Resource Guide: Neuropsychological Assessment with Multicultural Populations

The MNS Diversity Committee is pleased to introduce and provide the following resource guide intended to support neuropsychologists in their clinical work with individuals of diverse cultural and linguistic backgrounds. We believe that cultural diversity, in the broadest sense of the term, is relevant to all neuropsychologists.

The idea for the resource guide stemmed from awareness of the growing diversity of the populations we serve, the cross-cultural limitations of many of our commonly used neuropsychological tests and measures, and the dearth of formalized guidelines for conducting culturally-informed neuropsychological assessments.

The resource guide was conceptualized as a living document meant to be updated and modified. It is by no means all inclusive, though we hope it provides a solid framework for the provision of culturally-informed neuropsychological assessments. The guide is also intended to be a companion to the Multicultural Test Toolkit, which is available on the MNS website.

The guide is comprised of a list of entries each of which contains a citation or name of a resource, accompanied by a direct link to the article/resource (for those publicly available) or to the abstract. Many of the entries also include notes and keywords provided by Diversity Committee members who located and reviewed the resource. The guide is organized by topic. **Please see the Table of Contents for an overview of the content included in the guide. Clicking on a topic in the Table of Contents will bring you directly to the entry.**

If you would like to contribute or add to the guide, please feel free to contact Emily Wilner, PsyD at emilywilner@gmail.com.

Table of Contents[1]

[1] Clicking on a topic in the Table of Contents will bring you directly to the entry.

❖ Language Proficiency

- The National Heritage Language Resource Center, at the University of California, Los Angeles
- Neuropsychological, Cognitive, and Theoretical Considerations for Evaluation of Bilingual Individuals
- Assessing patients whose language you do not know
- The Impact of English Language Proficiency on Neuropsychological Test Performance in Ethnically Diverse Individuals

❖ Literacy

- Illiterates and cognition: The impact of education
- Learning to read is much more than learning to read: A neuropsychologically based reading program
- Neuropsychological assessment in illiterates: Visuospatial and memory abilities
- Applicability of the MoCA- S test in populations with little education in Colombia
- Age-related cognitive decline during normal aging: the complex effect of education
- Quality of education predicts performance on the Wide Range Achievement Test-Word Reading subtest

❖ Specific Populations

➢ Pediatrics

- Neuropsychological test scores, academic performance, and developmental disorders in Spanish-speaking children
- Verbal and nonverbal fluency in Spanish-speaking children
- Performance of Spanish/English bilingual children on a Spanish-language neuropsychological battery
- Stroop test in Spanish: Children's norms
- Performance of Zambian children on the NEPSY
- Cross Cultural Considerations in Pediatric Neuropsychology
- Cultural and linguistic issues in the assessment and treatment of pediatric cancer survivors

➢ **Elderly**

- The 37 item version of the Mini-Mental State Examination: normative data in a population-based cohort of older Spanish Adults
- Use of the MoCA in Detecting Early Alzheimer's Disease in a Spanish-speaking population with Varied Levels of Education
- Validation of the Spanish version of the Addenbrooke's Cognitive Examination in a rural community in Spain

❖ **Working with Interpreters**

- Interpreter-mediated neuropsychological testing of monolingual Spanish speakers: does it have an effect on test scores?

❖ **Norms**

➢ **Hispanic Norms**

- Norms of adapted (English to Spanish) neuropsychological tests
- Normative data stratified by age and education for the Neuropsychological Screening Battery for Hispanics (NeSBHIS)
- Neuropsi Attention and Memory: a neuropsychological test battery in Spanish with norms by age and educational level
- Manual de normas y procedimientos para la batería neuropsicológica en Español

➢ **Brazilian Norms**

- Boston Naming Test (BNT) original, Brazilian adapted version and short forms: normative data for illiterate and low-educated older adults

➢ **Mandarin/Cantonese Norms**

- Normative data on a battery of neuropsychological tests in the Han Chinese population
- Neuropsychological measures: normative data for Chinese
- Normative data for the repeatable battery for the assessment of neuropsychological status in elderly Chinese
- Validation of NINDS-CSN neuropsychological battery for vascular cognitive impairment in Chinese stroke patients
- Normative data on cross-cultural neuropsychological tests obtained from Mandarin-speaking adults across the life span

➢ **African Americans**

- Mayo's older African Americans normative studies

❖ Culturally sensitive interventions

- Diccionario de Neuropsicología [PDF]
- Guía práctica para familiares de enfermos de Alzheimer
- Cultural considerations in dementia
- Impact of bilingualism on cognitive outcome after stroke
- Issues of cultural diversity in acquired brain injury (ABI) rehabilitation
- Common misconceptions about traumatic brain injury among ethnic minorities with TBI
- Traumatismo craneoencefálico basado en la evidencia

❖ Test Administration/Interpretation

- Neuropsychological assessment of Asian Americans: demographic factors, cultural diversity, and practical guidelines
- Ethical controversies in neuropsychological test selection, administration, and interpretation
- Ethical Standard 9.01(a) of the American Psychological Association (APA)
- Developing a cultural context for conducting a neuropsychological evaluation with a culturally diverse client: the ECLECTIC framework
- Beyond instrument selection: cultural considerations in the psychological assessment of U.S. Latinas/os

❖ Performance Validity

- Test of Memory Malingering (TOMM): Normative data for the Latin American Spanish speaking adult population
- Cross-cultural feigning assessment
- Assessing Effort and Malingering with the Hispanic Clients

❖ Other Multicultural Resources

- AACN Multicultural References

End Table of Content

Resource Guide: Neuropsychological Assessment with Multicultural Populations

❖ Guidelines for Assessment of Multicultural Populations

- **Citation: Board of Directors (2007). American Academy of Clinical Neuropsychology (AACN) Practice guideline for neuropsychological assessment and consultation. *The Clinical Neuropsychologist, 21*(2), 209-231.**

