I Test Therefore I am: Neuropsychology, Illiteracy, Low Education, and non-English Speakers

Pacific Northwest Neuropsychological Society (PNNS)
SEATTLE, JANUARY 9, 2012

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Independent Practice
Tucson
Background

Some personal notes
47yo Brazilian man
complicated mild head injury GCS = 14, facial fx

With regard to social history, he was born in Brazil and attended primary grades of
school. He denied any difficulties learning to read and write in his native language. He descr
was seen with benefit of Portuguese Language translator.

With regard to overall intellectual ability, Performance IQ items were presented as they
are non-verbal and are relatively culture free. He obtained a Performance IQ of 67 (1st percentile)
which is in the extremely low range of intellectual functioning. Perceptual organizational skills
as a whole were severely impaired (index=72, 3rd percentile). Processing speed was also severely
impaired as previously mentioned. On the Block Design sub-test, a measure of concrete problem
solving under timed conditions, his score was at the 9th percentile for age. On tests of visual
motor search and attention his performance was uniformly below the 2nd percentile. On the
Picture Arrangement sub-test, a measure of logical reasoning involving arrangement of pictorial
elements into a meaningful story, his performance was impaired (SS=4, 2nd percentile). With
regard to attention to relevant missing details in a pictorial display, his performance was severely
impaired (SS=4, 2nd percentile).
35 yo Dominican man

• 4 years of formal education, construction foreman for 10 years, raising 3 children
• Examined in criminal context
• Had taken several hostages, 4 murdered
• Examined in Spanish by NP translating English language items into Spanish and responses back into English
35 yo Dominican man

- **WAIS-III results**

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**FSIQ = 58**
64 yo male, 3 yrs education

- Mild head injury. GCS = 15  Copy of Rey Figure
CHALLENGES

• Communication with examinee (language)
• Effects of education on cognition and consequently on test performance
• Poor familiarity with examinee’s background
• Lack of normative information
• Lack of SVT information
STUDY

396 participants in AZ, Mexico, and Spain
SPANISH NEUROPSYCHOLOGICAL BATTERY (Artiola et al., 1999)

- Figure Memory Test
- Story Memory Test
- Auditory Span
- Visual Span
- Word List Learning
- Oral Fluency
- Stroop Color Word Test
- WCST
Figure Memory Trial 1
35 yo male 0 years of formal education
Figure Memory Trial 2
35 yo male 0 years of formal education
Figure Memory Trial 3
35 yo male 0 years of formal education
Figure Memory Trial 4
35 yo male 0 years of formal education
Figure Memory Trial 5
35 yo male 0 years of formal education
Figure Memory DELAYED RECALL
35 yo male 0 years of formal education
Figure Memory Trial 1
27yo female 0 years of formal education
Figure Memory Trial 1
35 yo male 0 years of formal education
Figure Memory Trial 1
35 yo male 0 years of formal education
Figure Memory DELAYED RECALL
35 yo male 0 years of formal education
Figure Memory Trial 1
20 yo male 2 years of formal education
Figure Memory DELAYED RECALL
20 yo male 2 years of formal education
Figure Memory Trial 1
20 yo male 5 years of formal education
Figure Memory Trial 2
20 yo male 2 years of formal education
Figure Memory Trial 3
20 yo male 2 years of formal education
Figure Memory Trial 4
20 yo male 2 years of formal education
Figure Memory Trial 5
20 yo male 2 years of formal education
Figure Memory DELAYED RECALL
20 yo male 2 years of formal education
Effects Of Formal Schooling On Tests Of Cognitive Ability

- English language studies indicate that many of our instruments are affected by level of education. Demographic corrections and caution are frequently applied.
FIGURE MEMORY, STORY MEMORY SAVING SCORES

EDUCATION

<3yrs  3 to 5 yrs  6 to 8 yrs  9-11 yrs  12-15 yrs  =>16yrs

FIGURE  STORY

70  75  80  85  90  95  100
DIGIT SPAN

![Bar chart showing digit span with education levels and forward/backward conditions.](image)
WORD GENERATION

PHONEMIC FLUENCY, 3 MINUTES

![Bar chart showing phonemic fluency across different education levels.]
Percentage of individuals who were unable to complete more than one category in WCST
AGE < 55 YEARS

