Minority Issues in Aging Research

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Outline

• Why Participate in Research?
• Who Should Participate?
• What have we learned?
  – Development of Cognitive and behavioral assessments
  – Multi-cultural work to develop norms
  – Identifying research initiatives

Why Participate in Research

• Altruism
• Standardized evaluations
• Access to up-to-date research initiatives
• Potential for earliest access to new medications
• Support for family and friends
• Contribution from self to family, society***

The Role of Research in the Clinical Setting

• Research participation holds the hope for the best disease management and eradication
• Introduced early
  – At first visit for observational/longitudinal studies
  – At diagnosis for biomarker and other physiological studies
  – As part of the treatment discussion for clinical trials
Who should participate:
(Ethical Framework of Design…)

(1) potential scientific and clinical value of the research question,
(2) scientific validity of study design;
(3) fair selection of research subjects,
(4) favorable risk-benefit ratio,
(5) informed consent;
(6) prospective independent review, and
(7) respect for enrolled subjects.

Miller & Silverman 2004

Golden Rule for Inclusion/Exclusion Criteria

• The role of eligibility criteria is to insure efficacy can be measured and safety is maximized
  • Who is the target population?
  • How common is that outcome in the population?
  • Do known factors change the likelihood of outcome or safety of treatment?
• Every exclusion reduces the generalizability and applicability of findings

Challenges to Inclusion of Minorities

• Language
• Geography
• Time
• In dementia research the need for a study partner can exclude many people
  – To assist in evaluating change
  – To insure safety

Over 65 and Living Alone in US

20% of Men and 40% of women over 65 live alone
Possible Cultural Advantage

Likelihood of living alone among Asian Community in US is Low: 2.3%

Cultural Challenge: Identifying Cognitive loss

- Neuropsychological tests are often used to identify mild problems in memory and thinking
- Compare individual to “healthy” other
- Compare performance between different aspects of cognition
- Compare new learning to old learning

Need for Normative Data

- For diagnostic purposes and cross-sectional prevalence estimates, detection depends a comparison to “normal”
- Performance lower than the norm is assumed to be a deterioration for the individual
- The norm is expected to capture effects due to age, education, culture etc.

Assessing Specific Functions

- Memory: Most commonly assessed cognitive function in aging
  - Is best predictor of early decline
  - Associated with specific types of diseases
  - Well established norms across many cultures
  - Norms available through eighth and ninth decade
Assessing Memory

• Normative data is critical but some aspects may be universal
  – Working memory: 7 +- 2
  – Delayed Recall: 4 + -1
• Type of tests may be differentially sensitive to culture.
  – Paragraph recall: context and grammatical structure can modify memorability
  – List Learning: may be less affected by culture but word frequency and imageability must be controlled

Assessing Executive Function

• Executive function: planning, initiative, sequencing, organization
• Normative data is limited
  – Age, gender and cultural impact need to be assessed
  – Guidelines for defining deficit for the generalist is needed
  – Discriminability in other dementias
  – Impact on function is not well characterized

Executive Function

• Measurable Deficit
• Distinguishable from memory
• May be an independent contributor to diagnosis
• May be an early predictor of dementia in some populations

Predicting Functional Loss

• Elderly Resident (Mean age >80) (N=288)
• Instrumental activity daily living (CDR)
• Cognitive Assessment:
  – (Word List Recall, Delayed Recall, Recognition,
  – Boston Naming, Verbal Fluency,
  – Trailmaking A and B, and
  – Digit Symbol Substitution).

<table>
<thead>
<tr>
<th>Test</th>
<th>Factor 1: Information and Executive Function</th>
<th>Factor 2: Learning and Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trails Part B (131)</td>
<td>0.759</td>
<td>0.128</td>
</tr>
<tr>
<td>Digit Letter</td>
<td>0.857</td>
<td>0.399</td>
</tr>
<tr>
<td>Digit Symbol</td>
<td>0.842</td>
<td>0.240</td>
</tr>
<tr>
<td>Boston Naming</td>
<td>0.899</td>
<td>0.145</td>
</tr>
<tr>
<td>Verbal Fluency</td>
<td>0.222</td>
<td>0.798</td>
</tr>
<tr>
<td>Reason for Test</td>
<td>0.131</td>
<td>0.495</td>
</tr>
<tr>
<td>Active Recall</td>
<td>0.512</td>
<td>0.882</td>
</tr>
</tbody>
</table>

  Note: Results are principal component analysis with varimax rotation.

Comparison of Non-demented Nonogenarians

- **New York Sample**
  - At least 90 years of age (range 90.00-100.65)
  - Non demented (CDR = 0)
  - $N = 62$ (40 Females)
  - 2 Education levels:
    - Medium (7-12 years), $n = 14$
    - High (> 12 years), $n = 48$

- **Puerto Rico Sample**
  - At least 90 years of age (range 90.07-98.65)
  - Nondemented (CDR = 0)
  - Initial $N = 82$ (47 Females)
  - 3 Education levels:
    - Low (0-6 years), $n = 29$
    - Medium (7-12 years), $n = 33$
    - High (> 12 years), $n = 20$

