment and diagnosis remain important topics worthy of continued research. Results of this study may serve as a stepping stone for future studies examining whether clinicians' diagnoses are affected by race or racial stereotypes. Future studies may address some of the limitations of the present study. For example, face-to-face interviews with patients from different racial backgrounds, or videos of interviews, could be used to study differences in language and nonverbal behaviors that may contribute to differences in diagnosis. Use of actors following a scripted interview in the video may be a way to keep the content of the interview constant while making race a more salient variable than in the vignettes.

Subsequent research can target more specific behaviors that may contribute to differences in diagnosis rather than broad variables like race. Rather than manipulating diagnostic approach as in the present study, clinicians could be asked to report the diagnostic approach they use, and the diagnoses compared. Generally, there is a need for further research examining the influence of diagnostic approach on diagnostic decision making, particularly with the revisions proposed in the DSM-5 draft (APA, 2011) which have incorporated dimensional models in the classification of psychotic and mood disorders. Finally, future research should seek to obtain a larger number of participants, particularly minority clinicians, and to increase the response rate. Although several recruiting strategies were used in the present study, other approaches such as paying participants for their time might be useful in achieving a more diverse and representative sample.

References

Adebimpe, V. R. (1981). Overview: White norms and psychiatric diagnosis of Black patients. *The American Journal of Psychiatry, 138 (3),* 279-285.

Aklin, W.M. & Turner, S.M. (2006). Toward understanding ethnic and cultural factors in the interviewing process. *Psychotherapy: Theory, Research, Practice, Training*, *43(1),* 50-64.

American Psychiatric Association (1968). *Diagnostic and Statistical Manual of Mental Disorders, Second ed. (DSM-II).* Washington, DC: American Psychiatric Association.

American Psychiatric Association (1980). *Diagnostic and Statistical Manual of Mental Disorders, Third ed. (DSM-III).* Washington, DC: American Psychiatric Association.

American Psychiatric Association (1987). *Diagnostic and Statistical Manual of Mental Disorders, Third ed., Revised (DSM-III-R).* Washington, DC: American Psychiatric Association.

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

American Psychiatric Association (2000). *DSM-IV-TR: Diagnostic and Statistical Manual of Mental Disorders* (fourth edition-text revision). Washington, American Psychiatric Association.

American Psychiatric Association (2011). DSM-5 development: Schizophrenia and other psychotic disorders. http://www.dsm5.org/ProposedRevisions/Pages/SchizophreniaandOtherPsychoticDisorders.aspx

American Psychiatric Association (1997). Practice Guidelines: Treatment of Patients with Schizophrenia. *American Journal of Psychiatry, 154 (4),* 1-63.

American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia, second edition. *American Journal of Psychiatry, 161(2),* 1-56.

Andreasen, N. C. (1982). Negative symptoms in Schizophrenia: Definition and reliability. *Archives of General Psychiatry, 39 (7),* 784-788.

Andreasen, N. C., Arndt, S., Alliger, R., Miller, D., & Flaum, M. (1995). Symptoms of Schizophrenia: Methods, meanings, and mechanisms. *Archives of General Psychiatry, 52 (5),* 341-351.

Arnold, L. M., Keck, P. E., Collins, J., Wilson, R., Fleck, D. E., Corey, K. B., Amicone, J., Adebimpe, V. R., & Strakowski, S. M. (2004). Ethnicity and first-rank symptoms in patients with psychosis. *Schizophrenia Research, 67,* 207-212.

Barnes, A. (2004). Race, Schizophrenia, and admission to state psychiatric hospitals. *Administration and Policy in Mental Health, 31 (3),* 241-252.

Barnes, T. R. E., & McPhillips, M. A. (1995). How to distinguish between the neuroleptic-induced deficit syndrome, depression, and disease-related negative symptoms in Schizophrenia. *International Clinical Psychopharmacology, 10 (3),* 115-121.

Baskin, D., Bluestone, H., & Nelson, M. (1981). Ethnicity and psychiatric diagnosis. *Journal of Clinical Psychology, 37 (3),* 529-537.

Bleuler, E. (1950). *Dementia Praecox or The Group of Schizophrenias*. New York: International Universities Press.

Cancro, R. (2003). The schizophrenic disorders. *Current Opinions in Psychiatry, 16 (2),* S3-S7.

Chen, Y. R., Swann, A. C., & Burt, D. B. (1996). Stability of diagnosis in Schizophrenia. *The American Journal of Psychiatry, 153 (5),* 682-686.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Dixon, L., Green-Paden, L., Delahanty, J., Lucksted, A., Postrado, L., & Hall, J. (2001). Variables associated with disparities in treatment of patients with Schizophrenia and comorbid mood and anxiety disorders. *Psychiatric Services, 52 (9),* 1216-1222.

