

Ethical Issues in Cross-Cultural Neuropsychology

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Clinical neuropsychologists who assess patients from diverse cultural and linguistic backgrounds face unique ethical challenges. In this article, we address 4 critical questions relevant to ethics of cross-cultural neuropsychology: (a) Should culture or race be considered in neuropsychological testing? (b) Should race- and ethnicity-specific normative data be used in the clinical neuropsychological evaluation? (c) Who is competent to design and translate tests for ethnic minority groups and non-English speakers and who is competent to administer and interpret them? and (d) Are neuropsychology training programs adequately preparing clinicians to be competent in the assessment of cross-cultural groups? The overall aims of the article are to highlight the complexity of these clinical and ethical issues, to provide comprehensive and balanced information to help guide clinician choices, and to stimulate future research in this area.

Key words: neuropsychology, race, culture, language, norms, ethics

The utility of neuropsychological assessment for the identification and classification of brain dysfunction is contingent on the psychometric properties of the individual tests included in the battery, such as their validity, reliability, sensitivity, and specificity. A fundamental tenet in determining patients' cognitive status is the comparison of individual test scores to scores obtained from a normative population; when patients' performances are significantly worse than those from a matched normative cohort, they may be considered to reflect brain pathology. As the field of clinical neuropsychology continues to evolve, it is becoming increasingly recognized that a number of factors that are not directly related to brain functioning can influence performance on neuropsychological tests. Some of these factors may include effort (Tombaugh, 1996),

fatigue (van der Linden, Frese, & Meijman, 2003), and pain (Grigsby, Rosenberg, & Busenbark, 1995).

Another factor that is a powerful correlate of neuropsychological test performance is cultural experience. Most studies that have explicitly examined ethnic group differences in neuropsychology have found reliable discrepancies in test scores. These differences persist despite matching groups on other demographic factors, such as chronological age, years of formal education, sex, and income (Manly, Jacobs, Touradji, Small, & Stern, 2002; Nabors, Evans, & Strickland, 2000). These findings have tremendous implications for the clinical assessment of ethnic minorities.

A review of the extant literature on cross-cultural neuropsychology reveals that several possibilities have been proposed to account for ethnic group differences in neuropsychological test performance. First, true biological differences in brain organization among ethnic groups could account for discrepancies in their test performance. Second, specific neuropsychological tests measure different cognitive constructs in different ethnic groups. Third, race and ethnicity are correlates of other factors that affect brain functioning, which

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account for between group differences. Finally, the clinicians' or test administrators' experiences with different ethnic or racial groups systematically impacts the specific group's performance on the tests. This last factor can include the clinicians cultural or language competency.

In this article, we attempt to address these views, which are not necessarily mutually exclusive, by considering four critical questions relevant to ethics of cross-cultural clinical neuropsychology. These questions include the following:

1. Should culture or race be considered in neuropsychological testing?
2. Should race- and ethnicity-specific normative data be used in the clinical neuropsychological evaluation?
3. Who is competent to design and translate tests for ethnic minority groups and non-English speakers and who is competent to administer and interpret them?
4. Are neuropsychology training programs adequately preparing clinicians to be competent in the assessment of cross-cultural groups?

The purpose of this article is not to provide a comprehensive review of work that has examined cross-cultural differences in neuropsychological test performance. Rather, it aims to highlight important and complex ethical issues to aid the clinician in the evaluation of ethnically diverse patients and to stimulate future research in this area. Ethical issues (American Psychological Association, 2002) pertaining to cross-cultural neuropsychological evaluation are complicated, and answers to the previously outlined questions are by no means straightforward. Our overall goal is to trigger more discussion and identify areas that require additional empirical investigation.

SHOULD CULTURE OR RACE BE CONSIDERED IN NEUROPSYCHOLOGICAL TESTING?

