



Published in final edited form as:

Neuropsychol Rev. 2008 September ; 18(3): 179–183. doi:10.1007/s11065-008-9068-8.

Critical issues in cultural neuropsychology: profit from diversity

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Addressing cultural diversity in cognitive test performance is an unavoidable future of neuropsychological research and practice

There is widespread agreement that many neuropsychological measures do not have acceptable diagnostic accuracy when used among people who are not Caucasian, well-educated, native English-speaking, and middle to upper class (Ardila, Rodriguez-Menendez, & Rosselli, 2002; Boone, Victor, Wen, Razani, & Pontón, 2007; Brickman, Cabo, & Manly, 2006; Loewenstein, Arguelles, Arguelles, & Linn-Fuentes, 1994; Manly, 2005). A review of scholarly works reveals that not only is this an area of controversy in our field, but also that neuropsychological testing among culturally and linguistically diverse people is an area of critical vulnerability in the theoretical and empirical foundation for neuropsychological practice.

The current status of neuropsychological practice among culturally and linguistically diverse people raises ethical questions. Guidelines for ethical decision-making within the neuropsychological assessment of ethnically and linguistically diverse people has been discussed in detail in several prior publications (Artiola i Fortuny & Mullaney, 1997; Brickman et al., 2006; Harris, Cullum, Bush, & Drexler, 2002; T. M. Wong, 2006), making ethics one of the more comprehensively documented “subtopics” in cultural neuropsychology. The American Psychological Association Ethics Code (“Ethical Principles of Psychologists and Code of Conduct,” 2002) states that it is unethical to use inappropriate measures among culturally different individuals. Yet refusing to assess a large and growing segment of the population, many of whom may potentially benefit from neuropsychological services, would also violate the ethics of our field (Brickman et al., 2006; Harris et al., 2002). It is our ethical obligation to safeguard the welfare of people who come under our care, to take cultural background into account and to do our best to eliminate bias (“Ethical Principles of Psychologists and Code of Conduct,” 2002). The quality and accuracy of current assessment of culturally diverse people may be “the very best we can do” but whether this level of practice is justified entirely depends on the setting of the assessment, what is at stake, the evidence base for the methods used, and the level of cultural competency of the neuropsychologist.

Despite recent proliferation in the number of publications that directly address ethical, theoretical, and practical issues in cultural neuropsychology, the explosive growth in the number of culturally and linguistically diverse people in the United States has exposed our lack of preparation. We are playing a game of catch-up that is, in part responsive to the pressure of a national research agenda of reducing health disparities in the United States; cognitive function has been implicated as a critical predictor and outcome of gaps in health across the life course

(see Glymour and Manly, this issue), and therefore accurate assessment is tantamount to addressing these disparities.

The facts on America's growing cultural diversity are essential knowledge for neuropsychologists in the United States. Although 66% of the population is non-Hispanic White in 2008, this "majority" group will contribute far less of the total population growth in coming years. The non-Hispanic White share of the U.S. population has fallen steadily from 74% in 1995 to 66 percent in 2008, and it is projected to decline to 50% in 2050 (Minority Population Tops 100 Million, 2007). This increasing diversity will be reflected in the people who we serve, and hopefully, our students and our colleagues. Neuropsychologists must be responsive to the rapidly changing and diverse nature of the population by taking into account cultural, linguistic, and educational background of the people we assess in all aspects of our practice, including not only the measures and normative standards that we use, but also the languages in which we are competent to assess, the educational materials we provide, and the recommendations we make. In preparing neuropsychologists for the linguistic needs of the population, consideration should be given not only to first language and language spoken at home, but also immigration age (if relevant), acculturation, and bilingualism (Llorente, 2007).

The US Census (United States Bureau of the, 2001) projects that after 2016, more non-Hispanic Blacks will be added to the population each year than non-Hispanic Whites, and African Americans are already the largest minority group in 22 states. Multiple groups (an admittedly incomplete group are cited here) have provided critical information about neuropsychological testing among African Americans (Campbell et al., 1996; Fillenbaum, Heyman, Huber, Ganguli, & Unverzagt, 2001; Heaton, Miller, Taylor, & Grant, 2004; Lichtenberg, Brown, Jackson, & Washington, 2004; Lucas et al., 2005; Manly, 2005; Nabors, Evans, Strickland, Fletcher-Janzen, & Reynolds, 2000; Unverzagt et al., 2007).

The racial/ethnic groups with the highest rates of population increase in coming years will be Latinos/Hispanics and Asian and Pacific Islander populations. Due to the insight and dedication of several researchers, there are multiple resources available to neuropsychologists who will be faced with the tremendous growth of the Asian and Pacific Islander population over the next several decades (Fujii & Wong, 2006; Teng et al., 1994; Teng, Yeo, & Gallagher-Thompson, 1996; T. Wong & Fujii, 2004; T. M. Wong, 2000). The numbers are striking: although the general population of the US will increase 49% from 2000 to 2050, the Asian population will increase 213%, and between 2005 and 2006, the percentage growth of the Native Hawaiian and Other Pacific Islander population was the highest of any race group except for Asians. The US population of those who self-identified as Asian was 14.9 million in 2006, and concentrated in California, New York, and Texas, with Chinese-Americans are the largest Asian group, followed by Filipinos, Asian Indians, Vietnamese, Koreans, and Japanese. Chinese is the second most common non-English language spoken at home.