Flaskerud, J. H., & Hu, L. (1992). Relationship of ethnicity to psychiatric diagnosis. *The Journal of Nervous and Mental Disease, 180 (5),* 296-303.

Fowles, D. C. (1992). Schizophrenia: Diathesis-stress revisited. *Annual Review of Psychology, 43,* 303-336.

Freedman, R. (2003). Drug therapy: Schizophrenia. *The New England Journal of Medicine, 349 (18),* 1738-1749, 1783, 1690.

Garb, H. N. (1997). Race bias, social class bias, and gender bias in clinical judgment. *Clinical Psychology: Science and Practice, 4 (2),* 99-120.

Garb, H. N. (2005). Clinical judgment and decision making. *Annual Review of Clinical Psychology, 1,* 67-89.

Gutkind, D., Ventura, J., Barr, C., Shaner, A., Green, M., & Mintz, J. (2001). Factors affecting reliability and confidence of DSM-III-R psychosis-related diagnosis. *Psychiatry Research, 101,* 269-275.

Herkov, M. J. and Blashfield, R. K. (1995). Clinician diagnoses of personality disorders: Evidence of a hierarchical structure. *Journal of Personality Assessment, 65 (2),* 313-321.

Heverly, M. A., Fitt, D. X., & Newman, F. L. (1984). Constructing case vignettes for evaluating clinical judgment: An empirical model. *Evaluation and Program Planning, 7(1)*, 45-55.

Ho, B., Black, D.W. & Andreasen, N.C. (2004). Ch 5: Schizophrenia and Other Psychotic Disorders. In Hales, R.E. & Yudofsky, S.C. (eds.), Essentials of Clinical Psychiatry, Second Edition. Washington, DC: American Psychiatric Press, pp. 189-242.

Hudziak, J. J., Helzer, J. E., Wetzel, M. W., Kessel, K. B. (1993). The use of the DSM-III-R Checklist for initial diagnostic assessments. *Comprehensive Psychiatry, 34 (6),* 374-383.

Jones, B. E., & Gray, B. A. (1986). Problems in diagnosing Schizophrenia and affective disorders among Blacks. *Hospital and Community Psychiatry, 37 (1),* 61-65.

Kendell, R. E., Cooper, J. E., Gourlay, A. J., Copeland, J. R. M., Sharpe, L., & Gurland, B. J. (1971). Diagnostic criteria of American and British psychiatrists. *Archives of General Psychiatry, 25,* 123-130.

Kposowa, A. J., Tsunokai, G. T., & Butler, E. W. (2002). Effects of race and ethnicity on Schizophrenia: Individual and neighborhood contexts. *Race, Gender, and Class, 9 (1),* 33.

Kuno, E. & Rothbard, A. B. (2002). Racial disparities in antipsychotic prescription patterns for patients with Schizophrenia. *American Journal of Psychiatry, 159,* 567-572.

Lopez, (1989). Patient variable biases in clinical judgment: Conceptual overview and methodological considerations. *Psychological Bulletin, 106 (2),* 184-203.

Malgady, R. G., & Constantino, G. (1998). Symptom severity in bilingual Hispanics as a function of clinician ethnicity and language of interview. *Psychological Assessment, 10 (2),* 120-127.

Maxmen, J. S., & Ward, N. G. (1995). *Essential psychopathology and its treatment, second ed*. NY: W.W. Norton & Co.

Minsky, S., Vega, W., Miskimen, T., Gara, M., & Escobar, J. (2003). Diagnostic patterns in Latino, African American, and European American psychiatric patients. *Archives of General Psychiatry, 60,* 637-644.

Mizenberg, M.J., Yoon, J.H. & Carter, C.S. (2011). Ch 5: Schizophrenia. In Hales, R.E., Yudofsky, S.C. & Gabbard, G.O. (eds.), *Essentials of Psychiatry, Third Edition*. Washington, DC: American Psychiatric Publishing, Inc., pp 111-150.

Mukherjee, S., Shukla, S., Woodle, J., Rosen, A. M., & Olarte, S. (1983). Misdiagnosis of Schizophrenia in bipolar patients: A multiethnic comparison. *American Journal of Psychiatry, 140,* 1571-1574.

Neighbors, H. W., Trierweiler, S. J., Munday, C., Thompson, E. E., Jackson, J. S., Binion, V. J., & Gomez, J. (1999). Psychiatric diagnosis of African Americans: Diagnostic divergence in clinician-structured and semistructured interviewing conditions. *Journal of the National Medical Association, 91 (11),* 601-612.

