

Use of REALM-R vs. S-TOFHLA in an Urban African American clinic population to assess health literacy: Practical implications

Sarah Bauerle Bass, PhD, MPH* Caitlin Wolak, MPH* Gabriella Mora Rovito, MPH(c)* Thomas F. Gordon, PhD* Lawrence Ward, MD, MPH†

*Temple University Department of Public Health, Philadelphia, PA; †Temple University Department of General Internal Medicine, Department of Medicine

Background

Health literacy, or the ability to understand or act on health information, is a pressing issue in health care. Low literacy has been linked to poor health outcomes in minority communities. The 2003 National Assessment of Adult Literacy showed that 14% of US adults have below basic health literacy, 22% have only basic health literacy, 53% score in the intermediate range and only 12% are proficient. Rudd [6] indicates that the risk factors for lower literacy and health literacy include not finishing high school, age > 65 and birth outside the US. Individuals with limited health literacy proficiencies are also more likely to live in poverty. Subsequently, measures of health literacy have become widely used in public health research.

Methods

Goal & Measurement Tools

The Rapid Estimate of Adult Literacy in Medicine (REALM-R) (N=15) and the Short Test of Functional Literacy in Adults (S-TOFHLA) (N=15) assess general literacy levels of patients. The overall goal of the pilot study was to determine which health literacy tool (the REALM-R or the S-TOFHLA) was easiest and most efficient to administer to General Internal Medicine Clinic patients, as well as which tool provides superior results for assessing health literacy.

The REALM-R, the mostly commonly used health literacy tool, takes less than 5 minutes to administer and score. The REALM-R is a word-recognition test comprised of 11 medical terms, arranged in order of complexity by the number of syllables and pronunciation difficulty, starting with simple one-syllable words (e.g., pill) and ending with multi-syllable words (e.g., osteoporosis). Of these 11 words, 8 are scored. Patients read down the list, pronouncing aloud as many words as they can while the examiner scores the number of words pronounced correctly using standard dictionary pronunciation as the scoring standard. Scores on the REALM-R vary from 0 (no words pronounced) to 11 (all words pronounced). A score of 6 or less is considered low health literacy.

The S-TOFHLA takes approximately 10 minutes to administer and score. The S-TOFHLA is a timed reading comprehension test that uses the modified Cloze procedure, in which every 5th to 7th word in a passage is omitted and replaced with a blank space. The patient must select a word to fit into the blank spaces from the 4 multiple-choice options provided for each space. The S-TOFHLA is scored on a scale of 0 to 36. Patients are categorized as having adequate health literacy if the S-TOFHLA score is 23–36, marginal health literacy if it is 17–22, and inadequate health literacy if the score is 0–16.

Data Collection

The pilot was conducted during the months of September and October of 2009 with 30 patients, ages 18 and over, at the General Internal Medicine clinic at Temple University Hospital. The clinic primarily serves low income African Americans who have Medicare or Medicaid insurance, the majority of whom have low health literacy.

Research assistants used scheduling records to determine eligibility. A convenience sample of volunteers was obtained. Patients who refused typically cited that they could not stay after their visit because they did not have time, had to leave immediately to go to work or to another doctor's appointment, or were accompanied by a caretaker. Other patients declined because they were not interested or were focused solely on their health issues during the visit.

Two research assistants recruited patients and obtained informed consent prior to administering the health literacy instrument, the REALM-R or the S-TOFHLA, and socio-demographic questions. The directions were read aloud by the research assistants to the patients who were asked to either pronounce a set of words or fill in the word that best fit each sentence. The data were collected prior to or after patients had been seen by the resident physicians. Administration of all research consent forms and instruments took from 5-10 minutes. Of the 30 patients, 15 were administered the REALM-R and 15 were administered the S-TOFHLA. Research assistants kept track of how much time each test took and scored the tests using the standard scoring rubrics. Each subject received a \$10 gift card and two SEPTA transit tokens as compensation.

The Temple University Institutional Review Board (IRB) approved use of both instruments, the patient recruitment plan and procedures for maintaining anonymity.

Methods

Results

Demographic Results

Statistics indicate that the two groups were similar. The majority of both groups (REALM-R & S-TOFHLA) were African American and had either not graduated from high school (~40%) or had a high school diploma (~53.4%); thus, over 90% of the samples had no higher education. The groups differed in 2 ways: 1) participants in the REALM-R group were equally divided between male (N=7; 46.7%) and female (N=8; 53.3%), while those in the S-TOFHLA group had more females (N=10; 66.7%) than males (N=5; 33.3%); and 2) participants in the S-TOFHLA group were slightly older, with 80% of the sample being between the ages of 51 & 70, compared to 40% of the sample taking the REALM-R. The overall average age of the sample was 53, with a range from 21-72. These differences are a limitation of the data, but are not believed to have significantly affected the data.