Educational Levels:
- 0 to 2: 61.9%
- 3 to 5: 38.9%
- 6 to 8: 11.4%
- 9 to 12: 0.08%
- 13 to 15: 0.03%
- >= 16: 0.06%
WISCONSIN CARD SORTING TEST

WCST-Perseverative Responses

Years of Formal Education

- 0-2 Yrs: 54
- 3-5 Yrs: 45.2
- 6-8 Yrs: 33.7
- 9-11 Yrs: 24.8
- 12-15 Yrs: 20.4
- >16 Yrs: 17.3
Effects Of Formal Schooling On Tests Of Cognitive Ability

• Data obtained by 396 neurologically normal subjects with education between 0 and 24 years showed significant positive effect of education on test performance.

• However, we cannot necessarily assume that the relationship between test results and education can be described by a simple line along entire entire entire education continuum.
Effects Of Formal Schooling On Tests Of Cognitive Ability

• There is a positive effect of education on test performance.

• We cannot necessarily assume that the relationship between test results and education can be described by a simple line along entire education continuum.

• There may be a discontinuity in the relationships between education and several commonly used neuropsychological tests.
Effects Of Formal Schooling On Tests Of Cognitive Ability

*Discontinuity Analysis-Executive Function*

WCST PERSEVERATIVE RESPONSES
Effects Of Formal Schooling On Tests Of Cognitive Ability
Discontinuity Analysis-Executive Function

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<th>STROOP COLOR/WORD SCORE</th>
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39
Effects Of Formal Schooling On Tests Of Cognitive Ability

*Further exploration of the relationship between education and test performance*

• **Slope** of the regression line is not always constant across the education continuum.

• **Intercepts** of regression lines are different.

• **Two** regression lines are required to adequately characterize some of these relationships.
Effects Of Formal Schooling On Tests Of Cognitive Ability

Relationship between education and test performance

• Optimal discontinuity was consistently in an interval centering around 8-9 years of formal education.

• When discontinuity in the slope of the regression line is present, the slope is consistently steeper at the lower levels of education.
Effects Of Formal Schooling On Tests Of Cognitive Ability

*Discontinuity Analysis-Executive Function*

- Discontinuity in the regression line is present in tests commonly associated with executive functions.

- Tests of learning (prose, word lists, visual material) do not exhibit discontinuities.
Effects Of Formal Schooling On Tests Of Cognitive Ability

Discontinuity Analysis-Executive Function

Story Memory  Trial 1

FIGURE MEMORY  TRIAL 1

STORY MEMORY LEARNING SCORE

FIGURE MEMORY LEARNING SCORE
Effects Of Formal Schooling On Tests Of Cognitive Ability

**Geographic Differences**

- Significant main effects of place of birth and some significant interactions between education and place of birth.
- Differences between the samples diminished with increasing levels of education.
- Higher education/higher socioeconomic status may equalize performance of the two samples in neuropsychological tests.
Effects Of Formal Schooling On Tests Of Cognitive Ability

Implications

- Importance of early education in development of executive functions.
- Education may be proxy for other factors.
- Clinical assessment at extreme low levels of education.
SOME THOUGHTS

• Test constructs that we assume to be valid in our somewhat insular western, highly educated, developed world experience, do not apply to individuals outside western Europe, Australia, and North America.

• There is no sensible way to assign IQ or IQ-like scores to unschooled people.

• Unschooled individuals do not possess the information we learn through school attendance.
SOME THOUGHTS

• Unschooled individuals do not have the schemas needed to address decontextualized reasoning problems.

• They probably treat problems by making up some sort of narrative that makes sense to them in the context of their experience.
SOME THOUGHTS

• Lack of materials in languages other than English and lack of normative information for populations with low levels of education renders neuropsychological assessment quite challenging

• Spuriously high false positive rates are frequently found among low-educated individuals.
REFERRAL

• WHAT IS THE CONTEXT?
  • Clinical
  • Forensic

• NON NATIVE SPEAKER OF ENGLISH
• NON ENGLISH SPEAKER
• ENGLISH SPEAKER (MINORITY PERSON)
EXAMINEE’S

• FORMAL EDUCATION

• LANGUAGE

• CULTURE
AVERAGE OR BETTER EDUCATION

• “Average” (relative to US standards) or better (>8 years). Can possibly use mainstream norms and mainstream assumptions. May have to restrict eval to non-verbal tests
LOW EDUCATION-ILLITERACY

• Very low levels of formal education ( <8 years). Using mainstream norms and assumptions is risky.