The racial population landscape in the United States is quickly becoming more heterogeneous, and referrals for neuropsychological evaluation among ethnic minorities are correspondingly growing (Byrd & Manly, in press; Echemendia & Harris, 2004), particularly among older adults (Manly, in press). Because of this increase in diversity, recent efforts have focused on the

examination of cross-cultural differences on neuropsychological test performance among both clinical and neurologically healthy adults. In general, studies have reliably demonstrated poorer performance among ethnic minorities when compared to Whites. For example, several authors have reported poorer performance on tasks of visual confrontation naming among African Americans compared to Whites (Carlson, Brandt, Carlson, & Kawas, 1998; Roberts & Hamsher, 1984; Ross, Lichtenberg, & Christenesn, 1995; Welsh et al., 1995). Others have reported significantly lower performance in ethnic minorities compared to Whites on tasks of nonverbal abilities as well (Bernard, 1989; Campbell et al., 1996; Heverly, Isaac, & Hynd, 1986; Miller, Bing, Selnes, Wesch, & Becker, 1993). Differences often persist despite statistically controlling or matching for highest level of educational attainment (Artiola i Fortuny, Heaton, & Hermsillo, 1998; Jacobs et al., 1997).

The number of studies that have reported differences among ethnic groups leads to the obvious question of what factors account for the discrepancies in scores. If the overarching null hypothesis of these studies is that no true differences in neuropsychological functioning exist among ethnic groups and assuming that neuropsychological evaluation assesses underlying brain functioning, these replicated findings would initially suggest that the null hypothesis should be rejected and that there are true neurobiological differences between ethnic minorities and White Americans.

However, central to the question of whether race or ethnicity should be considered in the clinical evaluation is the definition of race or ethnicity itself. Although a superficial consideration of findings from cross-cultural neuropsychological studies might suggest underlying neurobiological differences among groups (Neisser et al., 1996), most now agree that racial characterization itself is socially or politically determined and has little basis in genetic or true biology (Helms, Jernigan, & Mascher, 2005; Manly, Byrd, Touradji, & Stern, 2004). As a result, many scientists have begun to identify relevant factors that may help account for discrepancies in neuropsychological test performance among ethnic groups. What is beginning to emerge from this literature is that differences among groups do in fact exist, but they can be explained by a number of factors, some of which have been defined and some of which remain to be operationalized. These factors include quality of education (Kaufman, Cooper, & McGee, 1997; Loewenstein, Arguelles, Arguelles, & Linn-Fuentes, 1994; Manly et al., 2002; Whitfield & Baker-Thomas, 1999), acculturation (Lucas, 1998;

Manly et al., 2004; Manly et al., 1998a; Manly et al., 1998b), literacy (Manly, Touradji, Tang, & Stern, 2003), test-wiseness (Manly et al., 2002; Scruggs & Lifson, 1985), and racial socialization (e.g., stereotype threat; Steele, 1997; Steele & Aronson, 1995). Factors such as socioeconomic status may interact with race to influence brain development or functioning because those of lower socioeconomic class may have poorer nutrition and access to health care.

Most neuropsychological tests that are used in clinical practice have been developed and validated with primarily non-Hispanic White normative cohorts. Therefore, there may be an inherent bias in the tests themselves; the construct validity of an individual test may vary as a function of ethnic group. That is, the construct that each neuropsychological test was designed to assess might subtly differ among groups. Some authors have argued that those persistent differences among ethnic groups are due to poor functional equivalence of the tests themselves (Helms, 1992) and that any differences among ethnic groups that are not directly attributable to differences in brain functioning reflect test bias (Gasquoine, 1999). One may imagine, for example, that different ethnic groups have varying experiences and exposure to stimuli in a confrontation naming task that would lead to performance differences unrelated to brain functioning. More subtle attitudinal, experiential, and environmental factors that vary as a function of ethnic group may also contribute to problems with test equivalence. The recognition that systematic bias that impacts construct validity among ethnic groups may exist in standardized neuropsychological tests is an important step in elucidating the nature of cross-cultural differences in neuropsychological test performance (Jones, 2003).

