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4 Norm Selection and Application in Socially Responsible Neuropsychological Practice

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Objective: In the wake of the national controversy over demographically corrected normative comparisons used in neuropsychological assessment, the field finds itself in need of adopting better practices and providing stronger instruction in norm selection and application when assessing underrepresented populations. Neuropsychologists must employ critical thinking within their clinical decision-making that takes into account patient demographics, analysis of the measures themselves, normative samples, and statistical adjustments employed in normative studies. Not doing so may result in erroneous diagnostic conclusions, exposing underserved patient populations to poor or harmful clinical care and even misdiagnosis. The following case series presents several demographic considerations illustrating how selection and application of different (at times, ill-fitting) normative reference groups can affect treatment outcomes in the Latinx community. We examined the performance of various published norms when applied to monolingual and bilingual Spanish speakers.
Participants and Methods: This study samples three demographically diverse (i.e., education, age, and sex) clinical cases and applies regression-based and stratified norms to raw scores to demonstrate the possible differential outcomes when using different reference groups.   One example is Ms. Congeniality, a 69-year-old, Spanish and English bilingual woman with 12 years of education who presented for a third revaluation at our clinic due to progressive memory loss. Her prior Spanish language profiles demonstrated impaired confrontation naming and steadily decreasing letter fluency over the past 10 years.
Results: Her performance on semantic fluency (i.e., animal naming) showed relative stability based on her raw scores (10 in 2012, 11 in 2016, and 12 in 2022). Using the Neuropsi A&M norms, which stratify performance across nine age ranges between ages 6-85 and three education ranges between 0-10+ years, her performance over the past 10 years ranged between the less than 1st percentile to the 9th percentile (1%, 1%, and 9%, respectively). However, using the NP-NUMBRS norms, which use regression-based continuous age (19-60) and education (0-20) predictors of test performance, her scores corresponded to steadily improved performance (8%, 28%, and 86%). Thus, this qualitative comparison demonstrates a likely overcorrection for individuals of advanced age when using norms based on samples that are a poor fit because they lack representation of older adults, as in NP-NUMBRS, and a possible undercorrection when using norms with overly broad education stratifications (e.g., 10-22 years, as in Neuropsi).
Conclusions: Application of ill-fitting normative standards can have far-reaching implications for interpretation of neuropsychological test results. Moreover, this case series exemplifies the need for higher-order instruction in norm selection, specifically for underserved communities who run the risk of being misdiagnosed. Through case examples, this study underscores the importance of understanding the unique effects of different demographic corrections in the context of limited available normative reference groups. This abstract is the first illustration in a series of papers aimed at facilitating the decision-making process within the framework of socially responsible neuropsychological practice.