A COMPARISON OF NOVEL APPROACHES FOR EXAMINING DIFFERENTIAL ITEM FUNCTIONING IN THE MONTREAL COGNITIVE ASSESSMENT: A MULTIPLE COVARIATE APPROACH

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Background: Accurate clinical diagnosis of individuals into the correct disease status depends on the validity of the assessment instrument. Differential item functioning (DIF) in these tests due to group membership differences may weaken the validity of the cognitive assessment. Traditional item response theory (IRT) methods to study DIF allow the consideration of only few subpopulations, like racial group, when estimating if the probability of responding to an item depends upon the membership to a subpopulation. We evaluated items from the MoCA scale for DIF relative to multiple observed characteristics concomitantly and compared the results to traditional IRT methods.

Methods: Data from participants in the multi-site Alzheimer’s Disease Neuroimaging Initiative, with item-level data in MoCA (N=1,108; age=72.77, SD=7.14 years; 54.6% male; education=16.11, SD=2.73 years; 89% White), were used to assessed DIF due to age, education, and gender using the following four traditional IRT-based approaches: 1) Lord’s chi-square test (Lord, 1980); 2) Raju’s area test (Raju, 1990); 3) Likelihood-ratio test (Thissen, Steinberg and Wainer, 1988), and 4) Rasch modeling with accurate item-parameter error variance-covariance matrices and expectation-maximization (Cai, 2008). Novel IRT-based methods included: 1) Regularization based on penalized maximum likelihood (Tutz, 2013), 2) Recursive-partitioning and tree-method, and 3) Random-item mixture modeling (Frederickx, 2011). The analysis included individuals across the full spectrum of cognitive status. Results: In general, there was moderate to almost perfect agreement across methods. Seven items were found to exhibit DIF and one item (Serial 7; measuring Attention) consistently across all methods showing a higher probability to be answered correctly by males and individuals with higher education level. There was an interaction between gender and education; females with lower education (<14 years) showed a lower probability of answering Serial 7 items correctly compared to females with 17 or more years of education. The same pattern was not found in males. Conclusions: The extent that commonly used screening tests are useful in making diagnostic decisions depends largely on their validity. Issues concerning measurement invariance are important in research and clinical assessments. Methods, as those presented, can be routinely used to enhance measurement and decisions about what instrument to use for diagnosis.

P3-255 CULTURAL ADAPTATION OF TRANSLATED NEUROCOGNITIVE ASSESSMENTS IN RUSSIA, SWITZERLAND AND ITALY: PILOT TESTING FOR A PROGRAM TO DELAY THE ONSET OF MILD COGNITIVE IMPAIRMENT DUE TO ALZHEIMER’S DISEASE

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Background: Cultural adaptation of neurocognitive assessments can improve the quality of translated instruments by ensuring tasks, stimuli and instructions are understood by, and appropriate for, populations of interest. We present data from pilot investigations collecting feedback of the cultural and linguistic accuracy of a translated neurocognitive battery. This battery was adopted for use in an upcoming investigation of transition from normal aging to mild cognitive impairment (MCI) due to Alzheimer’s disease (AD). For all languages assessed, changes were incorporated to improve the quality of adapted instruments and account for cultural and linguistic differences. Methods: Neurocognitive Battery measures included the Mini-Mental State Examination, Brief Visuospatial Memory Test, California Verbal Learning Test, Animal Fluency, Lexical Fluency, WAIS-II Digit Span, Trail Making Test (TMT), Clock Drawing Test and a relatively new measure, the Multilingual Naming Test (MiNT). Pilot studies were conducted in Russia, Switzerland (German) and Italy in accordance with both ICH guidelines for Good Clinical Practice and Pharmacoeconomics and Outcomes Research (ISPOR) guidelines for cultural adaptation. Each country sample included ten participants, ages 65-86. Each adapted measure received formal review by three independent neuropsychologists/psychologists in each country. Feedback was requested regarding construct validity, appropriateness for the target population, potential performance differences and recommended revisions. Results: Pilot studies provided suggestions for improving the translation and adaptation of each measure and revealed cultural variations in participants’ experience. Russian feedback indicated potential differences in speed of processing tasks due to a strong cultural emphasis on accuracy, reduced exposure to alphabetical sequencing (TMT B), and unfamiliarity with timed testing. Significant adaptations to the MiNT naming task were requested (25% of comments received) to account for regional differences in stimuli and culturally specific nomenclature. In all countries, changes to written language were requested (48% of comments) in order to
clarify task demands to produce better understanding. Conclusions: Adapting existing neurocognitive measures for use in other cultures requires carefully balanced efforts to achieve cultural appropriateness while maintaining the integrity of the original instruments. These in-country pilot exercises provided important input regarding cultural and linguistic variations to improve translated assessments and forecast potential cultural influences on performance.