What ethical lessons can be learned from studies of neuropsychological test performance among ethnic groups? Despite findings of consistent group differences, it is inaccurate to *attribute* neuropsychological test performance to race or ethnicity. We view race and ethnicity in a manner similarly to age. Age, in itself, is not a cause of cognitive change, but rather a correlate of a number of well-described and yet-to-be-identified factors that influence cognition. Similarly, ethnicity or race do not *cause* variability in cognitive test performance but rather are markers for a number of contributory factors (e.g., acculturation, quality of education) that do impact performance. For clinical neuropsychologists, a primary responsibility is to consider the potential influence of these factors on test performance when conducting an evaluation. To the extent that these factors are present among ethnic minorities, it

is important to consider race or ethnicity in the neuropsychological evaluation (Ethical Standards 9.02, Use of Assessments, and 9.06, Interpreting Assessment Results; APA, 2002).

Although it is of primary importance to take into account the relation between moderating factors and their neuropsychological test performance, for many of these factors the between-ethnic-group variability may be greater than the within-group variability. That is, the relative impact of each of the moderating factors may vary as a function of ethnic group. The clinician therefore must have some familiarity with a patient's specific cultural, educational, and linguistic background so that he or she can assess how these factors might be uniquely operative within the group and contribute to the individual presentation. For example, in our experience of assessing patients from multiple ethnic backgrounds, we value a priori knowledge of the individual patient's ethnic background; knowing that a patient is Hispanic woman, who lives in northern Manhattan and is originally from the Dominican Republic, will help guide us toward assessing the potential impact of acculturation, quality of education, literacy, and socioeconomic status on neuropsychological test performance. Simply knowing a patient's ethnicity or race does not adequately provide the clinician with the necessary information to determine the impact of these factors on performance, but it may aid the clinician in understanding the potential unique cultural experiences the patient has had.

SHOULD RACE-SPECIFIC NORMATIVE DATA BE USED IN THE CLINICAL NEUROPSYCHOLOGICAL EVALUATION?

Our position on the implementation of race-based normative data has been presented in greater detail elsewhere (Manly, 2005) and is summarized here. Normative data sets provide the clinician with a reference to compare performance of an individual patient in the determination of cognitive ability. Good normative data maximize the diagnostic utility of neuropsychological tests. Any neuropsychologist who compares a patient's test performance to a normative data set should question whether the norms used are appropriate for the patient. Criteria for this determination might include consideration of the time in history the norms were created; whether an adequate number of subjects was included; and, most importantly, that the normative data are ap-

appropriately stratified in ways that best capture demographic factors that contribute to performance on the test. Traditionally, these factors include age, education, and sex. In recent years, race-specific normative data sets have been created (Ferman et al., 2005; Heaton, Miller, Taylor, & Grant, 2004; Lucas, Ivnik, Smith, et al., 2005a, 2005b; Lucas, Ivnik, Willis, et al., 2005; Pedraza et al., 2005; Rilling et al., 2005). There are several advantages and disadvantages for the utilization of these race-specific norms.

As described in the previous section, race or ethnicity is a powerful correlate of test performance, thus meeting criteria for potential stratification in a normative data set. Many causes of discrepancies in scores among ethnic groups have been proposed (e.g., quality of education). However, many have yet to be identified. Use of race-based norms may increase the accuracy of diagnosis of an individual patient by accounting for factors, unrelated to brain functioning, which impact test performance. The accuracy of diagnosis is best when the patient is demographically similar to those individuals included in the normative data set. Given that race is a powerful predictor of neuropsychological test performance and that it is a correlate of several non-brain related factors that impact performance, it is reasonable to have unique norms for separate racial groups. Some (Brandt, 2005) have argued that the use of race-specific norms is problematic and irresponsible. Proponents of this view argue that race has little biological meaning, that race is a surrogate for socioeconomic variables that might influence brain functioning or development, and that “norming away” differences attributable to race precludes our ability to understand the effect of correlates of race on the disease process. Although some of these points are valid, we must consider what the purpose of normative data sets is. As clinical neuropsychologists, we are concerned with discrepancies between how a patient is performing and how the patient should be performing in the absence of pathology. Comparing a patient’s performance to that of demographically similar “normal” individuals is among the best approaches in making this determination. Thus, comparison of a patient to individuals matched on demographic features, including race, is appropriate. Further, norming away race-related factors does not necessarily compromise the validity of the neuropsychological evaluation; rather it can contribute to a reduction in diagnostic misclassification (for discussion, see Lucas, Ivnik, Willis, et al., 2005). Stratifying by race is a step toward creating appropriate groups for clinical comparison to maximize diagnostic accuracy across the life span.