Neighbors, H. W., Trierweiler, S. J., Ford, B. C., & Muroff, J. R. (2003). Racial differences in DSM diagnosis using a semi-structured instrument: The importance of clinical judgment in the diagnosis of African Americans. *Journal of Health and Social Behavior, 44 (3),* 237-256.

Norona, P. H. (2000). Overdiagnosis of Schizophrenia and underdiagnosis of mood disorders: the Hispanic patient. Unpublished doctoral research project, Indiana State University, Terre Haute.

Pavkov, T. W., Lewis, D. A., & Lyons, J. S. (1989). Psychiatric diagnoses and racial bias: An empirical investigation. *Professional Psychology: Research and Practice, 20 (6),* 364-368.

Pope, H. G., & Lipinski, J. F. (1978). Diagnosis in Schizophrenia and manic-depressive illness: A reassessment of the specificity of "schizophrenic" symptoms in the light of current research. *Archives of General Psychiatry, 35,* 811-828.

Roukema, R., Fadem, B., James, B., & Rayford, F. (1984). Bipolar disorder in a low socioeconomic population: Difficulties in diagnosis. *The Journal of Nervous and Mental Disease, 172 (2),* 76-79.

Roysircar, G., Dobbins, J. E., & Malloy, K. A. (2010). Diversity competence in training and clinical practice. In M. Kenkel, R. L. Peterson (Eds.) , *Competency-based education for professional psychology* (pp. 179-197). Washington, DC US: American Psychological Association.

Schneider, K. (1959). *Clinical Psychopathology.* New York: Grune & Stratton.

Skånér, Y., Bring, J., & Strender, L. (2004). Selecting Representative Case Vignettes for Clinical Judgement Studies: Examples from Two Heart Failure Studies. *Quality & Quantity: International Journal of Methodology, 38(5),* 621-635.

Sohler, N. L., & Bromet, E. J. (2003). Does racial bias influence psychiatric diagnoses assigned at first hospitalization? *Social Psychiatry and Psychiatric Epidemiology, 38 (8),* 463-472.

Spitzer, R. L., Gibbon, M., Skodol, A. E., Williams, J. B. W., & First, M. B. (1994). *DSM-IV Casebook: A Learning Companion to the Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition.* Washington, D.C.: American Psychiatric Press.

Takeuchi, D. T., Uehara, E., & Maramba, G. (1999). Cultural diversity and mental health treatment. In A. V. Horwitz & T. L. Scheid, (Eds.), *The sociology of mental health and illness* (pp. 550-565). Cambridge: Cambridge University Press.

Trierweiler, S. J., Neighbors, H. W., Munday, C., Thompson, E. E., Binion, V. J., & Gomez, J. P. (2000). Clinician attributions associated with the diagnosis of Schizophrenia in African American and non-African American patients. *Journal of Consulting and Clinical Psychology, 68 (1),* 171-175.

Trierweiler, S. J., Neighbors, H. W., Munday, C., Thompson, E. E., Jackson, J. S., & Binion, V. J. (2006). Differences in patterns of symptom attribution in diagnosing schizophrenia between African American and non-African American clinicians. *American Journal of Orthopsychiatry, 76(2),* 417-428.

Whaley, A. L., & Geller, P. A. (2007). Toward a cognitive process model of ethnic/racial biases in clinical judgment. *Review of General Psychology, 11(1),* 75-96.

Weiner, I. B. (2004). *Adult Psychopathology Case Studies.* Hoboken, NJ: John Wiley and Sons.

Widiger, T. A., & Spitzer, R. L. (1991). Sex bias in the diagnosis of personality disorders: Conceptual and methodological issues. *Clinical Psychology Review, 11 (1),* 1-22.

APPENDIX A

VIGNETTE 1

A 25-year-old Caucasian/Hispanic/African American male, LK, was admitted to an inpatient unit. LK initially exhibited some bizarre and impulsive behavior indicative of low frustration tolerance, and at times, his control over aggressive impulses also lapsed. For example, he poured hot coffee over his head, slammed a tissue box into a table, and attempted to knock a pitcher out of a nurse's hands. LK sometimes showed little affect of any kind, and at other times, alternated between being clearly depressed or markedly anxious. LK also exhibited several episodes of panic and agitation during this hospitalization, was generally anhedonic, and had some sleep disturbance. His interpersonal functioning in the facility was marked by loneliness, dependency, and immature social relationships. LK exhibited firmly held beliefs of being a very special and important person, a conviction that he was responsible for many of the world's troubles, and thoughts that whatever people around him were saying or doing had to do with him in some way. LK expressed guilt about various regrettable events that he attributed to his misdeeds. Although he was not overtly suicidal while in the hospital, LK was preoccupied at times with thoughts of self-mutilation as a way of absolving his exaggerated sense of guilt.

