Health Literacy: An Overlooked Factor in Understanding Health Disparities

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Overview

- Background
  - Functional Literacy vs. Health Literacy
  - Health Literacy
    - What does it predict?
    - Who is at risk?

- Literacy, Disparities, & HIV Medication Adherence
  - Study Results

- Recommendations to address health literacy
“The ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one’s goals, and develop one’s knowledge and potential.”

~ The National Literacy Act of 1991
Health Literacy

“The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

~ Healthy People 2010
Limited health literacy is associated with…

- Use of preventive services (Scott et al., 2002)

- Delayed diagnoses (Wolf et al., 2006; Bennett et al., 1998)

- Understanding of medical condition (Wolf et al., 2004, 2005)

- Adherence to medical instructions (Kalichman et al., 1999, 2001; Wolf et al., 2004, 2006)

- Self-management skills (Williams et al., 1999; Schillinger et al., 2002)

- Risk of Hospitalization (Baker et al., 2002)

- Physical and Mental Health (Wolf et al., 2005)

- Mortality Risk (Sudore et al., 2006; Wolf et al., 2006)
Literacy & Healthcare Costs

Annual Healthcare Costs of Medicaid Enrollees (Weiss & Palmer, 2004)

- <3rd grade reading: $10,688
- >4th grade: $2,891
Prevalence of the Problem: U.S.

*National Assessment of Adult Literacy (2003)*

93 million U.S. adults (43%) have **limited** literacy skills
Health Literacy & Race

- Limited health literacy is associated with:
  - Race
  - Poor health outcomes

- Racial health disparities have been noted in the HIV literature.
African Americans experience a faster progression to AIDS and shorter survival rate. (McGinnis et al., 2003)

Racial differences in medication usage (Palacio et al., 2002)

- access to medication (Kahn et al., 2002)
- adherence practices (Siegal et al., 2000)
Limited health literacy is associated with:

- less general knowledge of HIV and its treatment (Kalichman et al., 1999, 2000)
- a decreased likelihood of having an undetectable viral load (Kalichman et al., 1999, 2000)
- non-adherence to HIV medications (Wolf, Davis, Osborn, et al., 2007)
The unanswered question...

- If health literacy and race are independently associated with HIV medication adherence…
  (Gazmararian et al., 2006)

- “Does health literacy promulgate racial differences on this outcome?”
Reducing Disparities

- Limited health literacy may contribute to racial health disparities.
  - PSA level (Wolf et al., 2006)
  - Health status (Howard et al., 2006)
  - Work impairing condition (Sentell & Halpin, 2006)
To examine whether health literacy mediates the race-adherence relationship.
Sample

- 204 patients from Northwestern Memorial Hospital & LSUHSC

- Inclusion
  - prescribed ≥ 1 medications
  - on regimen for > 2 weeks

- Excluded patients:
  - with dementia
  - severely impaired vision
  - hearing problems
  - too ill
Procedure

- Clinic staff referred eligible patients.
- Research assistants interviewed patients before their scheduled appointment.
- Medical chart abstraction
Measures

- Demographics
  - Race
  - Gender
  - Age
  - Education
  - Employment
  - Income

- Medication Adherence: PMAQ  (DeMasi et al., 2001)

- Health Literacy: REALM  (Davis et al., 1993)
Data Analysis

- Multivariate regression models (Baron & Kenny, 1986)
  - Literacy and adherence (Wolf, Davis, Osborn et al., 2007)