  Link: https://doi.org/10.1080/13825580601025932
  Notes: AACN guidelines offer a framework for neuropsychological evaluations with multicultural populations (pp. 216-217). Topics covered include the influence of cultural factors in testing, implications for test selection and interpretation, and the importance of education/training when testing multicultural groups.
  Keywords: Practice guidelines, neuropsychological assessment, underserved populations, cultural issues

- **Citation: Mindt, M. R., Byrd, D., Saez, P., & Manly, J. (2010). Increasing culturally competent neuropsychological services for ethnic minority populations: A Call to action. *The Clinical Neuropsychologist, 24*(3), 429-453.**
  Link: https://www.tandfonline.com/doi/abs/10.1080/13854040903058960
  Notes: Thorough discussion reviewing the need to expand/advance neuropsychological services for multicultural populations and current disparities in the provision of such services. Also includes section on ways to advance cultural competency in the field of neuropsychology (p. 15-17) and useful list of additional tools and resources for multicultural neuropsychological assessment (p. 17).
  Keywords: Ethnic minority; Cultural competence; Diversity; Neuropsychology

- **Citation: Wong, T. M., & Fujii, D. E. (2004). Neuropsychological assessment of Asian Americans: Demographic factors, cultural diversity, and practical guidelines. *Applied Neuropsychology, 11,* 23-36**.

  Link: http://www.tandfonline.com/doi/abs/10.1207/s15324826an1101_4
  Notes: A comprehensive article offering general considerations for neuropsychological assessment with multicultural populations and specific guidelines for Asian American patients (pp. 31-34). Also includes helpful background information for various Asian American cultures (Chinese Americans, Filipino Americans, Vietnamese Americans, Korean Americans, Japanese Americans).

Keywords: neuropsychological assessment, Asian American, cultural diversity, cultural variables

- **Citation: Brickman, A. M., Cabo, R., & Manly, J. J. (2006). Ethical issues in cross-cultural neuropsychology. *Applied Neuropsychology, 13(2),* 91-100.**

  Link:
  https://pdfs.semanticscholar.org/b209/b2d0dece058c0cb77a162b36692787b5e99e.pdf
  Keywords: ethics, competence, who & how & by whom?

❖ Cultural Factors Affecting Neuropsychological Assessment

- **Citation: Ardila, A. (2005). Cultural values underlying psychometric cognitive testing. *Neuropsychology Review, 15*, 185-195.**

  Link:
  https://www.researchgate.net/profile/Alfredo_Ardila/publication/7375311_Cultural_Values_Underlying_Psychometric_Cognitive_Testing/links/547b026c0cf205d168800a6b.pdf
  Notes: Thorough and informative overview of ways in which cultural values (e.g., one-to-one relationship, background authority, best performance, isolated environment, special type of communication, speed, internal or subjective issues, and the use of specific testing elements and strategies) are implicitly embedded in the neuropsychological testing process.
  Keywords: cognitive testing, cultural values

- **Citation: Rosselli, M., & Ardila, A. (2003). The impact of culture and education on non-verbal neuropsychological measurements: A critical review. *Brain and Cognition, 52*(3), 326-333.**

  Link:
  https://www.researchgate.net/publication/10623142_The_impact_of_culture_and_education_on_non-verbal_neuropsychological_measurements_A_critical_review
  Notes: This is a review article arguing that visuospatial/non-verbal tests are not necessarily "culturally neutral." Intra-education inter-culture and inter-education intra-culture comparisons are reviewed to illustrate the arguments.
  Keywords: non-verbal tasks, cultural vs. educational factors

- **Citation: Thames, A. D. (2018). Book Review: Conducting a Culturally Informed Neuropsychological Evaluation, *Archives of Clinical Neuropsychology*, *33(2),* 254–256, https://doi.org/10.1093/arclin/acx057**

  Link: https://academic.oup.com/acn/article-abstract/33/2/254/3893528
  Notes: This is a book review of Fujii's "Conducting a Culturally Informed Neuropsychological Evaluation."
  Keywords: book review, culturally informed neuropsychological evaluation

- **Citation: Wong, T. & Fujii, D. (2004). Neuropsychological assessment of Asian Americans: Demographic factors, cultural diversity, and practical guidelines. *Applied Neuropsychology, 11,* 23–36.**

  Link:
  https://www.researchgate.net/publication/8243538_Neuropsychological_Assessment_of_Asian_Americans_Demographic_Factors_Cultural_Diversity_and_Practical_Guidelines
  Notes: This article provides information related to neuropsychological evaluation with Asian American clients. It includes basic context/cultural background of major Asian subgroups, potential testing adjustments, and some practical suggestions.
  Keywords: Asian American, cultural and linguistic factors, test adjustments

- **Citation: Shuttleworth-Edwards, A. B., Kemp, R. D., Rust, A. L., Muirhead, J. G., Hartman, N. P., & Radloff, S. E. (2004). Cross-cultural effects on IQ test performance: A review and preliminary normative indications on WAIS-III test performance. *Journal of Clinical and Experimental Neuropsychology*, *26*(7), 903-920.**

  Link: http://www.sacna.co.za/files/pdf/Shuttleworth-Edwards-et-al-2004.pdf
  Keywords: WAIS-III, southern African sample, level and quality of education, white English vs. black African first language

- **Citation: Manly, J. J. (2005). Advantages and disadvantages of separate norms for African Americans. *The Clinical Neuropsychologist, 19*(2), 270-275.**

  Link:
  http://www.tandfonline.com/doi/full/10.1080/13854040590945346?src=recsys
  Notes: Although article is based on African American population, the consideration and suggestions are applicable to other racial/ethnic groups as well.