Specific issues should be considered when contemplating the use of race-specific normative data. The clinician should only consider their use if they are available and if a significant relation between ethnicity and performance on the target test has been established. Across neuropsychological tests, the quality of the normative data is an important consideration. Norms that have inadequate cell sizes or simply provide descriptive data, as opposed to psychometrically determined stratified descriptors, should be avoided. Finally, the clinician should consider how similar the individual patient matches with the normative sample. For example, comparison of test scores from a highly educated African American man from New York City to an African American normative data set collected in the rural South might not be appropriate.

Despite the advantages of race-specific norms, there are several disadvantages that need to be addressed. Normative data alone explain little about why test scores vary as a function of group. Further, race-based norms do not address the issue of test bias or cultural equivalence in neuropsychological tests. Systematic examination of race in neuropsychology is a sensitive topic that requires careful consideration of social and political factors. Race-based normative studies have been used to draw irresponsible biological and genetic conclusions (Herrnstein & Murray, 1994; Jensen & Johnson, 1994). Proponents of the utilization of race-based norms need to explicitly highlight that the norms are not created as a claim of biological differences among groups; instead, race, like age or gender, is a strong correlate of other factors that impact performance but not an inherent cause of cognitive performance.

There are other somewhat obvious limitations to the creation and utilization of race-based norms. Several cultural experiences vary tremendously within ethnic or racial groups, leading to the question of who should be included in the normative data set (and which patients should be compared to it). There is a tremendous amount of cultural, linguistic, educational, and environmental heterogeneity within ethnic groups. Location of residence (urban vs. rural, north vs. south) significantly interacts with ethnicity to impact cognition. Race-based norms should, of course, also include stratification by other factors that impact cognition (e.g., age, education) and require a very large sample size to be established. Finally, given the number of potentially definable racial or ethnic groups, it would be utterly impossible and impractical to create specific race-based normative data for each existing test for each existing group. Given the increase of biracial and multiracial

families, race-based norms cannot address the assessment of individuals with mixed racial and ethnic backgrounds.

Until race and ethnicity can be deconstructed into the component parts that account for between-group differences, utilization of race-based norms nonetheless may represent one step toward the fair assessment of ethnic minorities (General Principles D, Justice, & E, Respect for People's Rights and Dignity; Ethical Standard 9.06, Interpreting Assessment Results; APA, 2002). Whether race-based norms should be used for the assessment of an individual patient is contingent on a number of factors. The clinician must have a good understanding of the patient's educational and cultural background and experience. Do these experiences match with those of the normative group? Are there normative data sets that more similarly match the patient's background and experience, even if not including race or ethnicity? Regardless of the patient's race or ethnicity, clinicians should not consider neuropsychological test scores in isolation. That is, a test score, regardless of the normative group used to determine it, reflects one aspect of the patient's presentation and should be interpreted in the context of a detailed qualitative assessment (Ethical Standard 9.01, Bases for Assessments, subsection a). In this vein, it would not be inappropriate to report scores derived from multiple normative data sets and explore the possible implications of discrepancies in a clinical evaluation report. In the future, neuropsychology, as a profession, has a mandate to continue to refine normative data sets to most accurately reflect the factors that impact cognition.

**WHO IS COMPETENT TO DESIGN
AND TRANSLATE TESTS FOR
MINORITY GROUPS AND
NON-ENGLISH SPEAKERS, AND
WHO IS COMPETENT TO
ADMINISTER AND INTERPRET
THEM?**

Cultural expertise or competence at the individual level is essential for the clinician who is working with cross-cultural populations (Ethical Standard 2.01, Boundaries of Competence, subsection b; APA, 2002). In this section, we discuss some of the issues related to competency in conducting cross-cultural clinical neuropsychological work. We place an emphasis on language, because this represents a concrete and salient

variable that affects the way in which neuropsychological tasks are presented across groups.

