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Guest Editorial

Racial/ethnic disparities in outcomes after central nervous system injury

People from racial/ethnic minority groups currently make up 33% of the population in the United States [18]. This percentage has increased dramatically over the past 10 years [11]. The US minority population will continue to grow, and it is predicted that by 2050, minorities may constitute up to 49% of the country's total population. In particular, the Hispanic population is increasing rapidly and now constitutes the largest minority group in the US. Research from the early 1990's suggests that compared to their Caucasian counterparts, minorities may be more vulnerable to suffer central nervous systems injuries such as traumatic brain injury (TBI) [7,8,12], spinal cord injury (SCI) [9] and stroke [6,10].

The growth of the US minority population, combined with possible increased vulnerability to TBI, SCI, and stroke, have created numerous challenges for rehabilitation professionals of the 21st century. Fairly recently, researchers have begun to pay attention to the influence of race/ethnicity on healthcare delivery, receipt, and subsequent outcomes [16,17]. Various disparities have been identified in the literature, and most of the articles included in this issue focus on racial/ethnic differences post-injury in employment, life satisfaction, community integration, health, and well-being outcomes. Furthermore, given the specific growth of the Hispanic population, professionals in the field are recognizing the need for valid neuropsychological assessment tools for Spanish speakers. Specifically, the proposed "culture-free" nature of neuropsychological testing has been questioned in recent years, and researchers and clinicians alike have doubted the validity of literal translations of English-language assessment tools for use with non-English speakers [5,15]. Inaccurate diagnosis leads to inappropriate intervention, and it is possible that the use of inadequate evaluation instruments may contribute to disparities in outcomes. Therefore, in this issue, two articles describe instruments that are valid for use with the Spanish-speaking population.

A brief overview of all the feature articles will follow.

Three articles document racial/ethnic disparities in life satisfaction or community integration after TBI. The article by Arango-Lasprilla and colleagues studied racial differences in life satisfaction at 1-year post-injury among 2478 Caucasian, 629 African American, 180 Hispanic, and 81 Asian/Pacific islander individuals with primarily moderate to severe TBI who were part of the Traumatic Brain Injury Model Systems database. African-Americans reported poorer life satisfaction than Caucasians and Asians, even after controlling for marital status, employment at admission, cause of the injury, functional independence at discharge, and length of stay in acute care. Sander and colleagues sought to determine the contribution of race/ethnicity and income to community integration at approximately 6 months following TBI. The sample was made up 151 individuals with mild to severe TBI (38% African Americans; 38% Hispanics; and 24% Caucasians) recruited from consecutive admissions to the neurosurgery service of a county Level I trauma center. Results showed that, after accounting for injury severity, age, education, and income, race/ethnicity contributed significantly to the variance in the Community Integration Questionniare total score, as well as the Home Integration Sub-scale and Productive Activity Sub-scale scores. Finally, Mascialino and colleagues examined disparities in objective and subjective components of community integration beyond 1 year post-injury in a group of 360 community dwelling adults with TBI (254 Caucasians and 106 minorities). For objective indicators, White participants reported using less transportation services than minorities, after controlling for demographic and injury variables. For subjective indicators, Whites were significantly less dis-

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satisfied than minorities regarding community, civic, life and leisure participation, as well as total levels of participation.

Three additional articles in this issue document racial/ethnic differences in employment, well-being, participation, and health outcomes after SCI. Arango-Lasprilla and colleagues studied racial differences in employment outcomes at 1 year post-injury in a group of 11,424 individuals (1,369 Hispanics and 10,055 Caucasians) who were part of the Spinal Cord Injury Model Systems database. They found that after adjusting for age, gender, marital status, education level, employment status at admissions, cause of injury, category of neuro impairment, and ASIA impairment scale, race/ethnicity has a significant effect on employment status at 1 year post-injury. Specifically, the odds of unemployment versus employment were 1.864 times greater for Hispanics than for Caucasians (95% CI = 1.48, 2.35) and the odds of unemployment versus other were 1.980 times greater for Hispanics than for Caucasians (95% CI = 1.62, 2.41). Krause and colleagues examined disparities and changes in subjective well-being, participation, and health over a 6-year period as a function of race/ethnicity and gender in 250 individuals with SCI (62 Caucasians, 61 African-Americans, 56 American-Indians, and 77 Hispanics). Caucasians reported the highest subjective well-being scores in several domains and African Americans had the second highest scores. Caucasians also reported more hours out of bed than either African Americans or Hispanics, suggesting better health and an increased ability to participate in society. Saladin and colleagues compared the prevalence of pressure ulcer and barriers to its treatment as a function of race/ethnicity in 475 individuals with SCI (121 African-American, 105 American Indian, 127 Caucasians and 122 Hispanics). Compared to Hispanics, African Americans were 5.14 times more likely (OR = 5.14, C.I. = 1.97–13.43), and American Indians 4.63 times more likely (OR = 4.63, C.I. = 1.69–12.64), to report a pressure ulcer during the past year. Although there were no racial/ethnic differences in all of the nine barriers assessed, Caucasians were more likely than Hispanics to endorse needing someone to stay with them, not having money to pay for in-home help, and boredom as barriers to bed rest. African Americans and American Indians were more likely than Caucasians and Hispanics to report lack of insurance and transportation as issues that interfered with seeing a physician for treatment.