• Extreme low levels of education-Illiteracy. Using mainstream norms in nonsensical.
Examinee’s Characteristics

- Native language (Examinee’s)
- Level of education of examinee
- How long in U.S. or Canada?
- Where educated?
- Educational/Occupational proficiency
- Occupation-Employment
- Social Proficiency within own social setting
- English language proficiency
Clinician’s Self Evaluation

- Do you know the examinee’s native language?
- And...How well do you know the language?
  - speaking
  - Reading
  - Writing
  - Could you follow university level courses?
- Native, Educated Proficiency
- Can you withstand scrutiny of your knowledge of the examinee’s language?
- How much do you know about the examinee’s cultural background (educ., country, etc.)?
NP Assessment of Non-English Speakers

• Use of interpreters

• Use of technicians who know the examinee’s language

• Collaboration with other clinician who knows the examinee’s language
Tests and Norms

• Do you have access to tests in examinee’s language?

• Do these come with demographically appropriate norms?
REPORTING YOUR RESULTS

• Always identify your language proficiency level
• Always specify if you used interpreter and interpreter qualifications
• Always specify if you used technician and technician’s qualifications
• Always specify what norms you used and be ready to justify such use
General Guidelines

- If there are no demographically adequate normative data available, diagnostic conclusions based on test performance of non-English speakers may be highly inappropriate.
- If severe brain injury is suspected, neuroimaging data and examination by a neurologist will likely be far more valid than any results obtained through such questionable psychometric practices. If the severity, or even the existence, of an insult cannot be based on "verifiable evidence," clinicians may wish to avoid making diagnostic statements altogether.
- In some cases seriously entertain in-depth investigation of history and current level of functioning as an alternative to administering tests that will yield meaningless data.
THE CASE OF SPANISH Test Selection

- PEABODY PICTURE VOCABULARY TEST (AGS)
- BOSTON NAMING TEST (UNPUBLISHED)
- TOKEN TEST (Multilingual Aphasia Examination)
- WECHSLER ADULT INTELLIGENCE SCALE-R (Performance Subtests)
- WECHSLER ADULT INTELLIGENCE SCALE—III (Performance Subtests)
- GRIP STRENGTH (Heaton)
- FINGER TAPPING (Heaton)
- SVT (WORD MEMORY TEST, MSVT, NV-MSVT, RDS, DCT)
- BECK ANXIETY SPANISH VERSION
- BECK DEPRESSION INVENTORY II SPANISH VERSION
- MMPI-II
What Norms?
21 yo Mexican, 8 yrs education

%ile US norms (Heaton, 1991)
- WCST
  - Categories (5) >16%ile
  - PSV resp (39) 9%ile
  - Correct Resp (78) 16%ile
  - Fail Maint Set (1) >16%ile

%ile Spanish BNE (Artiola et al, 1999)
- WCST
  - Categories (5) 53%ile
  - PSV resp (39) 21%ile
  - Correct Resp (78) 83%ile
  - Fail Maint Set (1) >16%ile
THE CASE OF SPANISH
REMARKS ON IQ TESTS-WAIS-III

![Table A.5. IQ Score Equivalents of Sums of Scaled Scores: Full Scale](image-url)
# Tabla A-4. Equivalentes en puntuación de Cl de las sumas de puntuaciones escalares con la Total

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<th>Cl Total</th>
<th>Rango</th>
<th>Nivel de confianza</th>
<th>Suma de puntuaciones escalares</th>
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**Table A.4. IQ Score Equivalents of Sums of Scaled Scores: Performance Scale**

Using the WAIS-III PIQ, the table above provides the IQ score equivalents for sums of scaled scores on the performance scale.
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<th>Cl de Ejecución</th>
<th>Rango percentil</th>
<th>Nivel de confianza 90%</th>
<th>Nivel de confianza 95%</th>
<th>Suma de puntuaciones escalares</th>
<th>Cl de Ejecución</th>
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EFFORT MEASUREMENT