The onus for developing neuropsychological tests that are culturally unbiased is on the field of clinical neuropsychology as a whole. That the number of scientists and empirical studies on the topic has increased dramatically over the past several years is an indication that the field, in general, is becoming more culturally competent. With regard to language and neuropsychology, we feel that there are two central ethical issues. The first central ethical issue involves the method by which tasks are developed in new languages from existing English-language measures, and the second involves the evaluation of patients whose primary language is different than the clinician.

It is common practice in dealing with non-English speaking populations to simply translate English language measures into a new language. Even if translation and back-translation methodology is used, individuals who perform the translation are often not neuropsychologists, not well educated in the target language, and not generally balanced bilinguals. In terms of new test development, it is difficult to imagine conditions in which this practice, which is unfortunately common, would be consistent the ethical guidelines for psychologists.

Guidelines have been established to aid in the development and translation of tests into different languages (Artiola i Fortuny & Mullaney, 1997, 1998; Loewenstein et al., 1994; van de Vijver & Hambleton, 1996). They stress the importance of in-depth knowledge of the culture and language to which the test is being translated or consultation with those who are competent in these domains. Cultural equivalence, in addition to linguistic issues, must also be considered (Teng, 1996; Teng et al., 1994).

In terms of development and evaluation of neuropsychological tests in cross-cultural populations, scientists with expertise in psychometric construction as well as a deep appreciation and understanding for ethnicity-related factors that impact performance are best poised to develop tests for specific cultural groups (Ethical Standard 9.05, Test Construction; APA, 2002). Ideally, the test designers should be fluent in the language of the target population and have knowledge of how that language may differ by geographic region. It is a common misconception among researchers and clinicians that tests are equivalent across groups as long as they are administered in the native language of the individual. Literal translation of tests introduces potential problems for a variety of reasons. For example, target stimuli of a

neuropsychological test may differ in frequency or salience across groups (Loewenstein et al., 1994; Sano et al., 1997; Teng, 1996), subtle differences across languages may introduce problems in equating certain tests (Kempler, Teng, Dick, Taussig, & Davis, 1998), and different ethnic groups may differentially emphasize performance strategies, such as speed versus accuracy (Llabre & Froman, 1987). Failure to adequately consider potential cross-cultural issues during test development may represent a form of discrimination (Ethical Standard 3.01, Unfair Discrimination; APA, 2002).

The second central ethical concern surrounding language issues in neuropsychology deals with the evaluation of patients whose primary language differs from the clinician's. Despite the development of consensus guidelines for cross-cultural tests (e.g., Artiola i Fortuny & Mullaney, 1997), in practice, clinical neuropsychologists are often requested to evaluate patients from cultures in which they lack specific in-depth knowledge. This problem is particularly relevant when the clinician is not entirely fluent in the patient's language. Ethical Standard 9.02 (Use of Assessments)(c) states, "Psychologists use assessment methods that are appropriate to an individual's language preference and competence ... " (p. x). The ethical implications for neuropsychology have been described in great detail elsewhere (Artiola i Fortuny & Mullaney, 1998) and are summarized here.

A complete neuropsychological evaluation comprises comprehensive assessment of verbal and nonverbal language ability. The clinician needs to be able to evaluate, for example, word retrieval, fluency, and comprehension, in addition to subtle prosodic and attitudinal communications. Obviously, the ability to evaluate these domains is directly related to the degree to which the clinician has advanced native fluency of the target language and the degree to which the clinician is expert in clinical neuropsychological evaluation. Artiola i Fortuny and Mullaney (1998) argued that a clinician who speaks the patient's language, but not at the level of an educated native, may be qualified to collect factual information but may not necessarily possess the ability for diagnostic work.

Although ideally the clinician should speak the patient's language at the level of a highly educated native, in practice, this is not always possible. The proportion of Spanish-speaking patients referred for neuropsychological evaluation, for example, far exceeds the proportion of native-level fluent Spanish-speaking neuropsychologists or trained technicians and psychometrists. If it is not plausible to refer a pa-

tient to a neuropsychologist who meets the fluency criterion, is it ethical for a clinician to assess the patient? Is it more of a disservice to the patient to be evaluated by a neuropsychologist who does not speak his or her language at a native level or not be evaluated at all?