It is projected that by 2010, Latinos/Hispanics will become the second-largest ethnic group (this is already the case in 19 states) and after 2020, the Hispanic population will add more people to the United States every year than will all other race/ethnic groups combined. Concentrated in California, Texas, New Mexico, New York, and Florida, but growing rapidly in other regions, current census information indicates that the majority (64%) of Latino/Hispanics in the United States describe themselves as having Mexican background, 10% are Puerto Rican, Cuban, Salvadoran and Dominican are 3% each, and the remainder describe themselves as having other Central American, South American or other Hispanic or Latino origins. I will not attempt to comprehensively cite all the neuropsychological literature concentrating on Latino American participants across different regions of the US, but it is critical to recognize that this work is relevant to English-speaking, Spanish-speaking, and

bilingual people (Ardila, Rosselli, & Puente, 1994; Artiola i Fortuny, Heaton, & Hermsillo, 1998; Artiola i Fortuny & Mullaney, 1997; Boone et al., 2007; Cherner et al., 2007; Echemendia, Harris, Congett, Diaz, & Puente, 1997; Heaton et al., 2001; Judd & Beggs, 2005; Llorente, 2007; Llorente, Ponton, Taussig, & Satz, 1999; Loewenstein, Arguelles, Barker, & Duara, 1993; Lopez & Taussig, 1991; Mungas, Reed, Marshall, & Gonzalez, 2000; Ponton & Ardila, 1999; Ponton et al., 1996; Rey, Feldman, Rivas-Vazquez, Levin, & Benton, 1999; Uzzell, Ponton, & Ardila, 2007)(Rivera-Mindt et al., this issue). The tremendous body of literature in Spanish-speaking countries should also be required reading for clinicians and researchers (Artiola i Fortuny et al., 1998; Barraquer-Bordas, 1999; Fernandez & Marcopulos, 2008; Matute, Rosselli, Ardila, & Morales, 2004; Ostrosky-Solis, Ardila, & Rosselli, 1999; Rosselli & Ardila, 2003).

Research and available clinical tools and guidelines for neuropsychological assessment of the country's American Indian and Alaska Native population are grievously deficient, although several research teams have been recently making progress in recruiting and providing information about cognitive test performance in these populations (Ferraro & McDonald, 2005; Verney et al., 2008; Whyte et al., 2005). Given that American Indians and Alaska Natives are currently the largest race or ethnic minority group in Alaska, Arizona, Idaho, Montana, New Mexico, North Dakota, Oklahoma, South Dakota and Wyoming, emphasis on empirical information in this cohort, with appreciation of its extraordinary heterogeneity, is critical.

Seeking a higher level scientific language for cultural neuropsychology

Readers of this special issue will recognize that the manuscripts within do not focus on particular ethnic, racial, and linguistic groups, but instead address issues that underlie neuropsychological assessment and research on cognition across culturally diverse people. This is consistent with efforts to explore the role of culture in cognitive test performance and to find basic principles that can be useful in improving the accuracy and utility of neuropsychological measures across all cultural and linguistic groups, not just minorities. In research within the fields of economics (Card & Krueger, 2003; Jencks & Brown, 1975), public health (Cooper & Kaufman, 1998; Kaufman & Cooper, 2001; Kaufman, Cooper, & McGee, 1997), and epidemiology (Krieger, 1999, 2000; D. R. Williams, 1997; D. R. Williams, Neighbors, & Jackson, 2003), there has been substantial progress in conceptualizing the role of race and culture in determining meaningful health and social outcomes, as well as the effect of background factors on measurement of these outcomes. Each of the manuscripts in this special issue reflects an approach to neuropsychological research methodology and assessment that is informed by these approaches outside the field of neuropsychology. Each of these manuscripts reflect an approach that takes advantage of the complex experiences of diverse people, as well as the creative, necessary solutions to methodological challenges that arise in the assessment of culturally diverse people, to improve the quality and utility of neuropsychological measures.

Whether our field can become, on the whole, useful to improve health outcomes among culturally diverse people depends on our understanding of diagnostic validity, causation, and employing correct statistical methods in analyzing data. Pedraza and Mungas discuss measurement issues in cultural neuropsychology, frame issues of diagnostic validity in this area, and review advanced psychometric methodologies that can improve the reliability and validity of neuropsychological measures when used in diverse people. Glymour, Weuve, and Chen discuss causation and construct validity from the perspective of researchers attempting to understand the role of race and culture on cognitive test performance and also explore the link between culture and cognitive health outcomes.

Byrd and colleagues review the status of neuropsychological assessment of culturally diverse children and the implications of this work on our understanding of the role of culture on cognitive development.

Glymour and Manly explore the way in which epidemiologic approaches to understanding the health effects of racial, economic, cultural, and educational experiences over the life course can help advance our understanding of affect cognitive aging and performance on neuropsychological tests among ethnic minorities.

Rivera-Mindt, Gollan and colleagues take on one of the most exciting topics in neuropsychology, the study of cognition and cognitive test performance among bilinguals. They review the theoretical underpinnings of this area of study and also review the practical approaches to assessment that have been offered in the literature.

Given the history of attempts to assess intellectual functioning across cultures (Baker, 1998; Gould, 1996; Hilliard, 1979; Neisser et al., 1996; R. L. Williams, 1974), it is understandable that neuropsychologists would want to side-step this controversy entirely. However, if neuropsychologists can engage with these issues in research and clinical settings, we can embrace the opportunity to benefit from the lessons of the past, and further establish our field as an integral and methodologically sound component of health care. The articles in this special issue do not comprehensively cover the rich topic of cultural neuropsychology, but I am confident that they will challenge conventions and stimulate further exploration and discussion.

Acknowledgments

This work was supported by National Institute on Aging grants AG16206, AG028786, and the Alzheimer's Association.

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