- Model 1
  - Race and adherence

- Model 2
  - Added health literacy to Model 1
<table>
<thead>
<tr>
<th>SOCIODEMOGRAPHICS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>45</td>
</tr>
<tr>
<td>Male</td>
<td>80</td>
</tr>
<tr>
<td>≥ 50 yrs</td>
<td>13</td>
</tr>
<tr>
<td>&gt; high school</td>
<td>62</td>
</tr>
<tr>
<td>Employed full-time</td>
<td>56</td>
</tr>
<tr>
<td>Literacy Level</td>
<td></td>
</tr>
<tr>
<td>≤ 6th grade (Low)</td>
<td>11</td>
</tr>
<tr>
<td>7th – 8th grade (Marginal)</td>
<td>20</td>
</tr>
<tr>
<td>≥ 9th grade (Adequate)</td>
<td>69</td>
</tr>
<tr>
<td>Annual Income</td>
<td></td>
</tr>
<tr>
<td>≥ $18,000</td>
<td>40</td>
</tr>
<tr>
<td>$12,000 - $17,999</td>
<td>23</td>
</tr>
<tr>
<td>$10,000 - $11,999</td>
<td>10</td>
</tr>
<tr>
<td>&lt; $10,000</td>
<td>27</td>
</tr>
<tr>
<td>CLINICAL</td>
<td>%</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td># HIV medications</td>
<td></td>
</tr>
<tr>
<td>1 - 2 medicines</td>
<td>30</td>
</tr>
<tr>
<td>≥ 3 medicines</td>
<td>70</td>
</tr>
<tr>
<td>≥ 1 non-HIV co-morbid conditions</td>
<td>53</td>
</tr>
<tr>
<td>Mental illness &lt; 6 months</td>
<td>30</td>
</tr>
<tr>
<td>Drug or alcohol abuse &lt; 6 months</td>
<td>9</td>
</tr>
</tbody>
</table>
Results

- African Americans were:
  - *more likely* to possess limited health literacy skills (52% vs. 14%)
  - *less likely* to self-report adherence to their regimen in the past 4 days (60% vs. 77%)

- Patients with limited health literacy had the highest rate of non-adherence (52%).
## Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AOR</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>1.00</td>
</tr>
<tr>
<td>Black</td>
<td>2.40</td>
</tr>
<tr>
<td>Literacy Level</td>
<td></td>
</tr>
<tr>
<td>7th – 8th grade (Marginal)</td>
<td>1.55</td>
</tr>
<tr>
<td>≤ 6th grade (Low)</td>
<td>2.12</td>
</tr>
</tbody>
</table>
African Americans had a two-fold greater likelihood of being non-adherent.

Health literacy reduced the explanatory power of race by 25%.

In the final model, health literacy predicted adherence. **Race did not.**
Study Strengths

- First study to assess the impact of health literacy in explaining racial differences in HIV medication adherence
- Sampled from urban and rural settings
Limitations

- Self-report adherence
  - Evidence that they can be viable/accurate measures (Simoni et al., 2006)

- Age of data
  - Adherence is still a challenge (Gallant et al., 2006)
Unlike race/ethnicity, limited health literacy is potentially modifiable.

What are the implications for health promotion interventions?
Is the information appropriate for patients?

- Develop health materials/messages that are **culturally sensitive** and appropriate for **lower literate patients**. (Kalichman et al., 2005)
  - Consider:
    - Economic context
    - Access to services
    - Life experiences
- Individually tailor content.
Evaluate patients' understanding before, during, and after introducing information and services.

- Conduct elicitation research.
- Pretest messages for feedback.
- Refine content.
- Assess information efficacy.
Acknowledge and respect cultural differences.

- Attitudes and values interrelated with culture:
  - Gender roles
  - Value of traditional versus Western medicine
  - Favorite and forbidden foods
  - Manner of dress
  - Body language

Ensure relevance to the social and cultural contexts.
Is the information easy to use?

- Limit the number of messages.
- Use plain language.
- Focus on action.
- Supplement instructions with pictures.
- Simplify format and organization.
Check for understanding.

- Use “Teach Back” or “Show Me”

- “I want to be sure I didn't leave anything out that I should have told you. Would you tell me what you are to do so that I can be sure you know what is important?”
Do NOT Assume Understanding

“Take Two Tablets by Mouth Twice Daily”

Wolf et al., Annals of Internal Medicine, 2006
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Thank You! Questions?

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Use Health Literacy Screening Items for Adults

3 items have effectively identified limited health literacy:

1. “How often do you have someone help you read hospital materials?”

2. “How confident are you filling out medical forms by yourself?”

3. How often do you have problems learning about your medical condition because of difficulty understanding written information?”