First and foremost, it is the clinician's responsibility to conduct an exhaustive search for a neuropsychologist who is fluent in the patient's native language. In the absence of an appropriate referral, the clinician must evaluate whether he or she can conduct the evaluation within the boundaries of his or her competence. All clinical neuropsychologists are obligated to seek out training in cross-cultural neuropsychology, and it is imperative that those who work with ethnic minorities seek out in-depth training. This includes an appreciation how race, ethnicity, education, and language interact to impact neuropsychological test performance. This also includes possessing the necessary skills to be able to seek out information about a specific cultural group. For example, if one's training occurred in Los Angeles among Spanish-speaking Mexican Americans, one must not assume that training to be relevant to Spanish-speaking Dominicans in New York City. A clinician who is considering the evaluation of a patient in his or her second language must make a concerted effort to consult with an impartial colleague who is both a native speaker and familiar with the culture to determine whether the clinician is fluent enough to conduct an adequate evaluation. If the clinician chooses to proceed with the neuropsychological evaluation, he or she must explicitly describe and discuss any potential caveats and ramifications of the language differences in the clinical report.

The use of interpreters is one potential approach to solving the problem of a mismatch between the language of the clinician and the language of the patient. However, the introduction of an interpreter to the neuropsychological evaluation process can often cause additional problems (Artiola i Fortuny & Mullaney, 1998). Although hospitals routinely keep lists of volunteer interpreters in a number of languages, these individuals generally lack formal training in interpretation, psychology, or both. Interpreters may be fluent in both languages but not familiar with the terms, techniques, and general concept of neuropsychological evaluation (Ardila, Roselli, & Puente, 1994; LaCalle, 1987). When family members of patients act as interpreters, they often aid the patients in their responses or answer questions on the patients' behalf. Finally, it is impossible for the monolingual clinician to assess the level of the fluency in the interpreter and verify the accuracy of the translated information. Use of bilingual technicians

can help address the issues of language competence, but technicians are not trained as clinicians and cannot substitute for a trained neuropsychologist (Artiola i Fortuny & Mullaney, 1998).

**ARE NEUROPSYCHOLOGY
TRAINING PROGRAMS
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CLINICIANS TO BE COMPETENT IN
THE ASSESSMENT OF
CROSS-CULTURAL GROUPS?**

A recent publication, "Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists (American Psychological Association, APA, 2003), aims at providing guidelines for multicultural education and training across disciplines in psychology. *Education* refers to didactic communication of knowledge usually in the classroom, on students of psychology, whereas *training* refers to the application of education to clinical practice. One theme of these guidelines is a "multicultural" approach that stresses appreciation and understanding among racial and ethnic groups. This approach, it is argued, enhances the clinician's ability to serve the needs of multiple groups by incorporating his or her knowledge of their worldviews into treatment. Drawing on evidence from social psychology (Schofield, 1986), a "color-blind" approach, in which ethnic or racial differences are ignored or disregarded to reduce inequities, in fact may perpetuate false beliefs about racial inequalities. The 2003 APA guidelines thus put forth the mandate that "as educators, psychologists are encouraged to employ the constructs of multiculturalism and diversity in psychological education" (p. 14). APA criteria for accreditation include the incorporation of race and ethnicity diversity into course curriculum. Indeed, since programs have begun emphasizing cultural diversity, there is a general consensus that it has improved clinical abilities specifically and produced more competent psychologists in general (e.g., Constantine, Ladany, Inman, & Ponterotto, 1996).