Keywords: disadvantage of separate norms based on race, importance of deconstruction of race and education, African Americans perspective

- **Citation: Gasquoine, P. G. (1999). Variables moderating cultural and ethnic differences in neuropsychological assessment: The case of Hispanic Americans. *The Clinical Neuropsychologist*, *13*(3), 376-383.**

  Link: http://www.tandfonline.com/doi/abs/10.1076/clin.13.3.376.1735?src=recsys
  Notes: This article discusses the multidimensional nature of culture/ethnicity. Authors recommended that rather than using stratified norms based on race as one single-domain entity, measurable psychological variables that differ between cultural and ethnic groups and potentially impact neuropsychological test scores should be used (e.g., language proficiency, education, and persistence of poverty).
  Keywords: disadvantage of separate norms based on race, importance of deconstruction of race and education, Hispanic Americans perspective

- **Citation: Boone, K. B., Victor, T. L., Wen, J., Razani, J., and Ponton, M. (2007). The Association between neuropsychological scores, ethnicity, language, and acculturation variables in a large patient population. *Archives of Clinical Neuropsychology, 22*, 355-365.**

  Link: http://www.sciencedirect.com/science/article/pii/S0887617707000170?via%3Dihub
  Notes: Reviews the impact of literacy and education on both verbal and nonverbal measures of cognition.
  Keywords: Neuropsychological scores, Ethnicity, Acculturation

❖ **Acculturation and Test Selection**

- **Citation: Fernandez, K., Boccaccini, M. T., & Noland, R. M. (2007). Professionally responsible test selection for Spanish-speaking clients: A four-step approach for identifying and selecting translated tests. *Professional Psychology: Research and Practice*, 38, 363–374.**

  Link: http://dx.doi.org/10.1037/0735-7028.38.4.363

- **Assessing Acculturation and Ethnic Identity**

- List of instruments to measure acculturation and ethnic identity https://www.ncbi.nlm.nih.gov/books/NBK248425/

❖ Bilingualism

- **Citation: Rosselli, M., Ardila, A., Lalwani, L. N. & Vélez-Uribe, I. (2016). The effect of language proficiency on executive functions in balanced and unbalanced Spanish–English bilinguals. *Bilingualism: Language and Cognition, 19(3), 489-503.* DOI: https://doi.org/10.1017/S1366728915000309**

  Link:https://www.cambridge.org/core/journals/bilingualism-language-and-cognition/article/the-effect-of-language-proficiency-on-executive-functions-in-balanced-and-unbalanced-spanishenglish-bilinguals/42818BE48C1D770800AADF252CDA44F2

  Notes: This study analyzed the association between levels of language proficiency and levels of bilingualism and performance on verbal and nonverbal executive functions in young bilinguals.

  Keywords: Bilingualism; Cognitive Ability; Language Proficiency; Executive Function; Adulthood (18 yrs & older); Young Adulthood (18-29 yrs); Thirties (30-39 yrs); Middle Age (40-64 yrs); Male; Female

- **Citation: Suarez, P. (2013). The role of bilingualism on neuropsychological test performance among Spanish speakers tested in their native language. Dissertation Abstracts International: Section B: The Sciences and Engineering, Vol 74(10-B)(E) Publisher: ProQuest Information & Learning.**

  Link: http://escholarship.org/uc/item/92f4233q

  Notes: The effects of bilingualism on Spanish-language neuropsychological test performance, and whether or not these bilingual advantages could be explained by socioeconomic status (SES).

  Keywords: Bilingualism; Cognitive Science; Motor Processes; Performance Tests; Native Language

- **Citation: Gasquoine, P. G., Gonzalez, C. D. (2012). Using Monolingual Neuropsychological Test Norms with Bilingual Hispanic Americans: Application of an Individual Comparison Standard. *Archives of Clinical Neuropsychology*, Vol 27(3), pp. 268-276. Publisher: Oxford University Press.**

Link: https://academic.oup.com/acn/article-lookup/doi/10.1093/arclin/acs004
Keywords: Ability Level; Bilingualism; Monolingualism; Neuropsychological Assessment; Test Norms; Adulthood (18 yrs & older); Young Adulthood (18-29 yrs); Thirties (30-39 yrs); Middle Age (40-64 yrs); Aged (65 yrs & older); Male; Female.

❖ Language Proficiency

- **Citation: The National Heritage Language Resource Center, at the University of California, Los Angeles**

  Link: http://international.ucla.edu/nhlrc/data/literature-proficiency
  Notes: This website provides various tools and literature review for language proficiency assessment. However, use of the these tools in neuropsychological evaluation has not been formally validated.

- **Citation: Mindt, M. R., Arentoft, A., Germano, K. K., D'Aquila, E., Scheiner, D., Pizzirusso, M., … Gollan, T. H. (2008). Neuropsychological, Cognitive, and Theoretical Considerations for Evaluation of Bilingual Individuals. *Neuropsychology Review*, *18*(3), 255–268.**

  Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2652412/
  Notes: provides rationale on why assessing language proficiency is important, and how to proceed with the evaluation
  Keywords: impact of bilingualism, assessment of bilingualism degree

- **Citation: Artiola i Fortuny, L. & Mullaney, H. A. (1998). Assessing patients whose language you do not know: Can the absurd be ethical? *The Clinical Neuropsychologist, 12,* 113–126.**

  Link: http://www.tandfonline.com/doi/abs/10.1076/clin.12.1.113.1727
  Keywords: assessment in non-native language, competency, ethics

- **Citation: Scott, Travis & Funes, Cynthia & Kim, Se-Kang & Razani, J. (2015). Diversity-1 * The Impact of English Language Proficiency on Neuropsychological Test Performance in Ethnically Diverse Individuals. *Archives of Clinical Neuropsychology, 30*, 475-485.**

