



Exploring Population Health Literacy: The Gold Standard Measures

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Health Literacy

The term “health literacy” itself has come to mean different things to various audiences and has become a source of confusion and debate (Baker, 2006).

Health Literacy

- Health literacy the health literature for at least 30 years (Nutbeam, 2000)
- First used, in 1974, in a discussion of health education as a policy issue affecting the health system (Simonds, 1974)

What is health literacy?

Health literacy is a widely used term that encompasses a range of ideas and definitions

Definition of health literacy

- Institute of Medicine 2004: The individual's capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions.
- Yost et al. 2009: Health literacy is the degree to which individuals have the capacity to read and comprehend health-related print material, identify and interpret information presented in graphical format (charts, graphs, tables), and perform arithmetic operations in order to make appropriate health and care decisions.

Definition of health literacy

- WHO 1998: The cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health.
- **Kicbusch et al. 2005:** The ability to make sound health decision(s) in the context of everyday life – at home, in the community, at the workplace, the healthcare system, the market place and the political arena.

ability
information
health
understand
skills
make
use
system
evaluate
decisions
needed
interpret
literacy
access
capacity
maintain
individuals
process
life
health-related
obtain
care
communicate
promote
basic

Why health literacy?

New international studies (America, Australia, Europe, Taiwan, Thailand) shows that the Public Health and Health Promotion **still do not meet the** needs of those with low literacy.

- HL was accepted as a priority at *International Union for Health Promotion and Health Education* (IUHPE)

(Osborne, 2010)

The association between Health Literacy and Health Outcomes

- Inadequate knowledge about health & healthcare system
- Increased hospitalisation
- Higher health care costs
- Poor access and utilisation of health services
- People with lower health literacy ~ 1.5 to 3 times more likely to experience poor health event

How to measure health literacy?

- The different definitions of HL imply different sets of abilities make up HL and so different measurement tools likewise do the same (Chisolm & Buchanan, 2007)' meaning at present, there is no 'gold standard' for HL measurement (Parker, 2000).

The Approach & Existing Measures

Clinical approach: Mostly American

Population approach: Australia, Canada and Switzerland

Test of Functional Health Literacy in Adults (TOFHLA)

- Developed using actual hospital materials.
- Two-part test : The first part provides participants with medical information or instructions about various scenarios. Participants review the scenarios and then answer questions that test their understanding of the information in the scenarios.

Test of Functional Health Literacy in Adults (TOFHLA)

Description	<ul style="list-style-type: none"> • Instruments developed to assess literacy skills using health-context materials. • Test of Functional Health Literacy in Adults (TOFHLA), instrument most often used for literacy assessment in health care research. The length of time required for administration of the TOFHLA (18 to 22 minutes for the full version and 7 to 10 minutes for a short version).
Measurement	<p>Inadequate health literacy: 0-53 Marginal health literacy: 54-66</p> <p>Adequate health literacy: 67-100</p>
Strengths	<ul style="list-style-type: none"> • Valid and reliable indicator of patient ability to read health-related materials. • Tested on a variety of populations (young, elderly) • Shorter administration time for S-TOFHLA
Limitations	<p>Measuring only selective domains that are thought to be markers of an individual's overall capacity (Baker 2006)</p>

Parker RM, Baker DW, Williams MV et al. The Test of Functional Health Literacy in Adults (TOHFLA): a new instrument for measuring patients' literacy skills. *J Gen Intern Med* 1995;10:537-42.

Prescription Label:

If you were going to eat lunch at noon, what time should you take the medicine before lunch?

GARFIELD IM

16 Apr 93

FF941862 Dr. LUBIN, MICHAEL

DOXYCYCLINE

100 MG

20/0

Take medication on empty stomach one hour before or two to three hours after a meal unless otherwise directed by your doctor.

02 11

(0 of 20)

Appointment Slip (Document):

When is your next appointment? Where?

CLINIC APPOINTMENT

CLINIC:

Diabetic

LOCATION: 3rd floor

a.m.

DAY:

Thurs.

DATE: April 2nd

HOUR: 10:20

p.m.

Issued by

YOU MUST BRING YOUR PLASTIC CARD WITH YOU

Quantitative Skills (Numeracy):

Is your blood sugar normal today?

Normal blood sugar is 60 - 150.

Your blood sugar today is 160.

PASSAGE B

I agree to give correct information to _____ if I can receive Medicaid.