• Generally tests used with non-English speakers are translated or adapted versions of English language tests
• Lack of research forces examiners who assess non English speakers or English speaking minorities to justify use of mainstream English validity instruments based on their own experience with particular linguistic or ethnic groups.
• For use with individuals with relatively low levels of education there are some concerns vis à vis the level of difficulty of a test
TESTS OF EFFORT

- WMT (available in different languages)
- MSVT (available in different languages)
- NV-MSVT
- Digit Recognition Tests (CARB, PDRT)
- Dot Counting Test E score \((mean \text{ ungrouped dot counting time} + mean \text{ grouped dot counting time} + \text{number of errors})\)
- Digit Span Age Corrected Scale Score (DS ACSS) \(\leq 5\)
- Reliable digit span (RDS)
TESTS OF EFFORT

• Rey 15 IR (recall plus [recognition minus false positives])<20
• Rey auditory verbal learning test (RAVLT) recognition<=7
• Warrington Recognition Memory Test-Words (WRMT-W)<33
EFFORT MEASUREMENT- SOME RESEARCH

LA Spanish speakers, mean ed 6.11 (2.55)
DCT use of standard E score of = or >17 gave specificity of 95.4%, not related to age or educ
REY 15 IR results related to educ.
86% of people with >6 yrs educ scored above standard cut off (9)
67% of people with 6 or fewer yrs educ scored above standard cut off (9)
EFFORT MEASUREMENT- SOME RESEARCH

Salazar at all (2009) reviewed archival data from individuals referred for outpatient neuropsychological evaluation at a public hospital. They excluded individuals in litigation, attempting to obtain disability compensation, or meeting criteria for dementia or with a Wechsler full-scale IQ below 70. They examined a number of effort measures and their traditionally recommended cutoff points, for example:

• Digit span age corrected scale score (DS ACSS) <= 5
• Reliable Digit Span (RDS) <=6
• Rey 15 IR (recall plus [ recognition minus false positives])<20
• Rey auditory verbal learning test (RAVLT) recognition<=7
• Warrington Recognition Memory Test-Words (WRMT-W)<33
They concluded that standard English language effort tests can be used successfully with ethnic minorities and with people who do not speak English or who speak it as a second language. The impact of cultural and language variables requires adjustments in cut offs on many measures to restrict false positive identifications to acceptable levels (<10%). For example, while some of the tests were appropriate for use in non-English-speaking subjects (e.g. RAVLT recognition), for others some adjustment in the cutoffs were required to maintain adequate specificity.
EFFORT MEASUREMENT- SOME RESEARCH

- Digit span age corrected scale score (DS ACSS) <= 4
- DCT E-score <= 19
- Reliable digit span (RDS) <=5
- Rey 15 IR (recall plus [ recognition minus false positives])<12

Failure to modulate cutoffs for ethnicity or language may cause some individuals to be inaccurately identified as not providing adequate effort on cognitive tasks.

See K. Boone’s 2009 Assessment of Feigned Cognitive Impairment
EXAMPLES
SPANISH SPEAKER AA

• AA 44 yo RH, married male, Mexican born
• 1 year of formal education rural area of the state of Oaxaca
• In the Unites States since 2000
• Employed full time yard work
SPANISH SPEAKER AA

In litigation. Referred by city attorney
Examined 2 years post injury.
Complaints:
Arm pain; some trouble remembering instructions. Otherwise doing well at work.
SPANISH SPEAKER AA

- passenger in a vehicle that T-boned a city truck. NO LOC at scene, some confusion
- ER GCS = 14, Initial CT neg
- Rt shoulder subluxation + rib fx
- Became agitated and confused
- CT revealed interval development of small amount of subarachnoid hemorrhage overlying upper posterior aspect of the left hemisphere and along posterior aspect of the falx
- he was intubated and mechanically ventilated
- Good hospital progress w/complaints of headaches and vertigo after discharge
SPANISH SPEAKER AA

- continued to have headaches and vertigo
- MRI showed moderate left side subdural hematoma with minimal midline shift and mild mass effect along the left lateral ventricle
- left frontal temporal craniotomy with evacuation of subdural hematoma, placement of subdural drain, and resection of chronic subdural membrane
SPANISH SPEAKER AA