Link:
http://scholarworks.csun.edu/bitstream/handle/10211.2/3307/MastersThesisTravisShivley-ScottFinalVersion.pdf?sequence=1
Notes: This study provides information about how the link between english language proficiency and performance on verbal neuropsychological subtests. This data highlights the importance of quantifying english proficiency among ethnically diverse individuals evaluated in English.
Keywords: English language proficiency (ELP) tests, adapted Short Acculturation Scale, multiple ethnic groups

❖ Literacy

- **Citation: Ardila, A., & Rosselli, M. (2007). Illiterates and cognition: The impact of education. *International handbook of cross-cultural neuropsychology*, 181-198.**

  Link:https://pdfs.semanticscholar.org/5d7a/eb4e8f37bf0eedf94b66e18b248c72aee104.pdf

- **Citation: Ardila, A., Ostrosky-Solis, F., & Mendoza, V. U. (2000). Learning to read is much more than learning to read: A neuropsychologically based reading program. Journal of the International Neuropsychological Society, 6(7), 789-801.**

  Link:
  https://www.researchgate.net/profile/Alfredo_Ardila/publication/12223521_Learning_to_read_is_much_more_than_learning_to_read_A_neuropsychologically_based_reading_program/links/54519cef0cf24884d8870696.pdf
  Keywords: Illiteracy, Reading, Neuropsychological testing, Cognitive abilities

- **Citation: Ardila, A., Rosselli, M., & Rosas, P (1989). Neuropsychological assessment in illiterates: Visuospatial and memory abilities. *Brain and Cognition, 11,* 147-166.**

  Link:
  https://s3.amazonaws.com/academia.edu.documents/46563366/Neuropsychological_assessment_in_illiter20160617-14360-1d1ns2u.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1508437016&Signature=CJpW6PH4LkPp6kReu8wuQMTmRYI%3D&response-content-

disposition=inline%3B%20filename%3DNeuropsychological_assessment_in_illiter.pdf
Notes: This is a rather old study
Keywords: illiterates vs. professionals, visuospatial abilities, memory abilities, Spanish-speaking population (Colombian)

- **Citation: Gómez, F., Zunzunegui, M. V., Lord, C., Alvarado, B., & Garcia, A. (2013). Applicability of the MoCA- S test in populations with little education in Colombia. *International journal of geriatric psychiatry*, *28*(8), 813-820.**

  Link: http://onlinelibrary.wiley.com/wol1/doi/10.1002/gps.3885/full
  Key Words: cognitive assessment; MoCA-S; education; reliability; bias

- **Citation: Ardila, A., Ostrosky-Solis, F., Rosselli, M., & Gómez, C. (2000). Age-related cognitive decline during normal aging: the complex effect of education. *Archives of clinical neuropsychology*, *15*(6), 495-513.**

  Link:
  https://www.researchgate.net/scientific-contributions/2078312325_Cesar_Gomez
  Keywords: Age-related cognitive decline; education

- **Citation: Sayegh, P., Arentoft, A., Thaler, N. S., Dean, A. C., & Thames, A. D. (2014). Quality of education predicts performance on the Wide Range Achievement Test-Word Reading subtest. *Archives of Clinical Neuropsychology*, *29*(8), 731-736.**

  Link:
  https://oup.silverchair-cdn.com/oup/backfile/Content_public/Journal/acn/29/8/10.1093/arclin/acu059/2/acu059.pdf?Expires=1509683776&Signature=QF9RzOdsV-dwSdSYjXLd0nJR2AJOgYpFBiggQRq79X3k3vEa-Rr3gAnYnWHV-ID7UAYIOcDdd3B-IXbjkaXgNkUqTY7m-zsaF26mkNkqfd-t-pM2n8oBDEtmHljSrsr0ATX6yzOgYF5s6MSfRBSCcaA~zg-63y0mSn2L0zqyYQ5TRyJ1WGKd49eRGeF9X10ke7OBlBD-4Rs04YYunRoKxaavy8Snm91BJLciGtGBWXfWihrxqavbsl-ogRtFxDRLgO-2G4bh-O~AzY7R1YSpuzACnACNSy9M6QO11jKVVLsg1OwPM2BqxOI9fXyxGgWpCDGB-qUHBzgb7JjC7LNiTw__&Key-Pair-Id=APKAIUCZBIA4LVPAVW3Q
  Keywords:Literacy; Academic achievement; Neurocognition; High schools; Multiple regression; Test validity

❖ Specific Populations

➢ Pediatrics

- **Citation: Rosselli, M., Ardila, A., Bateman, J. R., & Guzman, M. (2001). Neuropsychological test scores, academic performance, and developmental disorders in Spanish-speaking children. *Developmental Neuropsychology*, *20*(1), 355-373.**

  Link: http://www.tandfonline.com/doi/abs/10.1207/S15326942DN2001_3
  Notes: Two hundred children included in study. They were recruited from a school in Bogota, Colombia. Ages of children ranged from 6 to 11-year-olds. Normative data obtained for the following neuropsychological tests: Seashore Rhythm Test, Finger Tapping Test (FTT), Grooved Pegboard Test, Children's Category Test (CCT), California Verbal Learning Test-Children's Version (CVLT-C), Benton Visual Retention Test (BVRT), and Bateria Woodcock Psicoeducativa en Espanol (Woodcock, 1982)
  Keywords: pediatric, academic, Spanish, Latino, children

- **Citation: Matute, E., Rosselli, M., Ardila, A., & Morales, G. (2004). Verbal and nonverbal fluency in Spanish-speaking children. *Developmental neuropsychology*, *26*(2), 647-660.**

  Link: http://www.tandfonline.com/doi/abs/10.1207/s15326942dn2602_7
  Notes:Verbal and nonverbal fluency was assessed in 171 children (in a Mexican school system) between ages 6 and 15.
  Keywords: pediatrics, children, Mexico, verbal fluency