NY and PR 90+ Similar on Memory

<table>
<thead>
<tr>
<th>Measure</th>
<th>NY</th>
<th>PR</th>
<th>NY vs. PR</th>
<th>Educ. Sig</th>
<th>Age Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMSE</td>
<td>27.81</td>
<td>27.72</td>
<td>0.259</td>
<td>0.007</td>
<td>0.312</td>
</tr>
<tr>
<td>Word List Total</td>
<td>18.90</td>
<td>16.40</td>
<td>0.165</td>
<td>0.004</td>
<td>0.904</td>
</tr>
<tr>
<td>Delayed Recall</td>
<td>5.95</td>
<td>4.75</td>
<td>0.059</td>
<td>0.125</td>
<td>0.310</td>
</tr>
<tr>
<td>Word List Recognition</td>
<td>19.33</td>
<td>18.72</td>
<td>0.385</td>
<td>0.013</td>
<td>0.711</td>
</tr>
<tr>
<td>Savings</td>
<td>76.61</td>
<td>68.82</td>
<td>0.282</td>
<td>0.409</td>
<td>0.173</td>
</tr>
</tbody>
</table>

Cultural Cohorts Differ in Performance of Timed Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>NY</th>
<th>PR</th>
<th>NY vs. PR</th>
<th>Educ. Sig</th>
<th>Age Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency (animals)</td>
<td>14.19</td>
<td>14.34</td>
<td>0.206</td>
<td>0.025</td>
<td>0.555</td>
</tr>
<tr>
<td>Trails A, time (sec)</td>
<td>75.33</td>
<td>140.66</td>
<td>0.000</td>
<td>0.534</td>
<td>0.857</td>
</tr>
<tr>
<td>Trails B, time (sec)</td>
<td>179.96</td>
<td>259.21</td>
<td>0.000</td>
<td>0.675</td>
<td>0.775</td>
</tr>
<tr>
<td>Praxis</td>
<td>9.42</td>
<td>8.58</td>
<td>0.173</td>
<td>0.174</td>
<td>0.739</td>
</tr>
<tr>
<td>Boston</td>
<td>13.19</td>
<td>12.91</td>
<td>0.918</td>
<td>0.102</td>
<td>0.953</td>
</tr>
</tbody>
</table>

Assumptions of cognitive performance

- The predictive interpretation assumes that cognitive performance represents decline for the individual
- Assumption is that the effect due to normal aging can be eliminated by comparison to cross-sectional normative data
- Generational effects may not be captured with cross-sectional norms
### Longitudinal Assessment

- Reduces dependence on norms
- In general performance demonstrates a practice effect for years
- May be best way to insure early detection
- Provides incidence rates which may be most important for cultural comparison.

### Spanish Instrument Protocol

- To develop instruments for clinical trials
- Longitudinal Assessment of US dwelling Spanish speakers with Alzheimer Disease
- Subjects selected within MMS strata
- Controls required to have MMS $\geq 27$
- Parallel study conducted in English speakers

### Frequency of Most Common Agitated Behaviors Identified by the CMAI

<table>
<thead>
<tr>
<th>Spanish Speaking Patients</th>
<th>English Speaking Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeating sentences</td>
<td>85.5</td>
</tr>
<tr>
<td>Restlessness</td>
<td>57.9</td>
</tr>
<tr>
<td>Uncooperativeness</td>
<td>57.1</td>
</tr>
<tr>
<td>Complaining</td>
<td>56.6</td>
</tr>
<tr>
<td>Pacing</td>
<td>56.0</td>
</tr>
<tr>
<td>Repeating sentences</td>
<td>80.9</td>
</tr>
<tr>
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<td>63.5</td>
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<tr>
<td>Uncooperativeness</td>
<td>53.1</td>
</tr>
<tr>
<td>Pacing</td>
<td>49.0</td>
</tr>
<tr>
<td>Complaining</td>
<td>48.1</td>
</tr>
</tbody>
</table>
Identifying Research Initiatives

- Resveratrol found in red wine slowed clinical change in patients.
- Clinical trial in Alzheimer disease
- Funded by Alzheimer Association
- Will provide a model for national trial

What can I do

- Take care of your health
- Keep yourself informed
- Support Research
  - Participate
  - Help someone else participate
  - Encourage funding

Not all studies for all participants

- Inclusion criteria needed to
  - Insure safety
  - Limitations by age co-morbidities other medications
  - Insure the ability to measure efficacy
  - Hearing or visual difficulties make it difficult to determine if the drug is working

Risk Benefit Ratio

- Determined both study wise and subject wise
- If the study does not give a useful answer the benefit of the study is low
- If subjects are exposed to unnecessary harm (side effect, inconvenience etc) the risk is
How to Choose

- Select a study of interest
- Work with people you trust
- Be honest about how much you can participate
- Ask questions

Remember you can always change your mind

Alzheimer Disease Centers

- NIA centers for clinical and basic science research in AD and other dementias
- Clinical evaluation, research and education for patients and families
  - Clinical and neuropsychological evaluation
  - Brain donation program**
  - National centralized data base
- Information resource for professionals

Information on AD Research

- Alzheimer’s Association: NYC Chapter
  - 212-983-0700
  - [www.alzheimernyc.org](http://www.alzheimernyc.org)
- Alzheimer Disease Education and Referral Center
  - 800-438-4380
  - [www.alzheimers.org](http://www.alzheimers.org)

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Some Say “It Takes a Village”

Really “It Takes a Great Team”