A background history revealed that after high school, LK went to live with his aunt and began a job at a factory. He did not remain with his aunt for very long, however, and lived with various family members for short periods of time. The next few years were relatively uneventful until LK began to develop concerns that led to his leaving the factory. Some of these beliefs

involved imaginary relationships with women LK had met only briefly or did not know at all. LK also became particularly preoccupied with ideas and plans concerning a coworker with whom he was acquainted. LK apparently felt emotionally involved with the woman, even though he had had little actual contact with her.

Soon after leaving the factory, LK became aware that he had begun to do "goofy" things, such as dying his hair and wearing unusual clothes because he believed that "the look is the hook" for attracting others. LK's mental health deteriorated, vacillating between periods of minimal improvement and severe incapacitation. Brief hospitalizations followed, first at a local hospital and then at a state mental institution. After LK's release from the state institution, he tried to asphyxiate himself with carbon monoxide and was hospitalized in the psychiatric ward of a general hospital. Soon after LK was discharged from the hospital he was admitted to the current psychiatric unit.

APPENDIX B

VIGNETTE 2

MW, a 30-year-old divorced, unemployed Caucasian/Hispanic/African American female was admitted to a psychiatric unit at the urging of her sister. MW lived alone in a small apartment in a rather hazardous section of town. MW stated flatly that she was living in "chronic misery." She described her living space as a "living hell," in that she let dirty clothing, dishes, and newspapers pile up, and neglected to complete basic maintenance chores, such as paying her bills and returning phone calls. Instead, MW spent much of her time drawing pictures of spaceships and aliens. She enthusiastically described in elaborate detail a device that she has built to communicate with other beings. She also failed to keep up with eating and sleeping properly, as well as taking the medications that had been prescribed by a psychiatrist she admitted not having contacted in months. MW reported having no friends and stated that she had drove everyone away. She scoffed when asked if she was involved in a romantic relationship. She felt fully prepared to go the rest of her life without a relationship because "people just can't be trusted anyway." MW added that "the rest of my life probably wouldn't be very long anyway."

A background history revealed that MW's problems had begun 10 years ago when she "got a little wild." She began experimenting with illicit drugs while in high school and progressed to the use of more serious drugs by the time she entered college. When MW was 21-years-old, her behavior became erratic. For example, her behavior at work came to the attention

of coworkers because of her off-color and bawdy language and because her judgment was showing signs of serious impairment. MW stated that she lost her job a number of years ago amid "scandal," wherein she believed that her employer was secretly working with the government and recording her behavior with the security cameras. When she was fired from her job, MW went on a drinking binge. MW began lashing out at others, including family and friends, for a variety of imaginary offenses, accusing them of being connected to her employer's plot. MW's condition gradually worsened and she isolated herself from family and friends.

MW's sister encouraged her to see a psychiatrist where a variety of medications were tried. She never took these medications regularly or systematically. For example, MW would stop taking the medications whenever she would start to feel better, and would sporadically take them again when her condition worsened. Attendance at appointments with her psychiatrist was irregular. MW spent most of her days sleeping and sitting around her cluttered, chaotic apartment. MW's increased isolation, unpredictable behavior, and poor self-care led her sister to request hospitalization.

APPENDIX C

DIAGNOSTIC QUESTIONNAIRE

Vignette Rating Scale

Please rate the vignettes using the following scale for the first set of symptoms:

0 (not present) 1 (possibly present) 2 (present – mild) 3 (present – moderate) 4 (present –severe)

___Depressed mood most of the day, nearly every day
___Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day
___Elevated, expansive, or irritable mood
___Increase in goal-directed activity (socially, at work, school, or sexually) or psychomotor agitation
___Excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., buying sprees, sexual indiscretions, or foolish business investments)
___Behavior is obviously odd or bizarre
___Grossly disorganized or catatonic behavior
___Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day
___Poor appetite or overeating
___Insomnia or hypersomnia
___Insomnia or hypersomnia nearly every day
___Decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
___Low energy or fatigue
___Fatigue or loss of energy nearly every day
___Psychomotor agitation or retardation nearly every day
___Negative symptoms, i.e., affective flattening, alogia, or avolition
___Avolition (e.g., inability to initiate or persist in goal-directed activities)
___Alogia (e.g., poverty of speech)
___Affective flattening
___More talkative than usual or pressure to keep talking
___Disorganized speech (e.g., frequent derailment or incoherence)
___Inflated self-esteem or grandiosity
___Low self-esteem
___Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day
___Flight of ideas or subjective experience that thoughts are racing
___Distractibility (i.e, attention too easily drawn to unimportant or irrelevant external stimuli)
___Poor concentration or difficulty making decisions
___Diminished ability to think or concentrate, or indecisiveness, nearly every day
___Prominent hallucinations or delusions