- **Citation: Rosselli, M., Ardila, A., Navarrete, M. G., & Matute, E. (2010). Performance of Spanish/English bilingual children on a Spanish-language neuropsychological battery: Preliminary normative data. *Archives of Clinical Neuropsychology*, *25*(3), 218-235.**

  Link:https://academic.oup.com/acn/article/25/3/218/3695/Performance-of-Spanish-English-Bilingual-Children
  Keywords: children, pediatrics, Spanish's peakers, normative data

- **Citation: Armengol, C. G. (2002). Stroop test in Spanish: Children's norms. *The Clinical Neuropsychologist*, *16*(1), 67-80.**

  Link: http://www.tandfonline.com/doi/pdf/10.1076/clin.16.1.67.8337
  Keywords: Pediatric, normative data, Stoop

- **Citation: Mulenga, K., Ahonen, T., & Aro, M. (2001). Performance of Zambian children on the NEPSY: a pilot study. *Developmental Neuropsychology, 20*, 375-383.**

  Link:https://www.researchgate.net/profile/Mikko_Aro/publication/11533464_Performance_of_Zambian_children_on_the_NEPSY_A_pilot_study/links/5639269708aed5314d221c0e.pdf
  Keywords: NEPSY, urban literate Zambian children (age 9 and 11), testing in English

- **Citation: Olson, K., & Jacobson, K. (2015). Cross-cultural considerations in pediatric neuropsychology: A review and call to attention. *Applied Neuropsychology: Child*, *4*(3), 166-177.**

  Link: http://www.tandfonline.com/doi/abs/10.1080/21622965.2013.830258
  Notes: Article discusses factors that can impact neuropsychological performance as a result of factors associated with the examinee, factors associated with the neuropsychological measures, cultural competency of the examiner, and factors at the organizational/political level.
  Keywords: culture, diversity, neuropsychology, pediatric

- **Citation: Zebrowski, C. M., Vega, M., & Llorente, A. M. (2015). Cultural and Linguistic Issues in the Assessment and Treatment of Pediatric Cancer Survivors. In *Handbook of long term care of the childhood cancer survivor* (pp. 299-313). Springer, Boston, MA.**

  Link: https://link.springer.com/chapter/10.1007/978-1-4899-7584-3_19
  Notes: Article discusses issues that arise when working with minority cultural group that have family members with pediatric cancer. Issues to be addressed include acculturation status, language or barriers to health care become concerns in the

assessment and diagnosis of childhood cancer survivors
Keywords: Culture, Acculturation, Pediatric cancer, Neurocognitive functioning, Language, Linguistics

➢ Elderly

- **Citation: The 37 item Version of the Mini-Mental State Examination: normative data in a population-based cohort of older Spanish Adults (NEDICES)**

  Link: https://academic.oup.com/acn/article/31/3/263/1717213
  Keywords: Dementia, aging, Norms; Normative Study; MMSE-37; Assessment

- **Citation: Zhou, Y., Ortiz, F., Nuñez, C., Elashoff, D., Woo, E., Apostolova, L. G., ... & Ringman, J. M. (2015). Use of the MoCA in Detecting Early Alzheimer's Disease in a Spanish-Speaking Population with Varied Levels of Education. *Dementia and geriatric cognitive disorders extra*, *5*(1), 85-95.**

  Link: https://www.karger.com/Article/PDF/365506
  Keywords: Montreal cognitive assessment; Spanish-speaking population; Education; Dementia; Mild Cognitive Impairment; Alzheimer's Disease; Latino Population; Hispanic Population; screening

- **Citation: García- Caballero, A., García- Lado, I., González- Hermida, J., Recimil, M. J., Area, R., Manes, F., ... & Berrios, G. E. (2006). Validation of the Spanish version of the Addenbrooke's Cognitive Examination in a rural community in Spain. *International journal of geriatric psychiatry*, *21*(3), 239-245**

  Link: https://academic.oup.com/acn/article/31/4/378/1694398
  Keywords: Reliable change, Practice effects, Reference values, Assessment, Geriatrics

❖ Working with Interpreters

- **Citation: Casas, R. N. (2010). Interpreter-mediated neuropsychological testing of monolingual Spanish speakers: does it have an effect on test scores? Dissertation Abstracts International: Section B: The Sciences and**

Engineering, Vol 73(5-B) pp. 3258. Publisher: ProQuest Information & Learning; [Dissertation].

Link: http://ir.uiowa.edu/cgi/viewcontent.cgi?article=2760&context=etd
Notes: The primary objective of the current study was to determine whether using an interpreter to conduct neuropsychological testing of monolingual Spanish speakers had an effect on the neuropsychological test scores.
Keywords: Language Proficiency; Neuropsychological Assessment; Psychometrics; Test Scores; Interpreters; Adulthood (18 yrs & older); Young Adulthood (18-29 yrs); Thirties (30-39 yrs); Middle Age (40-64 yrs); Aged (65 yrs & older)

❖ Norms

➢ Hispanic Norms

- **Citation: Boone, K. B., Victor, T. L., Wen, J., Razani, J., and Ponton, M. (2007). The Association between neuropsychological scores, ethnicity, language, and acculturation variables in a large patient population. *Archives of Clinical Neuropsychology*, 22, 355-365.**

  Link: https://www.researchgate.net/publication/6486639_The_association_between_neuropsychological_scores_and_ethnicity_language_and_acculturation_variables_in_a_large_patient_population

  Notes: p. 362 comprehensive reference list of available normative data for African Americans, Hispanics, and Asians by test

  Keywords:normative data; African American, Hispanic, Asian neuropsychological tests

- **Norms of Adapted (English to Spanish) Neuropsychological Tests:**

  Link: http://content.iospress.com/journals/neurorehabilitation/37/4
  These articles will provide information about each test and the resulting norms. The tests included in this special issue are:
  The Boston Naming Test
  Verbal Fluency Tests
  The Modified Wisconsin Card Sorting Test (M-WCST)
  the Stroop Color-Word Interference Test
  The Symbol Digit Modalities Test
  The Trail Making Test
  The Brief Test of Attention
  The Rey–Osterrieth Complex Figure
  Hopkins Verbal Learning Test–Revised

The Test of Memory Malingering (TOMM).

