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Guest Editorial

Newly developed neuropsychological norms for the evaluation of Spanish-speaking adults in the United States

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The number of Hispanics in the United States (U.S.) is projected to increase dramatically from 58.9 to 111.2 million by 2060 (United States Census Bureau, 2017). As the number of Hispanics increases, so has the number of Hispanics with neurological conditions involving cognitive deficits, such as Alzheimer's disease, stroke, traumatic brain injury, and multiple sclerosis. Given that nearly 70% of Hispanics speak Spanish at home, the number of Spanish-speaking patients requiring specialized care has eclipsed the growth of bilingual professionals trained in neuropsychology, neurology, speech and language therapy, occupational therapy, and physical therapy professions (Arango-Lasprilla et al., 2022a).

There is a scarcity of instruments that have been created for Spanish-speaking Hispanics, or culturally adapted to evaluate cognitive deficits for Spanish-speaking Hispanics in the U.S. (Arango-Lasprilla et al., 2022a). As a result, healthcare professionals in the U.S. have limited options when assessing Spanish-speaking patients (Arango-Lasprilla et al., 2022a). Many have administered Spanish-language tests designed in Latin America or Spain (Arango-Lasprilla, 2015), some have utilized English instruments they translated themselves "in-house", and some have utilized English language tests, translated by a translator in the moment of the evaluation. Complicating validity of the evaluation is the decision regarding which normative data to utilize. Even though, some studies exist that do provide normative data for Spanish-speakers in the U.S., but these studies have several methodological limitations that hinder widespread application (Gonzalez et al., 2005; Gooding et al., 2021; Morlett et al., 2021; Rivera Mindt et al., 2021a; Rossetti et al., 2011; Suarez et al., 2021; Strutt et al., 2011; Ryan et al., 2020). In the absence of ideal normative data, clinicians are often relegated to use norms developed for Spanish-speakers in Latin America or Spain, or on rare occasions, use norms for English speakers in the U.S. (Arango-Lasprilla et al., 2022a).

Due to increasing awareness in recent years regarding unmet needs in the field of Spanish neuropsychology (Arango-Lasprilla et al., 2022a), there has been a growth in studies to validate and norm neuropsychological tests for the Spanish-speaking population in the U.S (Breton et al., 2021; Casaletto et al., 2016; Gonzalez et al., 2001, 2005; Hall et al., 2018; Heaton et al., 2021; Morlett et al., 2021; Marquine et al., 2021a; O'Bryant et al., 2017; Strutt et

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al., 2011; Rossetti et al., 2011; Ryan et al., 2020). Despite this tremendously positive trend, many of the newer studies still suffer from limitations. For instance, many include small sample sizes, are collected from a circumscribed geographical area of the U.S., are limited to a more homogenous Hispanic population (e.g., Mexicans, Puerto Ricans) (Arango-Lasprilla et al., 2015; Cherner et al., 2007; Hall et al., 2018; Marquine et al., 2021a; Menon et al., 2012; Suarez et al., 2021; O'Bryant et al., 2017; Rivera et al., 2015), or possess a restricted age range (Hall et al., 2018; Marquine et al., 2023b; Morlett et al., 2021). Some studies provide norms only for tests from a select few cognitive domains, instead of for a comprehensive neuropsychological battery (Gonzalez et al., 2005; Ryan et al., 2020; Rossetti et al., 2011; Strutt et al., 2011). Lastly, the studies that were conducted a number of years ago provided normative data that may no longer be applicable to the changed Hispanic population in the U.S. post-COVID-19 pandemic (Acevedo et al., 2000; Gonzales et al., 2001, 2005; Cherner et al., 2007; Marquine et al., 2021c; Morlett et al., 2021). Certain studies (e.g., Morlett et al., 2021; Marquine et al., 2021; Heaton et al., 2021; Suarez et al., 2021; Rivera Mindt et al., 2021b) even combined cohorts spanning more than 10 years.

Speaking beyond methodologic limitations and more into the realm of norming best practices is the consideration of sociocultural factors known to influence cognitive performance in this population (e.g., bilingualism, level of culturalization, time living in the U.S., and educational level), although Spanish is the dominant language for the majority of Hispanics in the U.S., linguistic diversity is notable, with many speaking indigenous languages and 61.4% reporting strong English competency. Hispanics in the U.S. also face unique challenges from their Latin American counterparts, such as trying to make ends meet despite sometimes limited education from their countries of origin, and acculturation to U.S. mores (Niemeier & Arango-Lasprilla, 2007; Pew Research Center, 2019; Suárez-Orozco & Suárez-Orozco, 2009). Because such variables are known to influence cognition, best practice must address the unique intersectionality of factors experienced by Hispanics living in the U.S. and speaking Spanish in order to derive precision norms.

The objective of this thematic issue is to present the results of a recent multi-state normative data study of a comprehensive neuropsychological battery that includes a battery of 13 of the most commonly employed neuropsychological tests that assess attention, speed of information processing, memory, language, visuospatial and visual-constructional skills, executive functions, and performance validity. The study enrolled 245 Hispanic adults between 18 and 80 years old whose mother tongue was Spanish and who had been living in the U.S. for at least one year. Unlike previous studies, this research involved Hispanics from 8 U.S. regions. Some were born in the U.S. and others abroad. They represented 18 nationalities with different levels of bilingualism (e.g., various levels of Spanish and English language dominance), a range of years living in the U.S., and varied levels of acculturalization. This sampling methodology is believed to reflect the spectrum of Spanish-speaking adults more accurately in the U.S. To incorporate such variables, the statistical analysis used a novel Bayesian approach which took into account sociodemographic and cultural factors as probabilistic parameters to generate the norms for each of the tests.

It is hoped that the articles in this thematic issue further advance our knowledge of the role of sociodemographic and sociocultural factors on cognitive performance. Furthermore, when applied correctly, they should enhance the quality of the assessment of cognitive performance in Spanish-speakers in the U.S. This will allow these professionals to diagnose cognitive deficits, inform treatment, and monitor rehabilitation gains in their Spanish-speaking clients more accurately.

The contributions of these new norms cannot be understated. Nonetheless, in order for the evaluation and diagnosis of Spanish-speaking adults in the U.S. to improve, appropriate normative data is only part of the solution. It is also important to understand how neuropsychological assessments are conducted. The role of contextual factors, like the Spanish-language proficiency of the professional administering the assessment, should also be examined, as it has the potential to influence performance and the subsequent interpretation of the results.

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