Lastly, Onukwugha and Weir studied the influence of race/ethnicity and admission for rehabilitative services on the likelihood of a discharge against medical advice (AMA). Among Caucasians, adjusted odds of a discharge AMA were higher for patients with an admission for rehabilitative care (OR = 3.83, C.I. = 2.43–6.02). Among those not admitted for rehabilitative care, non-Caucasian patients were more likely to leave AMA compared to Caucasians (OR = 1.40, C.I. = 1.16–1.68).

Two articles investigate the validity of Spanish-language neuropsychological tests. Marquez de la Plata and colleagues studied visual and auditory memory performance in 38 primarily Spanish-speaking individuals with Temporal Lobe Epilepsy (right TLE = 15, and left TLE = 23) using a test specifically designed for this sample group (Spanish Verbal Learning Test, SVLT). Individuals with left TLE performed significantly worse than those with right TLE on the SVLT. However, when common memory tests translated into Spanish (e.g., Logical Memory) were used, no significant differences in story or visual memory were found. These results suggest that verbal memory differences in individuals with right vs. left TLE are only detected using tests developed for and standardized on Spanish-speaking patients, not English-language tests capable of distinguishing right vs. left TLE that have been translated into Spanish. In the another article, Marquez de la Plata and colleagues evaluated and compared the internal consistency and patterns of item-difficulty and discrimination of the Texas Naming Test with two commonly used translated naming tests (Modified Boston Naming Test-Spanish, and the naming subtest from the Consortium to Establish a Registry for Alzheimer's Disease (CERAD). The sample consisted of 126 individuals with dementia and 116 healthy controls from the United States, Colombia, and Spain. The Texas Naming Test outperformed its counterparts in internal consistency. The Texas Naming Test was superior to the CERAD naming test in item difficulty and superior to the Modified Boston Naming Test in item discrimination pattern. Although all three Spanish-language naming tests were able to differentiate non-demented and moderately demented individuals from any country, the Texas Naming Test appears to be more appropriate than translated tests to measure naming problems in Spanish-speaking individuals with dementia.

Most of the articles included in this special issue verify and extend previous research documenting that minorities with TBI and SCI have worse post-injury outcomes compared to Caucasians [1–4]. Sociodemographic and injury characteristics do not account for these outcome disparities, thus future research must focus on identifying the factors that account for these racial/ethnic differences. Until such data become available to explain these differences, it is imperative that rehabilitation professionals in the US recognize that: 1) different cultures have different ways of communicating, behaving, interpreting, and problem-solving; 2) cultural values, beliefs, and practices differ among people; 3) socio-cultural factors influence patients, providers, the clinical encounter, and interpersonal relationships; 4) cultural beliefs impact a patient's health beliefs, help-seeking activities, health care practices, and health care outcomes, including data collection; and 5) health information without taking culture into account is incomplete [13,17]. Furthermore, in efforts to build cultural competency that may ultimately improve outcomes for ALL individuals, rehabilitation professionals and researchers should: 1) consider each person as an individual, as well as a product of their country, religion, ethnic background, language, and family system; 2) seek to identify the linguistic, economic, and social barriers that individuals from different cultures face, preventing their access to health care and social services; and 3) take into account that families from different cultures consider and use alternatives to western health care philosophy and practice [13]. With greater awareness of existing health disparities, tools and evidence-based strategies must be developed to reduce and eventually eliminate them. In my opinion, this is the greatest challenge facing American rehabilitation professionals and researchers of the 21st century.

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Juan Carlos Arango-Lasprilla
Guest Editor
Department of Physical Medicine and Rehabilitation
Virginia Commonwealth University
Richmond, VA, USA
E-mail: jcarangolasp@vcu.edu