- **Citation: Pontón, M. O., Satz, P., Herrera, L., Ortiz, F., Urrutia, C. P., Young, R., ... & Namerow, N. (1996). Normative data stratified by age and education for the Neuropsychological Screening Battery for Hispanics (NeSBHIS): Initial report. *Journal of the International Neuropsychological Society*, *2*(2), 96-104.**

  Link: https://www.ncbi.nlm.nih.gov/pubmed/9375194
  Keywords: Hispanic norms, Battery

- **Citation: Ostrosky-Solís, F., Esther Gómez-Pérez, M., Matute, E., Rosselli, M., Ardila, A., & Pineda, D. (2007). Neuropsi Attention and Memory: a neuropsychological test battery in Spanish with norms by age and educational level. *Applied Neuropsychology*, *14*(3), 156-170.**

  Link:
  https://www.researchgate.net/profile/Esther_Gomez-Perez/publication/5992676_NEUROPSI_ATTENTION_AND_MEMORY_a_neuropsychological_test_battery_in_Spanish_with_norms_by_age_and_educational_level/links/00b7d5363ccd277c12000000/NEUROPSI-ATTENTION-AND-MEMORY-a-neuropsychological-test-battery-in-Spanish-with-norms-by-age-and-educational-level.pdf
  Keywords: age, attention, culture, educational level, memory, neuropsychological test, Spanish-speaking norms

- **Citation: Artiola i Fortuny L, Hermosillo RD, Heaton RK, Pardee RE., III . Manual de normas y procedimientos para la bateria neuropsicologica en Espanol. Tucson, AZ: 1999.**

  Link: https://www.baterianeuropsicologica.com/
  Notes: This is a comprehensive neuropsychological testing battery adapted for the Spanish-speaking population. Test stimuli and normative data is not publicly available, but can be purchased through the above link.

  - ➢ **Brazilian Norms**

- **Citation: Leite, K. S. B., Miotto, E. C., Nitrini, R., & Yassuda, M. S. (2017). Boston Naming Test (BNT) original, Brazilian adapted version and short**

forms: normative data for illiterate and low-educated older adults. *International psychogeriatrics*, *29*(5), 825-833.

Link: https://www.cambridge.org/core/journals/international-psychogeriatrics/article/div-classtitleboston-naming-test-bnt-original-brazilian-adapted-version-and-short-forms-normative-data-for-illiterate-and-low-educated-older-adultsdiv/FD80C3A117EE4F8976C3600493D3C41F
Key Words: Aging; Education; Brazilian, Cognitive Assessment

➢ **Mandarin/Cantonese Norms**

- **Citation: Boone, K. B., Victor, T. L., Wen, J., Razani, J., and Ponton, M. (2007). The Association between neuropsychological scores, ethnicity, language, and acculturation variables in a large patient population. *Archives of Clinical Neuropsychology*, 22, 355-365.**

  Link: https://www.researchgate.net/publication/6486639_The_association_between_neuropsychological_scores_and_ethnicity_language_and_acculturation_variables_in_a_large_patient_population

  Notes: p. 362 comprehensive reference list of available normative data for African Americans, Hispanics, and Asians by test

  Keywords:normative data; African American, Hispanic, Asian neuropsychological tests

- **Citation: Wang, Q., Sun, J., Ma, X., Wang, Y., Yao, J., Deng, W., ... & Li, T. (2011). Normative data on a battery of neuropsychological tests in the Han Chinese population. *Journal of Neuropsychology*, *5*(1), 126-142.**

  Link: http://onlinelibrary.wiley.com/doi/10.1348/174866410X516803/full
  Notes: Tests used were either adopted or translated to Mandarin
  Keywords: Han Chinese population, Mandarin, subtests of WAIS-RC (Arithmetic, Digit symbol, Digit Span, Information, Block Design), subtests of WMS-RC (Logical memory, Visual reproduction), CPT-AX, Verbal Fluency Test, Trail Making Test, Stroop Color Test, WCST-M, Tower of Hanoi

- **Citation: Neuropsychological Measures: Normative Data for Chinese, Second Edition (Revised) by Tatia MC Lee and Kai Wang**

  Link: http://www.psychology.hku.hk/neuropsy/icn/?page_id=557&lang=cn
  Notes: This is a comprehensive neuropsychological testing battery adapted for the Chinese population. Test stimuli and normative data (in both Cantonese and

Mandarin) is not publicly available, but can be purchased through the above link. A table of content can also be viewed through the above link.
Keywords: Chinese population, comprehensive battery, Mandarin & Cantonese

- **Citation: Collinson, S. L., Fang, S. H., Lim, M. L., Feng, L., & Ng, T. P. (2014). Normative data for the repeatable battery for the assessment of neuropsychological status in elderly Chinese. *Archives of Clinical Neuropsychology*, *29*(5), 442-455.**

  Link: https://academic.oup.com/acn/article/29/5/442/2726811/Normative-Data-for-the-Repeatable-Battery-for-the
  Notes: Testing was administered in participant's preferred language (English, Mandarin, Hokkien, Teochew, Cantonese), norm stratified by age and education, not by language
  Keywords: RBANS, Elderly Chinese Singaporeans

