

HOW DO WE MEASURE HEALTH LITERACY?

Jolie Haun, PhD EdS

jolie.haun@va.gov

James A. Haley VA Medical Center
HSR&D/RR&D Center of Excellence

WHAT SKILLS SHOULD BE INCLUDED WHEN ASSESSING 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**”*

- Critical Components:

- Communication (e.g. pronunciation, verbalization)
- Comprehension (e.g. prose/reading, problem solving)
- Quantitative/Numeracy
- Navigation
- Health information seeking
- Function
- Decision making/critical thinking
- Need for assistance
- *Confidence (self-efficacy)*
- *Motivation?*
- *Cognitive skills?*



What are the important factors when measuring health literacy?

MULTIPLE GENERAL HEALTH LITERACY MEASURES AVAILABLE

- Rapid Estimate of Adult Literacy in Medicine - (REALM-SF; REALM-VS; REALD-99; REALM-Teen; REAL-G; HKREALD-30)
- Test of Functional Health Literacy in Adults - (STOFHLA; TOFHLiD; version; Spanish version)
- Single Items, BRIEF ,SILS
- Short Assessment of Health Literacy for Spanish-speaking Adults (SAHLSA-50)
- Newest Vital Sign (NVS)
- Medical Term Recognition Test (METER)
- Functional Health Literacy Tests (FHLTs)
- Health Literacy Skills Instrument (HLSI)
- Health Literacy Assessment Using Talking Touchscreen Technology (Health LiTT)



CONDITION & POPULATION SPECIFIC HEALTH LITERACY MEASURES





























- Literacy Assessment for Diabetes (LAD) ; Diabetes Numeracy Test ((DNT-15)
- Asthma Numeracy Questionnaire (ANQ)
- Health Literacy Skills Instrument the Numeracy Understanding in Medicine Instrument (NUMi)
- HBP-health literacy scale (HBP-HLS)
- Spanish Parental Health Literacy Activities Test (PHLAT Spanish; PHLAT-8)
- Hebrew Health Literacy Test (HHLT)
- Korean Health Literacy Scale (KHLS); Health Literacy Test for Singapore (HLTS)
- Literacy Measure for patients with HIV
- The Food Label Literacy for Applied Nutrition Knowledge questionnaire (FLLANK)

COMPARING GENERAL HEALTH LITERACY MEASURES

| | REALM | TOFHLA STOFHLA | BRIEF (SILS) | SAHLSA | NVS | METER | FHLTs | HLSI | Health LiTT |
|---|---|---|---|---|---|---|---|---|---|
| Constructs Measured | Word recognition and pronunciation of medical terms | Reading comprehension & numeracy skills | Reading & verbal comprehension, need for assistance, and confidence | Word recognition of medical terms | Reading and comprehension of a nutrition label | Word recognition of medical terms | Reading comprehension | Prose, document, quantitative, oral, and Internet-based information seeking skills | Prose, document, quantitative |
| Year Published | 1991/1993 | 1995/1999 | 2004/2006/2008/2009 | 2006/2010 | 2007 | 2009 | 2009 | 2010/2012 | 2011 |
| Administration time (minutes) | 3-7 long 1 short | 22 long 7 short | 1-2 | 3-6 long 2-3 short | 3-4 | 2-3 | Median 3 | >10 long 5-10 short | 18 |
| Number of Items | 7/66 items | 17/50 items or 4/36 items | 4 items | 50 items or 18 items | 6 items | 70 items | 21 items | 25 items or 10 items | 30 items |
| Performance-Based |  |  | |  |  |  |  |  |  |
| Self Administered | | |  | | |  | |  |  |
| Available in Spanish | |  | Not yet Validated |  |  | | | |  |
| Long distance administration (e.g. phone, mail, computer) | | |  | | |  | |  | With Touch Screen Access |

How do existing measures compare with one another in terms of important factors?

COMPARING GENERAL HEALTH LITERACY MEASURES

| | REALM | TOFHLA STOFHLA | BRIEF (SILS) | SAHLSA | NVS | METER | FHLTs | HLSI | Health LiTT |
|--|---|---|---|---|---|---|---|---|---|
| Communication (pronunciation, verbalization) |  | | |  | |  | | | |
| Comprehension (prose/reading, problem solving) | |  |  | |  | |  |  |  |
| Numeracy/ Quantitative | |  | | |  | | |  |  |
| Health information seeking | | | | | | | |  | |
| Function | | |  | |  | |  |  |  |
| Decision making/critical thinking | |  | | |  | | |  |  |
| Confidence (self- efficacy) | | |  | | | | | | |
| Need for assistance | | |  | | | | | | |
| Navigation | | | | | | | |  | |

Do some measures assess a particular skill better than others?

What should future health literacy measures capture that current measures do not?

KEY DIFFERENCES BETWEEN HEALTH LITERACY MEASURES

- Instruments vary from screening items, to performance based measures
- Tools vary in their approach to operationalizing the concept into a measurable construct
- Administration styles vary
- Time and resources needed vary
- Scoring, ranges, and levels vary



How do we reach a consensus on the best way to operationalize health literacy?

MEASURE VARIATION IN PREVIOUS RESEARCH

- Currently limited published research demonstrating measurement variation
- Griffin et al, 2010
 - Estimates of poor health literacy varied by the assessment used, especially after adjusting for non-response bias
 - STOFHLA categorized 8% with inadequate and 7% with marginal skills; whereas with REALM, 4% were categorized with 6th grade skills (i.e. inadequate) and 17% with 7–8th grade skills (i.e. marginal)
 - Adjusting for non-response bias increased S-TOFHLA prevalence estimates to 9.3% as inadequate and 11.8% as marginal; and the REALM estimates to 5.4% as $\leq 6^{\text{th}}$ grade skills (i.e. inadequate) and 33.8% as 7–8th grade skills (i.e. marginal)

MEASURE VARIATION IN PREVIOUS RESEARCH CONTD.



Haun et al, 2012,

- Correlation among instruments was positive, with strongest association was between the STOFHLA and the REALM
- Categories of health literacy and associated factors (e.g., gender, race) varied depending on the instrument used to assess health literacy
- REALM and BRIEF categorized the mean scores as marginal health literacy; whereas mean scores were categorized as adequate on the STOFHLA
- Instruments concurred most often when categorizing respondents with adequate health literacy skills

AN EXAMPLE OF VARIATION AMONG DIVERSE POPULATIONS



Haun et al, 2012,

- Associated factors varied depending on the instrument used to assess health literacy....
- Minority status was associated with low health literacy on the REALM and STOFHLA, but not the BRIEF.
- Education was associated with low health literacy on the REALM and BRIEF, but not the STOFHLA.
- Age was associated with low health literacy on the STOFHLA and BRIEF, but not on the REALM.
- *Though gender was not a significantly associated factor in this study, other research has indicated differences by gender.*

HARC 2012 Presentations have also provided examples of Measurement Variation.

MEASURE VARIATION LEAVES THE QUESTION, IS THERE A “BEST” OPTION?

- Until measures, constructs, and associated outcomes are definitively understood, researchers, clinicians, public health practitioners and administrators need to exercise options:
 - Align measures with context:
 - resources, administration style, population, disease, etc.
 - Use multiple measures