**P3-256**

**VALIDATION OF THE INECO FRONTAL SCREENING IN A COLOMBIAN POPULATION**

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**Background:** The INECO Frontal Screening (IFS) was designed as an efficient evaluation of the executive function. IFS has shown to sensitively differentiate healthy from dementia population. Although originally created in Spanish, it is necessary to validate its use in a new Spanish population, since recent studies have shown clear differences in the daily use of the same language in different settings. Our objective was to validate the IFS in Colombian healthy, mild cognitive impairment (MCI) and Alzheimer disease (AD) populations. **Methods:** Patients with AD and MCI that were included and evaluated in our Memory Group between 2011 and 2013. Healthy population was recruited from community action groups. Subjects were evaluated with a standard protocol and a pre-defined diagnostic battery, MoCA, and IFS test. Final diagnosis was obtained by consensus. Nonparametric test were used and results expressed as medians. Convergent validity was established by Spearman’s correlation with global deterioration scale (GDS), and MoCA, construct validity with Kruskall-Wallis and Wilcoxon tests. We used the Cronbach alpha to assess the internal consistency, and the ROC curve method to test the diagnostic accuracy and the optimal cutoff score. **Results:** A total of 395 evaluations were done (139 healthy participants, 129 MCI and 127 AD). Mean age was 67.1 ± 12.6 years, and 285 (72.2%) were female. Rho for convergence validity was -0.809 compared with GDS, and of 0.760 with MoCA. In the group’s comparisons, IFS median was 22 [21-25] for healthy, 15 [14-17] in MCI and 12 [8-15] for AD, with p 0.001 for all comparisons. The Cronbach alpha was 0.886, and the ROC analysis revealed an AUC of 0.948 with an optimal cutoff of 17.5 with a sensitivity of 92.8% and specificity of 86.3. **Conclusions:** We validate the IFI for the Colombian population with MCI and AD, and established the optimal cutoff point. Our cutoff point is different from Chilean and Argentinian validations. This findings underlie the differences between countries with the same linguistic root but regional differences in its use and the rational for a transcultural validation in each population.

**P3-258**

**THE INFLUENCE OF THE DOCTOR-PATIENT RELATIONSHIP ON WILLINGNESS OF AFRICAN AMERICANS TO DISCUSS MEMORY LOSS WITH HEALTH CARE PROFESSIONALS**

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**Background:** According to the Alzheimer’s Association, the majority of dementia diagnoses are made in primary care settings, and African Americans are less likely than Caucasians to discuss memory loss symptoms with doctors. This often delays a diagnosis until the symptoms are too severe to be overlooked. Mistrust of the health care system and misconceptions about normal cognitive function in aging are two well-documented reasons contributing to this reluctance. We have previously shown that family support and perceived benefits of screening are predictive of a person’s willingness to report memory difficulties. This paper investigates the influence of the patient’s expectations of physician response and expectation of quality of future medical care on the willingness of African Americans to discuss memory symptoms with their doctors. **Methods:** Two hundred thirty-one (231) African Americans attending community social and screening events responded to questions derived from previously published scales which assess beliefs about memory disorders. A stepwise regression analysis was used to compare family support, perceived benefits, patient expectations of provider response to memory loss, and expectations of the quality of future medical care to predict willingness to report memory symptoms to health care providers. **Results:** A multiple regression model tested the likelihood of reporting MCI symptoms to providers based on family support, perceived benefits, the expected responses of medical professionals, and expectations of future care following a diagnosis of MCI. The overall model was significant, F (4, 223) = 10.62, p < .0005, adj. R 2 = .147. The following factors significantly predicted a person’s willingness to discuss memory loss symptoms with their doctors: family support (p < .005), perceived benefits (p < .05), expectations regarding the quality of future care (p < .005), and expectations of being ignored after diagnosis (p < .05). **Conclusions:** Study results indicate that patients’ expectations of health care provider response and quality of care are predictive of patient willingness to discuss memory loss with doctors. This suggests that one route to increasing the willingness of African Americans to discuss memory loss is for health care providers, particularly those in primary care settings, to initiate the conversations about memory loss with patients at higher risk for MCI and dementia.

**P3-259**

**DEVELOPMENT AND VALIDATION OF THE SINGAPORE FAMOUS FACES TEST**

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**Background:** The ability to recognise and name faces is highly relevant in daily life but is a skill that is affected in those with Alzheimer’s disease (AD) (Giannakopoulos et al, 2000; Langlois, Fontaine, Hanel & Joubert, 2009; Rendall, Castel & Craik, 2005). Research has shown that recall of names and faces follow a temporal gradient, with better recall for those learnt when the AD patients were younger. However, due to the paucity of assessment measures with locally appropriate stimuli, face naming and recognition abilities are not explored in the local context. Development and validation of a locally developed tool utilising faces and names of individuals well-known to the local population is hence appropriate. **Methods:** Following the methodology utilised in current tools and adapted to the local population, names and faces will be chosen from one of the four categories of entertainers, politicians, criminal/law and sportspersons. They will be equally represented from the past 5 decades, with a total of 56 faces. Assessment will based on free recall of the faces and why they are famous (i.e., sportsperson, politician, etc.) and then by recognition via multiple choice if unable to freely recall the faces. Scores will range from 0 to 4, with a score of 4 for correctly identifying the face and why they are famous spontaneously, and 0 when they are unable to identify the face even with multiple choices available. The tool will be administered to 25 patients with AD and 25 age- and education-matched elderly with no cognitive impairment. **Results:** Data collected will be validated on criterion-related validity, and