- **Citation: Chen, X., Wong, A., Ye, R., Xiao, L., Wang, Z., Lin, Y., … Liu, X. (2015). Validation of NINDS-CSN neuropsychological battery for vascular cognitive impairment in Chinese stroke patients. *BMC Neurology*, *15*, 20.**

  Link:
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4350916/pdf/12883_2015_Article_270.pdf
  Keywords: vascular cognitive impairment, mainland Chinese population, Mandarin, Adapted tests (Animal Naming, WAIS Digit symbol coding, Trail making test, Boston naming test, RCFT copy and delayed recall, HVLT-R delayed recall, Neuropsychic Inventory Questionnaire, Geriatric Depression Scale)

- **Citation: Lin H-F, Chern C-M, Chen H-M, Yeh Y-C, Yao S-C, Huang M-F, et al. (2016). Validation of NINDS-VCI Neuropsychology Protocols for Vascular Cognitive Impairment in Taiwan. PLoS ONE 11(6): e0156404.**

  Link:
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4889053/pdf/pone.0156404.pdf
  Keywords: vascular cognitive impairment, Taiwanese population, Mandarin, Adapted tests (Symbol digit modality test, Trail making test, Verbal fluency test, Boston naming test, RCFT copy and delayed recall, HVLT-R, MMSE, Geriatric Depression Scale)

- **Citation: Hsieh, S. L. J., & Tori, C. D. (2007). Normative data on cross-cultural neuropsychological tests obtained from Mandarin-speaking adults across the life span. *Archives of Clinical Neuropsychology*, *22*(3), 283-296.**

  Link: http://www.sciencedirect.com/science/article/pii/S0887617707000108
  Keywords: normal health population, Mandarin, mainland Chinese population, age stratified, adapted tests (WAIS-RC Digit span, Trail making test-A, Symbol digit modality test, Five digit test, Fuld Object-Memory evaluation, Animal naming, Raven standard progressive matrices)

  ➢ **African Americans**

- **Citation: Lucas, J. A., Ivnik, R. J., Smith, G. E., Ferman, T. J., Willis, F. B., Petersen, R. C., & Graff-Radford, N. R. (2005). Mayo's older african americans normative studies: Norms for boston naming test, controlled oral word association, category fluency, animal naming, token test, wrat-3 reading, trail making test, stroop test, and judgment of line orientation. *The Clinical Neuropsychologist*, *19*(2), 243-269.**

  Link:
  http://www.tandfonline.com/doi/full/10.1080/13854040590945337?src=recsys
  Keywords: older African American population, age-adjusted norms, English-speaking

- **Citation: Boone, K. B., Victor, T. L., Wen, J., Razani, J., and Ponton, M. (2007). The Association between neuropsychological scores, ethnicity, language, and acculturation variables in a large patient population. *Archives of Clinical Neuropsychology*, 22, 355-365.**

  Link:
  https://www.researchgate.net/publication/6486639_The_association_between_neuropsychological_scores_and_ethnicity_language_and_acculturation_variables_in_a_large_patient_population

  Notes: p. 362 comprehensive reference list of available normative data for African Americans, Hispanics, and Asians by test

  Keywords:normative data; African American, Hispanic, Asian neuropsychological tests

❖ **Culturally sensitive interventions**

- **Citation: Ardilla, A., Arocho, J., Labos, E., & Rodriguez, W. (2015). *Diccionario de Neuropsicología* [PDF]. doi:10.13140/2.1.3185.3124**

Link:
https://www.researchgate.net/publication/268926205_Diccionario_de_Neuropsicologia
Notes: This PDF document is an ongoing project in which different researchers continue to add different clinical and research terms related to neuropsychology in Spanish.
Keywords: dictionary in spanish, neuropsychology, neuropsychology terms, clinical neuropsychology, bilingual neuropsychology

- **Citation: Carretero, V. I., Perez, C., Sanchez-Valladares, V., & Balbas, A. (2011). Guía práctica para familiares de enfermos de Alzheimer.**

  Link:
  http://www.fundacionreinasofia.es/Lists/Documentacion/Attachments/13/Guia%20practica%20familiares%20de%20enfermos%20de%20Alzheimer_final.pdf
  Notes: This guide is completely created in Spanish and tailored for families of those diagnosed with Alzheimer's disease. The guide was developed by PwC, a privately funded philanthropy foundation in Spain. It provides very useful and user-friendly information involving various topics:
  Keywords: alzheimer's, Older Hispanic Population, Hispanics with Alzheimers, aging, caregiving

- **Cultural Considerations in Dementia. (Portland State University, Multicultural Topics in Communications Sciences and Disorders).**

  Link: **https://www.pdx.edu/multicultural-topics-communication-sciences-disorders/cultural-considerations-in-dementia**
  Notes: This resource provided by the Portland State University addresses the cultural factors that impact how different populations (mainstream American, African American, Hispanic and Latino, Chinese) perceive dementia and aging. It also discuss the role of caregivers, and long-term care among these different cultures.
  Keywords: multiculturalism and dementia, aging, caregiving, Hispanics, Chinese, African Americans

- **Citation: Alladi S., Mekala S., Rajan A., Chaudhuri JR., Mioshi E., Krovvidi R., Surampudi B., Duggirala V., Kaul S. Impact of Bilingualism on Cognitive**

Outcome After Stroke. (2016). *Stroke* 47(1):258-61. doi: 10.1161/STROKEAHA.115.010418

Link: http://stroke.ahajournals.org/content/47/1/258.long
Notes: This study observed a sample of 608 patients with ischemic stroke from and studied the role of bilingualism in predicting cognitive impairment in the absence of dementia.Furthermore, it explains how bilingualism could serve as a protective factor among post stroke patients.
Keywords: stroke, bilingualism, neurorehabilitation, language and stroke, ischemic stroke, cross-cultural clinical neuropsychology