Medical Symptom Validity Test

SVT Measures
immediate recognition = 95 percent
delayed recognition = 95 percent
consistency = 92 percent

Memory measures
Paired Associate recall = 45 percent
Free Recall = 35 percent.
SPANISH SPEAKER AA

DOT COUNTING TEST  WNL
RDS  6
SPANISH SPEAKER  AA

- **Attention/Concentration**
  - FDS (T-score = 42)
  - BDS (T-score = 50),
  - FVS (T-score = 56)
  - BVS (T-score = 63)

- **IQ Perf WAIS-R (T scores)**
  - PC 40
  - PA 39
  - BD 43
  - OA 48
  - DS 45

- **Executive Functions**
  - **Stroop**
    - Reading (T-score = 34)
    - Naming Colors (T-score = 45)
    - Color/Word (T-score = 63).
    - Letter Fluency T-score=48

- **Language**
  - Token WNL
  - BNT WNL
  - PPVT  Age Eq. 7-10year old

- **Memory**
  - Figure Memory Test
    - IR T-score =49;
    - Learning T-score =46
    - DR T-score = 52
  - Story Memory Test
    - IR T-score =38
    - Learning T-score =32
    - DR T-score = 34
SPANISH SPEAKER AA

• **Word List**
  - IR T-score = 53
  - Learning T-score = 51
  - List B T-score = 27
  - DR WNL all measures

• **Motor Functions**
  - FT T-scores 64, 60
  - Grip T-scores 25, 31

• **Psychological Status**
  - BDI Raw 15
  - BAI Raw 12
Conclusions:
No evidence of poor effort
Results consistent with complaints
Results consistent with medical history
Examined 18 months after injury in the context of litigation, referred by City of X and State of Y attorneys.
GB  21 yo woman from Mexico involved in a garbage truck v. pedestrian accident.
Unresponsive at scene
At the ER her Glasgow Coma Scale was brought up from 3 or 4 to 7 or 8 (A nursing note later that day noted a GCS of 6). She had periorbital ecchimoses around the right eye. She was bleeding from her nose and mouth. She had hemotympanum and a C2 fracture.
• increasing intracranial pressure over several hours

• right frontal intracerebral contusion with hematoma and mass effect.

• right decompression craniotomy, evacuation of intracerebral hematoma

• left frontal arterial ventricular drain for hydrocephalus.

• posterior fossa epidural hematoma. A CT scan showed a loss of basilar cisterns, worrisome for downward herniation.
SPANISH SPEAKER GB

- 3 weeks after admission she was able to open her eyes spontaneously and localize pain, but she was nonverbal.
- *Transferred to Mexico*
- 4 months after injury a CT scan of the head showed significant brain edema with compression of the supratentorial ventricular system.
GB appeared approximately her stated chronological age. She was in a wheelchair. She was able to transfer to an office chair with her mother’s help. She had a left flaccid hemiparesis and a prominent left facial paralysis and dysconjugate eye movements. She wore a bandaid on her tracheostomy hole and occasionally wheezing from the hole could be heard. Hygiene and dress were appropriate. She was able to sit while interviewed and tested for more than an hour at a time without complaining of discomfort, although she was offered a number of breaks.
Examined 18 months after injury in the context of litigation, referred by City of X and State of Y attorneys.

GB appeared approximately her stated chronological age. She was in a wheelchair. She was able to transfer to an office chair with her mother’s help. She had a left flaccid hemiparesis and a prominent left facial paralysis and dysconjugate eye movements. She wore a bandaid on her tracheostomy hole and occasionally wheezing from the hole could be heard. Hygiene and dress were appropriate. She was able to sit while interviewed and tested for more than an hour at a time without complaining of discomfort, although she was offered a number of breaks.
Neurological

Motor
• L Facial
• L dense hemiplegia
• R residual paresis

Sensory
• Touch L extinctions to bilat sim stim

Visual Fields
• Full, but L extinctions to bilat sim stim
SPANISH SPEAKER GB

Word Memory Test

SVT Measures
IR = 90.5 percent
DR = 87.5 percent
CNS = 90.5 percent
MC = 90.5 percent

Memory measures
Paired Associate recall = 30 percent
Free Recall = 20.5 percent. LDFR = 15.00 percent
SPANISH SPEAKER GB