___Hallucinations
___Delusions
___Nonbizarre delusions (i.e., involving situations that occur in real life)
___Feelings of hopelessness
___Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

For the following items, please rate the vignettes using the scale below:

0 (definitely no) 1 (possibly) 2 (definitely yes)

___The episode is associated with an unequivocal change in functioning that is uncharacteristic of the person when not symptomatic
___The disturbance in mood and the change in functioning are observable by others
___Symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning
___For a significant portion of the time since the onset of the disturbance, one or more areas of functioning (work, interpersonal relations, or self-care) are markedly below the level achieved prior to the onset
___The episode is severe enough to cause marked impairment in social or occupational functioning
___The episode is severe enough to necessitate hospitalization to prevent harm to self or others, or there are psychotic features
___The disturbance or symptoms are due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication)
___The disturbance or symptoms are due to a general medical condition (e.g., hypothyroidism)

Rate the representativeness of each of the following diagnoses for the client described in the vignette using the following scale:

0 1 2 3 4
Not at all representative Moderately representative Highly representative

_____ Major Depressive Disorder
_____ Bipolar I Disorder, Depressed
_____ Bipolar I Disorder, Manic
_____ Bipolar I Disorder, Mixed
_____ Bipolar II Disorder, Depressed
_____ Bipolar II Disorder, Hypomanic
_____ Dysthymic Disorder
_____ Cyclothymic Disorder
_____ Mood Disorder Due to a General Medical Condition
_____ Substance-Induced Mood Disorder
_____ Schizophrenia
_____ Schizophreniform Disorder
_____ Schizoaffective Disorder
_____ Delusional Disorder
_____ Brief Psychotic Disorder
_____ Psychotic Disorder Due to a General Medical Condition
_____ Substance-Induced Psychotic Disorder

Which one diagnosis is most representative of this case vignette: _____.
Major Depressive Disorder
Bipolar I Disorder, Depressed

Bipolar I Disorder, Manic
Bipolar I Disorder, Mixed
Bipolar II Disorder, Depressed
Bipolar II Disorder, Hypomanic
Dysthymic Disorder
Cyclothymic Disorder
Mood Disorder due to a General Medical Condition
Substance-Induced Mood Disorder
Schizophrenia
Schizophreniform Disorder
Schizoaffective Disorder
Delusional Disorder
Brief Psychotic Disorder
Psychotic Disorder due to a General Medical Condition
Substance-Induced Psychotic Disorder

Rate your level of confidence in your diagnosis:

0	1	2	3	4
Not at all confident		Moderately confident		Very confident

Rate the overall severity of the symptoms described in the vignette using the following scale:

0	1	2	3	4
Not at all severe		Moderately severe		Very severe

Rate the prognosis of the client described in the vignette using the following scale:

0	1	2	3	4
Poor prognosis		Moderate prognosis		Very good prognosis

APPENDIX D

DEMOGRAPHIC QUESTIONNAIRE

Age: _____
Sex: _____Male _____ Female

Ethnic Background: _____ African-American _____ Caucasian
_____ Hispanic _____ Asian
_____ Other (please specify) _____

Degree Earned: _____ Ph.D. _____ Psy.D.
_____ Ed.D. _____ M.D.
_____ Other (please specify) _____

Year Degree Received: _____

Years of Clinical Experience: _____

Current Area of Specialty: _____ Clinical _____ Counseling
_____ Other (please specify) _____

Theoretical Orientation: _____ Cognitive _____ Eclectic/Integrative
_____ Psychodynamic _____ Humanistic
_____ Other (please specify) _____

Please indicate the primary setting in which you work:
_____ Hospital/Inpatient Unit _____ Community Mental Health Center
_____ University Medical Center _____ Private Practice
_____ Correctional Facility _____ Veterans Affairs Medical Center
_____ University Academic Department _____ Other (please specify) _____

Please indicate the following populations you work with:
_____ African American _____ Caucasian
_____ Hispanic _____ Asian
_____ Other (please specify) _____

Please indicate the following populations that you work with:
_____ Childhood Disorders _____ Cognitive Disorders
_____ Substance-Related Disorders _____ Schizophrenia and other Psychotic Disorders
_____ Mood Disorders _____ Anxiety Disorders
_____ Somatoform Disorders _____ Factitious Disorders