- **Citation: Lequerica, A., & Krch, D. (2014). Issues of cultural diversity in acquired brain injury (ABI) rehabilitation. *NeuroRehabilitation*, 34(4):645-53. Doi: 10.3233/NRE-141079**

  Link: https://www.ncbi.nlm.nih.gov/pubmed/24796439
  Notes: Through clinical vignettes, this article addresses cultural factors that can possibly impact the behavior in patients recovering from brain injury. There is also an emphasis made in the importance of these factors among rehabilitation staff.
  Keywords: Cultural diversity, TBI, Neurorehabilitation, brain injury, crosscultural neurorehabilitation, clinical neuropsychology

- **Citation: Pappadis, M. R., Sander, A. M., Struchen, M. A., Leung, P., & Smith, D. W. (2011). Common misconceptions about traumatic brain injury among ethnic minorities with TBI. *The Journal of head trauma rehabilitation, 26* (4), 301-311.**

  Link: http://psycnet.apa.org/record/2011-14783-007
  Notes: This study looked at the common misconception TBI ethnic minorities have in terms of their recovering process. The researchers highlighted the importance of understanding how these misconceptions can assist in tailoring appropriate education programs for racial/ethnic minorities who are Spanish-speaking.
  Keywords: head trauma, neurorehabilitation, ethnic groups, clinical neuropsychology, spanish-speaking patients, TBI and minorities

- **Citation: Traumatismo craneoencefálico basado en la evidencia. (n.d.).**

Link: **http://www.traumatismocraneoencefalico.com/index.html**
Notes: Collaborators from St Joseph's Health Care, University of London, Ontario, Canada, as well as from the University Clinic of Navarra (Spain), developed this website which encompasses evidence-based information regarding cranioencephalic trauma. This resource is tailored for professionals working with Spanish-Speaking populations in the rehabilitation of acquired brain damage. The website includes an accessible and highly scientific tool that synthesizes the existing scientific evidence in Spanish, in relation to the process of neurorehabilitation.

Keywords: TBI, neurorehabilitation, Spanish resources for TBI, neuropsychology, clinical neurorehabilitation, resources in Spanish

❖ Test Administration/Interpretation

➢ Test Selection and Interpretation

- **Citation: Tony M. Wong, Daryl E. Fuji (2010). Neuropsychological Assessment of Asian Americans: Demographic Factors, Cultural Diversity, and Practical Guidelines.**

  Link: https://www.ncbi.nlm.nih.gov/pubmed/15471744
  Keywords: neuropsychological assessment, Asian American, cultural diversity, cultural variables
  Notes: When selecting appropriate tests for less acculturated Asian Americans, the ideal is to administer tests developed and validated with a specific ethnic group.

- **Citation: Tony M. Wong (2006). Ethical Controversies in Neuropsychological Test Selection, Administration, and Interpretation. DOI:10.1207/s15324826an1302_2**

  Link: https://www.tandfonline.com/doi/pdf/10.1207/s15324826an1302_2
  Keywords: ethical controversies, neuropsychological test selection, administration, interpretation

- **Citation: Daryl E. M. Fujii (2018). Developing a cultural context for conducting a neuropsychological evaluation with a culturally diverse client: the ECLECTIC framework. DOI: 10.1080/13854046.2018.1435826**

Link: https://doi.org/10.1080/13854046.2018.1435826
Keywords: Culture; neuropsychology; Neuropsychological assessment; testing bias
Notes: Pertinent cultural characteristics for ECLECTIC framework
Various neuropsychological researchers and clinicians have identified cultural characteristics that can impact fairness in testing as identified by AERA standards (2014). Pertinent characteristics can be summarized by the acronym ECLECTIC:
E: Education: level, quality, and literacy
C: Culture and acculturation
L: Language spoken and English proficiency
E: Economic issues
C: Communication style
T: Testing situation: comfort and motivation
I: Intelligence: concept of
C: Context of Immigration

- **Citation: Ignacio David Acevedo-Polakovich, Geneva Reynaga-Abiko, Patton O. Garriott, Karen J. Derefinko, Mary K. Wimsatt, Lauren C. Gudonis, and Tamara L. Brown (2007). Beyond Instrument Selection: Cultural Considerations in the Psychological Assessment of U.S. Latinas/os**

  Link: http://psycnet.apa.org/record/2007-11559-006
  Keywords: psychological assessment, cultural sensitivity, multiculturalism, Hispanic, Latinos

❖ Performance Validity

- **Citation: Test of Memory Malingering (TOMM): Normative data for the Latin American Spanish speaking adult population**

  Link: **https://content.iospress.com/articles/neurorehabilitation/nre151287**
  Keywords: PVT, Test of memory malingering

- **Citation: Nijdam-Jones, A., & Rosenfeld, B. (2017). Cross-cultural feigning assessment: A systematic review of feigning instruments used with linguistically, ethnically, and culturally diverse samples.**

  Link: http://psycnet.apa.org/record/2017-01380-001
  Keywords: malingering, PVT

- **Citation: Lorraine T. Benuto, Brian D. Leany. Assessing Effort and Malingering with the Hispanic Client.**

  Link: https://link.springer.com/chapter/10.1007%2F978-1-4614-4412-1_7

❖ **Other Multicultural Resources**

- **Citation: AACN Multicultural References, compiled by Daryl Fujii, Lidia Artiola i Fortuny, & Marc Norman (2005) (updated by Daryl Fujii 5/5/07)**

  Link:https://theaacn.org/wp-content/uploads/2015/10/aacn_multicultural_references.pdf
  Notes: An extensive, comprehensive list of citations on both general topics in multicultural neuropsychology (e.g., bilingualism, norms, interpreters, ethics) as well as specific citat grouped by country and cultural groups. Last updated 2007.