*Medical Symptom Validity Test*

*SVT Measures*
- immediate recognition = 97.5 percent
- delayed recognition = 92.5 percent
- consistency = 92.5 percent

*Memory measures*
- Paired Associate recall = 30 percent
- Free Recall = 15 percent.
SPANISH SPEAKER GB

**Word Memory Test**

**SVT Measures**
- immediate recognition = 92.5 percent
- delayed recognition = 87.5 percent
- consistency = 92.5 percent

**Memory measures**
- Paired Associate recall = 40 percent
- Free Recall = 25 percent.

**RDS = 8; DOT COUNTING TEST E score = 12**
**SPANISH SPEAKER GB**

- **Attention/Concentration**
  - FDS (T-score = 40) BDS (T-score 44),
  - FVS (T-score = 53) BVS (T-score 47),
  - Trail Making A T-score 20
  - Trail Making B T-score 15
  (US Norms)

- **IQ Perf WASI (T scores)**
  - Matrix Reasoning T score 35

- **Executive Functions**
  - **Stroop**
    - Reading (T-score 19)
    - Naming Colors T-score 30
    - Color/Word T-score 38
  - **Letter Fluency** T-score 43
  - **WCST**
    - Cat: T score 44
    - Pers Resp T score 27

- **Language**
  - Token WNL
  - BNT 47/60 (with phon. Cues)
  - PPVT Age Eq. 17-11 years

- **Memory**
  - Figure Memory Test
    - IR T-score 27;
    - Learning T-score 31
    - DR T-score 32
  - Story Memory Test
    - IR T-score 31
    - Learning T-score 32
    - DR T-score 28
SPANISH SPEAKER GB

• **Word List**
  - IR T-score 21
  - Learning T-score 11
  - List B T-score 32
  - IR T score 11 cued T score 20
  - DR T score 17 cued T score 14

• **Motor Functions**
  - R FT T-score 27
  - R Grip T-score 17

• **Psychological Status**
  - BDI Raw 15
  - BAI Raw 12
Conclusions:
No evidence of poor effort
Results consistent with complaints
Results consistent with medical history
SPANISH SPEAKER OA

OA in litigation against trucking company.
Referred by his own attorney
Complains of difficulty remembering what he has to do and what he has done during the previous few days
Complains of feeling significantly depressed, sometimes to the point of inability to function
SPANISH SPEAKER OA

OA  39 year old right-handed man born in El Salvador. He was involved in a single vehicle rollover on the interstate. Witnesses at the scene indicated he had no LOC, but appeared scared and confused. He was taken to regional medical center, examined, and released after a few hours. ER notes estimated GCS at 15 throughout.

He has lived in the United States (California) since 1988. He completed high school in El Salvador. He was a good student throughout his school years. According to his Demographic Questionnaire he had not received formal education or training in the United States, but other records indicated he had taken a number of courses in the UC system over the years. He is a business owner. Business was successful for a number of years, but recently in receivership.
SPANISH SPEAKER OA

Neurological

Motor WNL
Sensory WNL
Visual Fields WNL
SPANISH SPEAKER OA

Word Memory Test

SVT Measures
immediate recognition = 62.5 percent
delayed recognition = 57.5 percent
consistency = 62.5 percent

Memory measures
Paired Associate recall = 30 percent
Free Recall = 15 percent.

RDS = 4; DOT COUNTING TEST E score = 19
SPANISH SPEAKER OA

Medical Symptom Validity Test

SVT Measures
immediate recognition = 70.5 percent
delayed recognition = 72.5 percent
consistency = 72.5 percent

Memory measures
Paired Associate recall = 40 percent
Free Recall = 35 percent.
SPANISH SPEAKER  OA

- **Attention/Concentration**
  - FDS (T-score = 36) BDS (T-score 31),
  - FVS (T-score = 62) BVS (T-score 60)
  - Trail Making A T-score 31
  - Trail Making B T-score 38
  (US Norms)

- **IQ Perf Wais III  106**

- **Executive Functions**
  - **Stroop**
    - Reading T-score  45
    - Naming Colors T-score  47
    - Color/Word T-score  44
  - **Letter Fluency** T-score  46
  - **WCST**
    - Cat: T score 66
    - Pers Resp T score 55