_____ Dissociative Disorders
_____ Eating Disorders
_____ Adjustment Disorders
_____ Sexual and Gender Identity Disorders
_____ Impulse-Control Disorders
_____ Personality Disorders

APPENDIX E

EMAIL INVITATION

Dr. (Name):

I would like to invite you to participate in my dissertation research focusing on diagnostic decision making. You were selected as a possible participant in this study because you are a licensed psychologist. If you agree to participate, you will be asked to read two case vignettes, rate the symptoms, and assign a diagnosis. You will also be asked to provide some demographic information and answer some questions regarding your professional background. All reasonable precautions have been taken to preserve participants' anonymity and no identifying information will be collected. Although I am sure your schedule is very busy, I hope that you will take a few moments to participate; the study should only take 20 minutes to complete. If you do not wish to participate or be notified in the future regarding this project, please notify the researchers of these concerns by responding to this email.

This study is entirely voluntary and you are under no obligation to participate in the study. If you agree to participate, you will have the opportunity to be entered in a raffle in which you will have a chance to win one of three $50 gift certificates to Amazon.com. The submission of your responses on the web page constitutes your consent to participate.

This study can be completed by going online at my web page at: _____. To ensure that only those invited to participate in this study are included, you will be asked to enter the following verification code when you sign on: _____.

If you have any questions about the study or would like a summary of the results, you may contact me by email at rfernandez@mymail.indstate.edu or my faculty sponsor, Dr. June Sprock, at j-sprock@indstate.edu. You may also reach us by phone through the Indiana State University Department of Psychology at: (812) 237-2445. This project has been approved by the Institutional Review Board (IRB) at Indiana State University. If you have any questions about your rights as a research participant, please contact the IRB at (812) 237-8217 or irb@indstate.edu.

Thank you in advance for your time and effort. I greatly appreciate your willingness to share your clinical insights and expertise by participating in this research. Your participation is needed for the study to be a success.

Rose M. Fernandez, M.S.

Doctoral Candidate

Indiana State University

APPENDIX F

INTRODUCTION PAGE

Thank you for your interest in my study. If you agree to participate, you will be asked to provide the password included in the email and then read two brief case vignettes, answer the questions that follow each case, and provide some background demographic and professional information about yourself. This study has been approved by the Institutional Review Board (IRB) at Indiana State University. Submission of your responses on the web page will constitute your consent to participate. All reasonable precautions have been taken to preserve participants' anonymity. If you have any questions about your rights as a research participant, you may contact the Indiana State University IRB at (812) 237-8217 or irb@indstate.edu. Please refer to IRB study number: _____. If you have any questions about the study or would like a summary of the results, please contact me through the Indiana State University Department of Psychology at (812) 237-2445 or by email at rfernandez@mymail.indstate.edu. You may also contact June Sprock, Ph.D. at j-sprock@indstate.edu.

Again, thank you for your time and effort. I greatly appreciate your willingness to share your clinical insights and expertise by participating in this research.

APPENDIX G

SYMPTOM RATINGS FOR THE LK CASE: MEANS AND STANDARD DEVIATIONS

	Patient Race			
	African American (*n* = 37)	Hispanic (*n* = 38)	Caucasian (*n* = 36)	Total (*n* = 111)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Symptom				
Suicidal Thoughts	4.11 (0.97)	4.50 (0.81)	4.47 (0.96)	4.36 (0.92)
Odd or Bizarre Behavior	4.03 (1.01)	4.26 (0.85)	4.20 (0.68)	4.16 (0.86)
Worthlessness	4.27 (0.99)	3.78 (1.32)	4.25 (1.16)	4.10 (1.17)
Delusions	3.77 (1.03)	4.14 (1.21)	4.19 (1.01)	4.04 (1.09)
Prom. Halluc. or Del.	3.45 (1.28)	3.97 (1.21)	4.00 (1.24)	3.82 (1.26)
Inflated Self-Esteem	3.84 (0.99)	3.61 (1.13)	3.91 (1.25)	3.79 (1.12)
Elevated Mood	3.76 (0.93)	3.57 (1.07)	3.67 (1.04)	3.67 (1.01)
Dep. Mood Most of Day	3.27 (1.22)	3.56 (1.05)	3.77 (1.19)	3.53 (1.16)
Loss of Interest	3.31 (1.12)	3.24 (1.12)	3.69 (1.23)	3.41 (1.16)
Hopelessness	3.29 (1.43)	3.29 (1.13)	3.19 (1.43)	3.25 (1.32)
Nonbizarre Delusions	2.97 (1.28)	3.19 (1.33)	3.56 (1.44)	3.24 (1.36)
Low Self-Esteem	2.92 (1.40)	3.14 (1.36)	3.03 (1.38)	3.03 (1.37)
Psychomot. Ret. or Agitation	2.72 (1.09)	2.81 (1.31)	3.18 (1.19)	2.90 (1.20)
Negative Symptoms	2.72 (1.14)	2.81 (1.19)	3.00 (1.21)	2.84 (1.17)
Insomnia or Hypersomnia	2.50 (1.18)	2.54 (1.24)	2.94 (1.01)	2.65 (1.16)
Affective Flattening	2.49 (1.24)	2.49 (1.17)	2.85 (1.30)	2.60 (1.24)
Avolition	2.17 (1.28)	2.70 (1.31)	2.47 (1.40)	2.45 (1.33)
Diminished Concentration	2.23 (1.22)	2.78 (1.22)	2.14 (1.12)	2.39 (1.21)
Disorg. or Cat. Behavior	2.14 (1.13)	2.62 (1.32)	2.32 (1.27)	2.36 (1.25)
Increased Activity	2.29 (1.23)	2.46 (1.27)	2.21 (1.30)	2.32 (1.26)
Poor Concentration	2.20 (1.11)	2.69 (1.26)	1.94 (1.08)	2.28 (1.19)
Distractibility	2.14 (1.03)	2.56 (1.16)	2.03 (1.25)	2.25 (1.16)
Insom. or Hypersom. Daily	2.06 (1.07)	1.89 (0.89)	2.42 (1.00)	2.11 (1.00)
Flight of Ideas	2.15 (1.35)	2.14 (1.18)	1.94 (1.16)	2.08 (1.22)