Health Literacy Testing Results

Results indicate very low health literacy in the clinic population, despite half of the population reporting high school graduation. Those taking the REALM-R were able to pronounce an average of 5 out of the 8 scored words with 93% falling in the "low" or "very low" literacy categories. The lowest score was a zero and the highest was an 8/8. Of those taking the S-TOFHLA, the average score was a 17.9 out of 36 points, with 86.7% falling in the "inadequate" or "marginal" literacy categories. The lowest score in the sample was a 10 out of 36 and the highest was a 33.

Discussion

Of the two measures, the REALM-R took less time (3-4 minutes vs. 12-15 for the S-TOFHLA) and patients felt less threatened or confused by what was expected of them. The S-TOFHLA results showed slightly more variation by health literacy category and identified a few individuals who would be considered to have adequate literacy compared to the REALM-R. However, the patients' negativity towards the S-TOFHLA and the amount of time it took most patients to take it indicate the REALM-R is a more practical health literacy assessment to use with this population.

We found that using the S-TOFHLA would alienate our patients by making them feel marginalized. When working with a low-literacy population, all study protocols, interventions and materials should be accessible and appropriate. Our findings indicate that the use of the S-TOFHLA would be counter-productive to accomplishing this goal. Thus, we recommend use of the REALM-R in future studies.

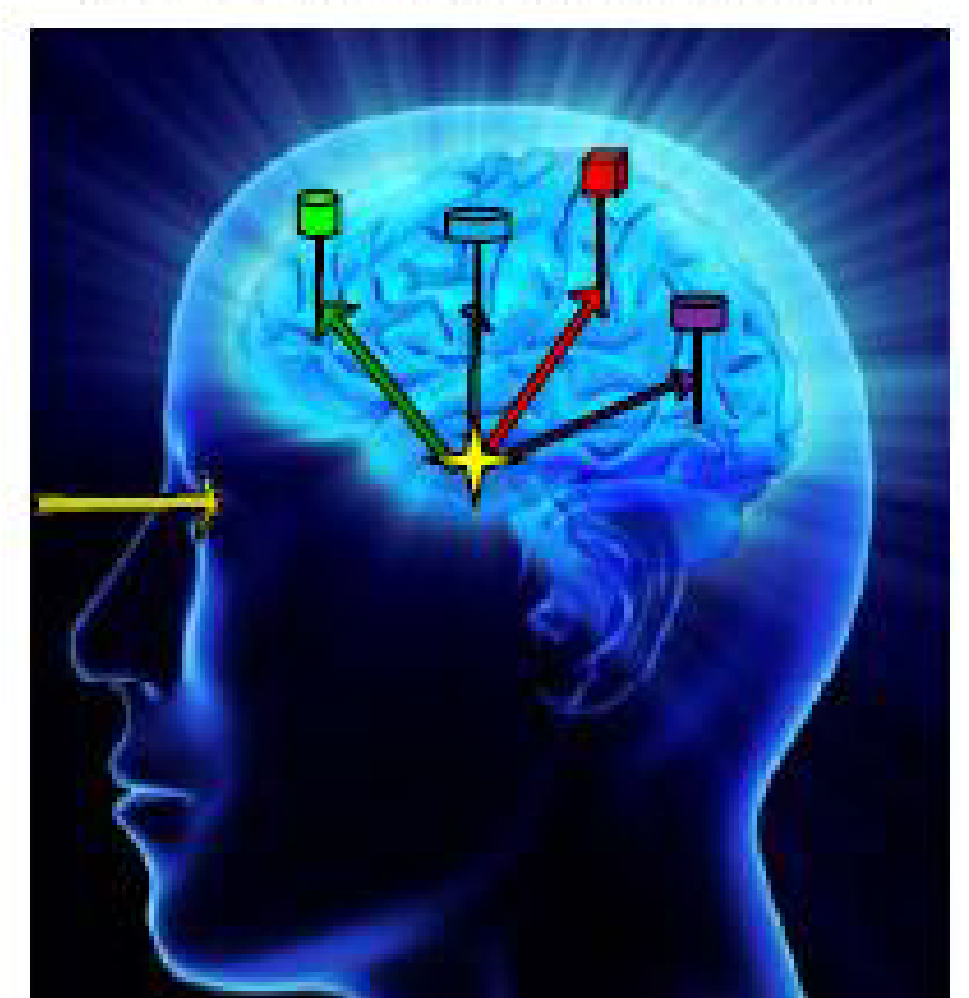
REALM-R Word List

Fat
Flu
Pill
Allergic
Jaundice
Anemia
Fatigue
Directed
Colitis
Constipation
Osteoporosis

Example S-TOFHLA Questions

1. The doctor has sent you to have a _____ X-ray.
a) stomach
b) diabetes
c) stitches
d) germs
2. The X-ray will _____ from 1-3...
a) take
b) view
c) talk
d) look
_____ to do.
a) beds
b) brains
c) hours
d) diets

Risk - Communication - Lab



Temple University • Public Health