Educating future clinical neuropsychologists in cross-cultural issues involves incorporating multicultural theory and philosophy into existing courses as well as providing specific coursework in the topic. We are unaware of a formal evaluation across neuropsychology graduate, internship, and postdoctoral programs about how well this is accomplished. However, surveys from the mid-1990s give some sense of the adequacy of cross-cultural education across disciplines of

clinical psychology. Allison, Crawford, Echemendia, Robinson, and Knepp (1994) surveyed 292 practicing psychologists to obtain information regarding their predoctoral training in cross-cultural issues. The results revealed that less than half of those surveyed indicated feeling highly competent in providing services to individuals of most ethnic groups. Furthermore, the authors found that recent graduates reported limited training with patients and clients from ethnic minority groups and minimal-to-moderate levels of education in cross-cultural issues in the classroom.

Bernal and Castro (1994) collected survey data about cross-cultural education on all accredited clinical training programs in the United States at the time and compared the data to those obtained from a survey conducted a decade earlier. They found that the majority of programs incorporated "minority content" in their existing courses or offered specific courses on the topic, which were required for graduation. These findings represented a significant increase from those obtained a decade prior. In general, they also found an increase in commitment to teaching multicultural issues, an increase in willingness to supervise thesis work that deals with cross-cultural issues and an increase in diversity of faculty members.

Results from these surveys suggest that, at least as of 1994, clinicians in general are inadequately educated in cross-cultural psychology, although it is clear that cross-cultural issues are gradually being integrated into the education of future clinicians. The surveys were conducted more than a decade ago and, given the more recent emphasis in the recognition of cross-cultural issues as important to clinical psychology, it can be assumed that doctoral programs continue to increase their emphasis on cross-cultural education.

Although survey data provide some sense of the degree to which cross-cultural curriculum is increasing in graduate education, they tell us little about the quality of that education. In neuropsychology, the amount and caliber of research conducted around issues of ethnicity and culture has dramatically increased over the past several years. To the extent that findings and theories generated from this area of research is incorporated in the teaching curriculum, the cross-cultural education of students is continuing to improve. Recognition of the importance of cross-cultural education from accrediting agencies, such as APA, is another piece of evidence of this improvement. Educators are urged not to view the incorporation of cross-cultural neuropsychology into classroom curriculum simply as a fulfillment of a governance requirement but to appreciate the importance of the issue itself.

We currently have no formal way of objectively determining the impact of this increase in education on practice. In terms of practical training in clinical neuropsychology, anecdotal evidence suggests that clinical supervisors at the externship, internship, and postdoctoral level, in general, are doing an inadequate job of incorporating state-of-the-art knowledge of cross-cultural issues in neuropsychology into their supervisory roles. Although formal educational seminars are often included in training experiences, it is rare that the individual supervisor implements the theory into practice. This problem is most evident regarding the evaluation of non-English speakers (see previous discussion), appreciation of the how ethnicity can be deconstructed into factors contributing to neuropsychological test performance, and the incorporation of relevant cross-cultural issues into the clinical neuropsychological report. Furthermore, many training sites do not (or cannot) explicitly enhance the trainees' clinical experience by exposing them to patients of representative cultural and linguistic backgrounds.

Because the importance of formal education in cross-cultural psychology has only become appreciated in recent years, many of the problems of inadequate cross-cultural training stem from the fact that clinical supervisors have not themselves been formally trained in this area. We feel that practicing psychologists, in general, should gain the proper training in cross-cultural issues, but that clinical supervisors are mandated to gain and maintain state-of-the-art expertise (Ethical Standard 2.03, Maintaining Competence; APA, 2002).

CONCLUSIONS

Cultural and linguistic experiences are essential influences on behavior, yet detailed work explicating the role of culture and language on neuropsychological test performance and cognitive function is in its infancy (Kennepohl, 1999). Although it would be irresponsible to ignore such basic and powerful factors, it is equally problematic to blindly apply race-specific information or expectations to examinees without fully examining their appropriateness for each individual. We believe that continued empirical research in this area will provide clearer guidance to trainees, test publishers, researchers, and clinicians about neuropsychological evaluation of ethnically and linguistically different people. Refining our measures and our overall approach to neuropsychological assessment in the contexts of racial

and ethnic, cultural and linguistic diversity not only will improve the accuracy of assessment in these groups but also will inform overarching questions about valid measurement of cognitive ability, regardless of diversity matters.

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