Low Energy	2.03 (1.17)	1.75 (0.81)	1.76 (1.17)	1.85 (1.06)
Disorganized Speech	1.74 (1.01)	1.97 (1.00)	1.50 (0.90)	1.74 (0.98)
Fatigue Daily	1.92 (1.11)	1.56 (0.74)	1.66 (1.08)	1.71 (0.99)
Excessive Involvement	1.92 (1.05)	1.64 (0.93)	1.55 (1.00)	1.70 (1.00)
Hallucinations	1.79 (1.07)	1.72 (1.11)	1.41 (0.93)	1.64 (1.04)
More Talkative	1.61 (0.93)	1.69 (0.89)	1.51 (0.85)	1.61 (0.89)
Alogia	1.47 (0.77)	1.50 (0.66)	1.74 (1.09)	1.57 (0.86)
Decreased Need for Sleep	1.67 (0.99)	1.47 (0.77)	2.42 (1.00)	1.52 (0.86)
Poor Appetite	1.22 (0.58)	1.17 (0.38)	1.03 (0.17)	1.14 (0.42)
Weight Loss	1.19 (0.60)	1.11 (0.32)	1.09 (0.51)	1.13 (0.48)
Decreased Functioning	2.68 (0.53)	2.76 (0.50)	2.78 (0.42)	2.74 (0.48)
Effects of a Substance	1.58 (0.50)	1.67 (0.48)	1.44 (0.50)	1.56 (0.50)
Severity of Symptoms	4.22 (0.75)	4.49 (0.66)	4.47 (0.74)	3.26 (0.92)

Note. Ratings were made on a scale of 0 (Not present), 1 (Subthreshold), 2 (Present- Mild), 3 (Present- Moderate), 4 (Present- Severe). Symptoms are paraphrased and abbreviated – the actual symptoms used on the Diagnostic Questionnaire can be found in Appendix C. Prom. Halluc. or Del. = Prominent Hallucinations or Delusions, Dep. Mood Most of Day = Depressed Mood Most of the Day, Psychomot. Ret. or Agitation = Psychomotor Retardation or Agitation, Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Insom. or Hypersom. Daily = Insomnia or Hypersomnia Daily