- **Language**
  - Token WNL
  - BNT WNL
  - PPVT  Age Eq. 17-11 years

- **Memory**
  - Figure Memory Test
    - IR T-score  65
    - Learning T-score  71
    - DR T-score  60
  - Story Memory Test
    - IR T-score  40
    - Learning T-score  43
    - DR T-score  57
SPANISH SPEAKER OA

• **Word List**
  - IR T-score 36
  - Learning T-score 32
  - List B T-score 48
  - IR T score 36 cued T score 36
  - DR T score 41 cued T score 42

• **Motor Functions**
  - FT T-score 39, 40
  - Grip T-score 34, 35

**Psychological Status**

- **BDI** Raw 31
- **BAI** Raw 35
- **SIMS** = 29
- **MMIP-II FBS** = 32
Conclusions:
Evidence of poor effort on NP measures
Evidence of symptom exaggeration on self-report inventories
Results inconsistent with complaints
Results inconsistent with medical history
Lawyer unhappy with me
SPANISH SPEAKER GPM

GPM  43-year-old right-handed Caucasian woman born and raised in Chile. She moved to the US in 1995. She completed primary school and two years of secondary school in Chile, quitting at age 16 to go to work. She worked in Venezuela for approximately 12 years as a telephone company. When she first moved to the United States, she worked as a live in babysitter until her marriage. At the time of her illness she was a homemaker. Her primary language is Spanish, but she was said to have spoken very good English before her illness.

She went to the ER complaining of nausea and vomiting four times the night before. She became increasingly disoriented with continued nausea and vomiting. She developed flushed skin, further mental status changes, and a dilated right pupil as well as changes in respiration. A CT scan showed hydrocephalus. A neurosurgery consult determined the need for a ventriculostomy. She was intubated and an emergency ventriculostomy was performed. There were a number of follow-up CT scans during the next few days to monitor progress of the intracranial situation.
She had an episode of respiratory distress. She was re-intubated. An MRI showed multiple areas of increased T1 signal, mostly cortical, involving the cerebellum bilaterally, right greater than left, much of the left occipital and medial temporal cortex, and right frontal cortex. There were punctate areas within the basal ganglia bilaterally demonstrating increased T1 signal. The findings were thought to be most consistent with infarcts. There was a well-defined rounded mass within the third ventricle thought to represent a third ventricular colloid cyst. She underwent endoscopic fenestration of the right ventricular colloid cyst. The surgeon noted “pointed and somewhat downward displaced cerebellar tonsils.” There were complications in her hospital course including aspiration pneumonia and significant dysphagia, requiring GI tube placement. She underwent intensive rehabilitation for 9 months.
SPANISH SPEAKER GPM

She was examined 3 years after her initial admission in the context of a medical malpractice suit. She was referred by her attorney.

Complaints: Numbness from top right side of skull down to base of skull into right arm, hand, and foot. Short-term memory problems, vision problems, left foot twisted and required surgery (still in cast). Inability to perform common household chores, cooking (was an excellent cook!) No energy, depression, low self-esteem (was a very competent person). No interest in sexual activities (was very normal before illness.)
SPANISH SPEAKER GPM

She was disoriented to time, but not to place and situation. She was not able to spontaneously identify the President of the United States, but she was able to recognize his name. She was generally aware of current national events. She had to use her left, non-dominant hand for writing due to her right-sided weakness. She was able to write her name and her address, although this was extremely clumsy. Reading in Spanish was very slow, but accurate. In English she was, for all intents and purposes, illiterate. She copied the Necker Cube with extreme difficulty with no preservation of three-dimensional aspects. She experienced a great deal of difficulty drawing the face of a clock. She seemed to be unable to understand that she was to draw the hands, and instead wrote down the time.
SPANISH SPEAKER GPM

Neurological

Motor
• R residual weakness

Sensory
• Touch R extinctions to bilat sim stim

Visual Fields
• Some R extinctions to dbl sim stim
SPANISH SPEAKER GPM

Medical Symptom Validity Test

SVT Measures
immediate recognition = 97.5 percent
delayed recognition = 97.5 percent
consistency = 92.5 percent