- a. hair
- b. salt
- c. see
- d. ache

I _____ to provide the county information to _____ any

- a. agree
 - b. probe
 - c. send
 - d. gain
- a. hide
 - b. risk
 - c. discharge
 - d. prove

statements given in this _____ and hereby give permission to

- a. emphysema
- b. application
- c. gallbladder
- d. relationship

the _____ to get such proof. I _____ that for

- a. inflammation
 - b. religion
 - c. iron
 - d. county
- a. investigate
 - b. entertain
 - c. understand
 - d. establish

Medicaid I must report any _____ in my circumstances

- a. changes
- b. hormones
- c. antacids
- d. charges

Reading Comprehension:
Medicaid Rights and
Responsibilities

Rapid Estimate of Adult Literacy in Medicine (REALM)

Description	<p>The REALM is a 66-item word recognition and pronunciation test that measures the domain of vocabulary.</p> <p>Average administration time: 3-6 min.</p>
Measurement	<ul style="list-style-type: none">• <u>Low health literacy</u> (At or below 3rd-grade reading level): 0 to 18 (4th to 6th-grade reading level): 19 to 44• <u>Marginal health literacy</u> (7th to 8th-grade reading level): 45 to 60• <u>Adequate health literacy</u> (9th-grade reading level): 61-66
Strengths	<ul style="list-style-type: none">• Word-recognition tests are useful for predicting general reading ability in English.• Extensively used in research settings.
Limitations	<ul style="list-style-type: none">• Not designed to measure comprehension skills.• Most useful in a research context.

REALM

Scored REALM

RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE (REALM)[®]

Terry Davis, PhD • Michael Crouch, MD • Sandy Long, PhD

Patient Name/
Subject # 4-0005 Date of Birth 7/2/40(51) Reading Level (4-6th)
Date 7/15/91 Clinic med Examiner Roberts Grade Completed 11th

List 1		List 2		List 3	
fat	<u>+</u>	fatigue	<u>✓</u>	allergic	<u>✓</u>
flu	<u>+</u>	pelvic	<u>+</u>	menstrual	<u>✓</u>
pill	<u>+</u>	jaundice	<u>✓</u>	testicle	<u>✓</u>
dose	<u>+</u>	infection	<u>✓</u>	colitis	<u>✓</u>
eye	<u>+</u>	exercise	<u>+</u>	emergency	<u>+</u>
stress	<u>+</u>	behavior	<u>+</u>	medication	<u>+</u>
smear	<u>+</u>	prescription	<u>+</u>	occupation	<u>+</u>
nerves	<u>✓</u>	notify	<u>+</u>	sexually	<u>+</u>

Grade Range Estimates

Raw Score*	Grade Range Estimates
0-18	Third Grade and Below May not be able to read most low-literacy materials May need repeated oral instructions, materials composed primarily of illustrations, or audio- or video-tapes
19-44	Fourth to Sixth Grade May need low-literacy materials; may not be able to read prescription labels
45-60	Seventh to Eighth Grade May struggle with most currently available patient education materials
61-66	Ninth Grade and Above Should be able to read most patient education materials

* Number of correct responses out of a possible 66

Davis TC, Long SW, Jackson RH, Mayeaux EJ, George RB, Murphy PW, and Crouch MA. Rapid Estimate of Adult Literacy in Medicine: A Shortened Screening Instrument. *Clinical Research and Methods*. 1993, 25(6):391-395.

Newest Vital Sign (NVS)

Description	<p>This 6-item assessment measures reading and comprehension of a nutrition label.</p> <p>Average administration time: 3 min</p> <p>Maximum administration time: 6 min</p>
Measurement	<p>Patients with low literacy: 0-4 questions answered correctly</p> <p>Patients unlikely to have low literacy: 5-6 questions answered correctly</p>
Strengths	<ul style="list-style-type: none">•Tests for numeracy , reading ability and interpretation skills.•May be more sensitive to patients with marginal health literacy than other functional health literacy assessments
Limitations	<ul style="list-style-type: none">•May overestimate the percent of patients with low literacy, due to its specificity•Does not differentiate between adequate and marginal literacy well

Weiss BD, Mays MZ, Martz W, Castro KM, DeWalt DA, Pignone MP, Mockbee J, and Hale FA. Quick Assessment of Literacy in Primary Care: The Newest Vital Sign. *Annals of Family Medicine*. 2005, 3:514-522.

Newest Vital Sign

Figure 1A. The newest vital sign — English.

Nutrition Facts	
Serving Size	1/2 cup
Servings per container	4
Amount per serving	
Calories 250	Fat Cal 120
	%DV
Total Fat 13g	20%
Sat Fat 9g	40%
Cholesterol 28mg	12%
Sodium 55mg	2%
Total Carbohydrate 30g	12%
Dietary Fiber 2g	
Sugars 23g	
Protein 4g	8%

* Percent Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Ingredients: Cream, Skim Milk, Liquid Sugar, Water, Egg Yolks, Brown Sugar, Milkfat, Peanut Oil, Sugar, Butter, Salt, Carrageenan, Vanilla Extract.

Note: This single scenario is the final English version of the newest vital sign. The type size should be 14-point (as shown above) or larger. Patients are presented with the above scenario and asked the questions shown in Figure 1b.

