

Telepsychiatry for Neurocognitive Testing in Older Rural Latino Adults

*Ipsit V. Vahia, M.D., Bernardo Ng, M.D., Alvaro Camacho, M.D., M.P.H.,
Veronica Cardenas, Ph.D., Mariana Cherner, Ph.D., Colin A. Depp, Ph.D.,
Barton W. Palmer, Ph.D., Dilip V. Jeste, M.D., Zia Agha, M.D.*

As the population of older Latinos in the U.S. increases, availability of culturally adapted geriatric psychiatry services is becoming a growing concern. This issue is exacerbated for rural Latino populations. In this study, we assessed whether neurocognitive assessment via telepsychiatry (TP) using a Spanish-language battery would be comparable to in-person (IP) testing using the same battery in a sample of Spanish-speaking older adults in a rural setting. Patients (N = 22) received IP and TP testing 2 weeks apart. The order of IP and TP test administrations in individual subjects was determined randomly. Comparison of scores indicated that there were no significant differences between IP and TP test performance though both groups scored non-significantly higher at the second visit. This study demonstrates feasibility and utility of neurocognitive testing in Spanish using TP among older rural Latinos. (Am J Geriatr Psychiatry 2015; 23:666–670)

Key Words: Latino, telemedicine, telepsychiatry, cognition, neurocognitive testing, rural

Currently an estimated 5.3 million Americans have Alzheimer's disease (AD). It is predicted that the prevalence of dementias among U.S. Latinos will increase sixfold by 2050 as this segment of the population ages.¹ At the same time, there is a serious lack of availability of culturally and linguistically appropriate healthcare services, such as neurocognitive testing for Latinos with dementia. In one study, up to 40% of foreign-born older Latinos were found to have undiagnosed dementia for at least 3 years.² Because rural-dwelling Latinos are a rapidly growing subpopulation, and yet have some of the poorest access to, and utilization of healthcare

services, culturally acceptable and easily administered interventions designed for this specific population hold potential to have a wide impact.³

Neurocognitive testing is helpful in early detection and differential diagnosis of dementia. Neurocognitive tests developed in English are increasingly being translated into other languages (many into Spanish) and studied in adapted versions to ensure cultural and linguistic validity.⁴ These adapted neurocognitive tests may be unavailable to help clinicians caring for Latinos, however, especially in rural areas, because of shortage of trained neuropsychologists in these areas.

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Telemedicine offers a partial solution to some of these disparities in access to care^{5–7} by improving access to quality care, reducing costs due to travel, fuel consumption, and lost productivity. Telemedicine and related health information technologies have been identified by the Institute of Medicine as central tools in improving access and quality of healthcare for older patients, minorities (e.g., Latinos), and those living in rural communities across the United States.⁸ Although feasibility of neuropsychological testing using telemedicine has been demonstrated, it is unclear how this compares with in-person testing.⁹ The feasibility and utility of telepsychiatry (TP) for comprehensive neurocognitive testing among rural-dwelling Latinos have not been demonstrated previously. In this study, we aimed to compare in-person (IP) and TP-based neurocognitive testing approaches for Spanish-speaking rural patients, to assess feasibility and potential utility by examining correlations between scores on tests administered using IP and TP approaches.

METHODS

Participants

We recruited bilingual or monolingual Spanish-speaking individuals whose primary treating psychiatrists recommended testing for suspected cognitive impairment. All of the subjects were over the age of 65 years. We excluded patients with severe concurrent medical illness, major psychiatric disorder, sensory impairments, or previous neurological impairments (e.g., stroke). The protocol was approved by the University of California, San Diego (UCSD) Human Subjects Research Protection committee, and all the participants provided a written informed consent, after we established capacity to provide consent using the UCSD Brief Assessment of Capacity to Consent.

We randomized a total of 27 patients, 22 of whom completed both required study visits as per protocol. Two participants were excluded because of medical complications developed between sessions, and three participants were determined to be too impaired cognitively to be able to complete testing. The study participants and their treating psychiatrists (BN and AC) were located in Imperial County, CA. This rural county has a total population of 175,000, of whom

85% are Latinos, 25% meet the federal poverty definition, and 23% are unemployed.¹⁰

Measures

All subjects were assessed with the published/validated Spanish-language versions of the following tests: The Mini-Mental State Examination (MMSE),¹¹ Hopkins Verbal Learning Test (HVLT)—Revised,¹² Digit Span subtest from the Escala de Inteligencia de Wechsler para Adultos—Tercera Edición,¹³ Letter and Category Fluency,¹⁴ Clock Drawing,¹⁵ Brief Visuospatial Memory Test (revised) (BVMT-R), and Ponton-Satz Spanish Naming Test.¹⁶ Prior studies have demonstrated strong/established psychometric properties for the Spanish language versions all tests in our battery.^{12,16} Our battery measured cognitive constructs known to be sensitive to, and commonly assessed in, the differential diagnosis of dementia. In addition, the viability of administering English-language versions of these measures over a teleconferencing format has been established.^{17,18} Total testing time was approximately 45 minutes. Two clinical evaluators were trained by a senior neuropsychologist (BP) to administer and score these tests (in both IP and TP modalities), and adequate intra- and inter-rater reliability was established. We calculated standardized z-scores for each subject against population norms for the following cognitive tests: MMSE, BVMTR, HVLT, Digit Span Forward, and Digit Span Backward. The mean z-score for these tests was computed as an indicator of cognitive functioning. We also calculated a composite z-score as an indicator of overall cognitive functioning.

Telemedicine Network and Equipment. We used a commercial DSL connection with 512 kbps bandwidth, required for telemedicine.^{15,18} TP patient equipment comprised a CODEC (coder-decoder) capable of simultaneously streaming video and content (i.e., laptop screen) on side by side monitors, remotely controlled Pan Tilt and Zoom cameras, a tablet PC laptop, and a videoconference microphone; and dual 26-in. LCD TVs.

Telepsychiatry Testing Procedure. For TP testing, participants were seated in an examination room set up for TP and were accompanied by a Mexican-American research associate (RA) fluent in Spanish and English. The RA oriented the patient to the TP equipment and videoconference procedures, and then initiated the TP call to connect with the clinical

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