Memory measures
Paired Associate recall = 40 percent
Free Recall = 20 percent.
SPANISH SPEAKER  GPM

• **Attention/Concentration**
  - FDS (T-score = 43) BDS (T-score 49),
  - FVS (T-score = 40) BVS (T-score 26)
  - Trail Making A T-score 18
  - Trail Making B
    UNABLE TO COMPLETE

• **IQ Perf WAIS-R (T scores)**
  - PC 27 PA30 BD38 OA24 DS25

• **Executive Functions**
  - **Stroop**
    - Reading (T-score 35)
    - Naming Colors  UNABLE TO COMPLETE
    - Color/Word  UNABLE TO COMPLETE

  - **Letter Fluency** T-score 37

  - **WCST** UNABLE TO COMPLETE

• **Language**
  - Token 1st percentile
  - BNT 10/60 (with phon. Cues)
  - PPVT  Age Eq. 7-4 years

• **Memory**
  - Figure Memory Test
    - IR T-score 27;
    - Learning T-score 31
    - DR T-score 32
  - Story Memory Test
    - IR T-score 21
    - Learning T-score 18
    - DR T-score 17
SPANISH SPEAKER  GPM

- **Word List**
  - IR T-score  34
  - Learning T-score 23
  - List B T-score 35
  - IR T score 18 cued T score 23
  - DR T score 19 cued T score11

- **Motor Functions**
  - FT T-score  28, 39
  - Grip T-score  18, 23

- **Psychological Status**
  - From clinical observations
  - behavior very poorly modulated, frequent inappropriate responses
  - Poor insight
  - Verbally very perseverative
  - full dependence on another person
**Conclusions:**

No evidence of poor effort

Results consistent with complaints by examinee and significant other

Results consistent with medical history
MANDARIN SPEAKER YL

- Examined in the context of personal injury suit 9 months after minor car accident. Referred by defense attorney.
- Presented as very quiet man, cooperated, but volunteered no info spontaneously
- Complained of severe attention, memory, and language problems along with severe and debilitating neck pain
- Had resumed teaching duties at the time of the examination
- Spoken English good enough to be able to teach at university level. Heavily accented, frequent aggrammatical constructions
MANDARIN SPEAKER YL

- 51 yo rh man born and raised in ROC. 22 yrs formal educ in ROC
- Visiting professor at a university science dept.
- Involved in a rear end collision when stopped at a red light
- Reports good recollection of events leading to accident
- Reports no memory of accident and of following 24 hours
- Witnesses at scene report no LOC
- Alleges positive LOC at scene
- Examined at ER, released after 2 hrs with meds for pain
- Takes 1 month off teaching duties alleging loss of memory
GREEN’S WORD MEMORY TEST

SVT Measures

immediate recognition = 32.5 percent
delayed recognition = 41.5 percent
consistency = 32.5 percent

Memory measures

Paired Associate recall = 20 percent
Free Recall = 10 percent.
MANDARIN SPEAKER YL

- **Attention/Concentration**
  - FDS 2  BDS 3
  - Trail Making A T-score 19
  - Trail Making B T-score 21

  (US Norms)

- **IQ Perf WAIS-III (scaled scores)**
  - PC 6 PA 3  BD 4  OA 4  SD 2

- **Executive Functions**
  - **Stroop**
    - Reading 4
    - Naming Colors 2
    - Color/Word 2

  **Letter Fluency v3**

  **WCST**
  - 0 categories
  - 12 pers resp

- **Language**
  - BNT 20/60 (with phon. Cues)
  - PPVT Age Eq. 4-4 years

- **Memory**
  - Figure Memory Test
    - IR T-score 29;
    - Learning T-score 33
    - DR T-score 32
  - Story Memory Test
    - IR T-score 23
    - Learning T-score 14
    - DR T-score 15
MANDARIN SPEAKER YL

• **Word List**
  - IR T-score 24
  - Learning T-score 23
  - List B T-score 25
  - IR T score 17 cued T score 21
  - DR T score 17 cued T score 12

• **Motor Functions**
  - FT T-score 22, 29
  - Grip T-score 35, 34

**Psychological Status**
From clinical observations
- behavior very controlled
- Guarded

NO PSYCH TESTS ADMINISTERED
THANK YOU

Lidia Artiola
Seattle, January 2012