APPENDIX H

SYMPTOM RATINGS FOR THE MW CASE: MEANS AND STANDARD DEVIATIONS

	Patient Race			
	African American (n = 40)	Hispanic (n = 32)	Caucasian (n = 39)	Total (n=111)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Symptom				
Loss of Interest	4.22 (0.92)	4.16 (1.14)	4.18 (0.94)	4.19 (0.99)
Dep. Mood Most of Day	4.18 (1.02)	3.81 (1.23)	3.76 (1.17)	3.93 (1.14)
Odd or Bizarre Behavior	3.65 (1.00)	3.75 (0.95)	4.13 (0.83)	3.85 (0.95)
Delusions	3.85 (1.18)	3.78 (1.07)	3.69 (1.24)	3.77 (1.16)
Avolition	3.44 (1.21)	3.77 (1.28)	3.58 (1.33)	3.58 (1.27)
Prom. Halluc. or Del.	3.79 (1.06)	3.50 (1.36)	3.41 (1.16)	3.57 (1.19)
Hopelessness	3.51 (1.37)	3.31 (1.36)	3.31 (1.47)	3.38 (1.39)
Insomnia or Hypersomnia	3.05 (1.43)	2.97 (1.38)	3.18 (1.39)	3.07 (1.39)
Negative Symptoms	3.00 (1.25)	3.10 (1.27)	2.85 (1.44)	2.97 (1.32)
Low Energy	2.86 (1.32)	3.10 (1.22)	2.90 (1.45)	2.94 (1.33)
Insom. or Hypersom. Daily	2.80 (1.47)	2.80 (1.54)	3.05 (1.43)	2.89 (1.47)
Low Self-Esteem	2.90 (1.41)	2.97 (1.19)	2.77 (1.39)	2.87 (1.33)
Fatigue Daily	2.77 (1.29)	2.90 (1.45)	2.92 (1.46)	2.86 (1.38)
Diminished Concentration	3.00 (1.21)	2.63 (1.16)	2.74 (1.41)	2.81 (1.27)
Nonbizarre Delusions	2.90 (1.37)	2.81 (1.25)	2.54 (1.15)	2.75 (1.26)
Elevated Mood	2.77 (1.35)	2.68 (1.30)	2.70 (1.13)	2.72 (1.25)
Disorg. or Cat. Behavior	2.55 (1.34)	2.62 (1.29)	2.95 (1.26)	2.71 (1.30)
Poor Concentration	2.64 (1.29)	2.57 (1.17)	2.74 (1.43)	2.65 (1.30)
Psychomot. Ret. or Agitation	2.49 (1.30)	2.73 (1.46)	2.41 (1.41)	2.53 (1.38)
Suicidal Thoughts	2.28 (1.28)	2.76 (1.43)	2.41 (1.19)	2.50 (1.29)
Affective Flattening	2.28 (1.05)	2.50 (1.23)	2.66 (1.34)	2.48 (1.21)
Poor Appetite	2.18 (1.39)	2.69 (1.34)	2.46 (1.43)	2.42 (1.39)
Worthlessness	2.39 (1.39)	2.40 (1.30)	2.33 (1.28)	2.37 (1.31)
Distractibility	1.85 (1.14)	1.87 (1.14)	1.97 (1.20)	1.90 (1.15)

Inflated Self-Esteem	1.97 (1.26)	1.50 (0.92)	1.95 (1.15)	1.84 (1.15)
Hallucinations	1.45 (1.06)	2.06 (1.44)	1.74 (1.01)	1.73 (1.18)
Alogia	1.76 (1.10)	1.79 (0.90)	1.66 (0.85)	1.73 (0.95)
Excessive Involvement	2.18 (1.43)	1.39 (0.80)	1.49 (0.91)	1.71 (1.15)
Disorganized Speech	1.54 (0.97)	1.50 (0.78)	1.69 (1.08)	1.58 (0.96)
Weight Loss	1.45 (0.88)	1.71 (0.97)	1.54 (1.05)	1.55 (0.96)
Flight of Ideas	1.37 (0.82)	1.50 (0.86)	1.53 (0.83)	1.46 (0.83)
Increased Activity	1.41 (0.75)	1.32 (0.54)	1.56 (1.00)	1.44 (0.80)
More Talkative	1.36 (0.78)	1.20 (0.48)	1.47 (0.86)	1.36 (0.74)
Decreased Need for Sleep	1.44 (0.97)	1.23 (0.63)	1.26 (0.60)	1.32 (0.76)
Decreased Functioning	2.92 (0.27)	2.88 (0.34)	2.97 (0.16)	2.93 (0.26)
Effects of a Substance	1.90 (0.38)	1.72 (0.46)	1.84 (0.55)	1.83 (0.47)
Severity of Symptoms	3.97 (0.72)	4.12 (0.66)	4.00 (0.77)	4.03 (0.72)

Note. Ratings were made on a scale of 0 (Not present), 1 (Subthreshold), 2 (Present- Mild), 3 (Present- Moderate), 4 (Present- Severe). Symptoms are paraphrased and abbreviated – the actual symptoms used on the Diagnostic Questionnaire can be found in Appendix C. Dep. Mood Most of Day = Depressed Mood Most of the Day, Prom. Halluc. or Del. = Prominent Hallucinations or Delusions, Insom. or Hypersom. Daily = Insomnia or Hypersomnia Daily, Disorg. or Cat. Behavior = Disorganized or Catatonic Behavior, Psychomot. Ret. or Agitation = Psychomotor Retardation or Agitation