ANSWER
CORRECT?

YES NO

READ TO SUBJECT: This information is on the back of a container of a pint of ice cream.

QUESTIONS

1. If you eat the entire container, how many calories will you eat?

Answer 1,000 is the only correct answer

2. If you are allowed to eat 60 g of carbohydrates as a snack, how much ice cream could you have?

Answer Any of the following is correct:

1 cup (or any amount up to 1 cup)

Half the container

Note: If patient answers "2 servings," ask "How much ice cream would that be if you were to measure it into a bowl?"

3. Your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, which includes 1 serving of ice cream. If you stop eating ice cream, how many grams of saturated fat would you be consuming each day?

Answer 33 is the only correct answer

4. If you usually eat 2500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?

Answer 10% is the only correct answer

Pretend that you are allergic to the following substances:

Penicillin, peanuts, latex gloves, and bee stings.

5. Is it safe for you to eat this ice cream?

Answer No

6. (Ask only if the patient responds "no" to question 5): Why not?

Answer Because it has peanut oil.

Total Correct

Health and Adult Literacy Survey (HALS)

The first analysis of population-based health literacy skills among adults was undertaken by Rudd, Kirsch, and Yamamoto (2004).

Subsequently undertaken in:

Canada, Italy, Mexico, Norway and Switzerland (2003)

Hungary, Netherlands, New Zealand and South Korea and Australia (2006).

Health and Adult Literacy Survey (HALS)

Description	191 health-related items across these four domains in five health-related activities: health promotion (60 items), health protection (64 items), disease prevention (18 items), health care maintenance (16 items), and systems navigation (32 items)
Measurement	The HALS includes prose, quantitative, and document items in 5 health-related areas: health promotion, health protection, disease prevention, health care and maintenance, and systems navigation
Strengths	<ul style="list-style-type: none">• Understanding health-related reading capacities at the population level• Explore different kind of abilities in a different domains
Limitations	<ul style="list-style-type: none">• The length of the HALS will prohibit its use in most research studies• Takes approximately 1 hour to complete

HALS five health-related activities

- 1. Health promotion:** the ability to enhance and maintain health (e.g. plan an exercise regime or purchase health foods) by locating and using health-related articles in magazines and brochures, or information contained on charts of food or product-safety labels.
- 2. Health protection:** the ability to safeguard individual or community health (e.g. the ability to select from a range of options) by reading newspaper articles, information about health and safety, or air and water quality reports, or participating in referenda.

- 3. Disease prevention:** the ability to take preventive measures and engage in early detection (e.g. determine risks, seek screening or diagnostic tests and follow up on courses of treatment) by understanding health alerts on TV or in newspapers or understanding letters about test results.
- 4. Health care maintenance:** the ability to seek and form a partnership with health care providers, including providing health history forms or following directions on medicine labels, or being able to understand and discuss the merits of alternative forms of treatment with a health professional.

5. Systems navigation: the ability to understand and to access needed health services by completing application forms, reading maps to locate appropriate facilities or understanding health benefits packages.

Kutner M, Greenberg E, Jin Y, Paulsen C. The Health Literacy of America's Adults: Results from the 2003 National Assessment of Adult Literacy (NCES 2007 - 483). Washington DC: U.S. Department of Education, National Center for Education Statistics, 2006.

Common Health Literacy Findings

Common findings in all HL using a different HL measurement tools are:

- Health literacy is strongly related to educational attainment
- The average HL scores of younger adults are significantly higher than those of older
- Race or ethnicity

Health Literacy Way Forward

- Future research needed to develop the assessments tool that enable to capture the broadness of skills and agents characteristic for health literacy as a complex phenomenon (Mårtensson & Hensing, 2011).
- We need a new framework for health literacy grounded in the experience of consumers and patients (Osborne, 2010)

A gap...

- With concerns about the psychometric properties and breadth of current health literacy tools we sought to develop a new scale (Osborne, 2010)

The Gold Standard for health literacy measure

- Assess individual ability to seek, understand and utilise health information within the healthcare setting
- Generic and potentially modifiable abilities and factors
- Target population
 - Adults
- Setting
 - Clinical or population

The Holistic Approach !

Latest approach in EU:

- Capturing health literacy in terms of healthcare, disease prevention and health promotion
- Capturing functional, interactive and critical health literacy
- Capturing health literacy in a broader population, not only in clinical settings

The HLS-EU 'all inclusive' working definition

Health literacy entails people's **capacities, skills,** knowledge, **motivation** and confidence to **access, understand, appraise** and **apply** health information in **written, spoken** or **digital** form to form judgments and take **decisions** in everyday life in terms of **healthcare, disease prevention** and **health promotion** to improve quality of life during the life course (Sørensen et al. 2010)

THANK YOU

QUESTIONS ????