Will Improving Health Literacy Reduce Health Disparities for Vulnerable Populations?

Dean Schillinger, MD  UCSF Professor of Medicine in Residence
Director, UCSF Center for Vulnerable Populations SF General Hospital
Chief, California Diabetes Program, CA Dept Public Health
Does health literacy explain health disparities by race and education?

What are hypothesized mechanisms by which better health literacy can improve health for vulnerable populations?

What evidence exists that health literacy interventions improve health for vulnerable populations?

Describe the need for a “vulnerable populations approach” to improving health literacy
Who is a Vulnerable Population?

1. Subgroup or subpopulation who, because of shared social characteristics, is at higher risk of risks

2. Exposed to contextual conditions that distinguish them from rest of population; source of vulnerability arises from ‘fundamental causes’

3. Distribution of risk exposure has a higher mean than the rest of the population; characterized by a clustering of risks that conspire to foster disease
Who is a Vulnerable Population?

1. In public health practice, groups most commonly considered vulnerable:
   - Certain race/ethnic minorities *
   - Low-income
   - High school graduate or less *
   - Immigrants/limited English proficiency
Does Health Literacy Explain Educational (SES) Disparities in Health Outcomes?

1. 6 + cross-sectional studies
   - 2668 NAAL adults >age 65. HL mediated relationship b/w edu and self-rated health; flu vaccine; mammograms; dental care (Bennet 2009 Ann Fam Med)
   - 3260 Prudential adults >age 65. HL mediated relationship b/w edu and physical and mental health, but not receipt of preventive care; flu vaccine; mammograms; dental care (Howard JGIM 2006)
   - 6100 NAAL parents. HL mediated relationship b/w edu and HL tasks re child health (Yin Pediatrics 2009).
   - 23,889 NALS participants. Literacy mediated relationship b/w edu and long-term illness, limiting health condition (Sentell JGIM 2006).
   - 14,102 diabetes patients at Kaiser. Literacy mediated relationship b/w edu and electronic patient portal use (Sarkar, in press J Health Comm 2010).
Does Health Literacy Explain Race/Ethnic Disparities in Health Outcomes?

1. 6 + cross-sectional studies of Black:White differences
   - 2668 NAAL adults >age 65. HL mediated relationship b/w race and self-rated health, flu vaccine, but not mammograms, dental care (Bennet 2009 Ann Fam Med)
   - 2850 Prudential adults >age 65. HL mediated relationship b/w race and mental health, but not physical health, receipt of preventive care (Howard JGIM 2006)
   - 23,889 NAL participants. Literacy mediated relationship b/w race and long-term illness, limiting health condition (Sentell JGIM 2006).
   - 373 parents. HL mediated relationship b/w race and misunderstanding liquid med dosing (Bailey Fam Med 2009).
   - 308 patients with prostate CA. HL mediated relationship b/w race and PSA level at time of presentation (Wolf Urology 2006).

2. 1 before/after trial:
   - 144 patients. HL mediated relationship between race and changes in advance care preferences [text vs. video] (Volandes, J Pall Med 2008)
Caution in Interpreting Mediation

1. Confounding
   Limited literacy  confounders  illness

2. Mis-measurement of HL

3. Mediation at community level
   Limited literacy  health mediators at neighborhood level  illness

4. Reverse Causation/cyclical
   Illness  limited literacy  worse health trajectory

5. Effect Modification at Health Care System Level
   Limited literacy  poor quality of care  illness and premature death/morbidity

Schillinger IOM 2004
Hypothesized mechanisms linking HL and health outcomes

1. Burden of illness, especially chronic disease
2. Occupational risk/exposures
3. Health awareness, early recognition of symptoms/need for care (Fang PEC 2009)
4. Accessing and navigating complex health (and social svc) systems
5. Diffusion and uptake of innovations/advances
6. Adhering to medications? Med administration accuracy and errors
7. Learning and performing self-management behaviors
8. Communicating in the clinical encounter (med reconciliation; giving a history; reporting symptoms and barriers; understanding explanations and results; asking questions)
9. Ethical processes: shared decision-making; articulating preferences; providing informed consent.
Do Health Literacy Interventions Reduce Disparities?

1. Most studies that evaluate HL interventions have
   - demonstrated improvements that disproportionately accrue to those with adequate HL or yield similar improvements across HL, or
   - do not report on effects on vulnerable sub-groups

1. Exceptions in which HL intervention disproportionately engaged vulnerable sub-groups (e.g. reduced disparities):
   - Rothman *JAMA* 2004: Diabetes Dz Mgmt benefits limited HL> adequate HL
   - DeWalt *BMC Health Svcs Res* 2006: CHF Program benefits limited HL> adequate HL
   - Paasche-Orlow *AM J Resp Crit Care Med* 2005; Teach-to-Goal approach in asthma benefits limited HL> adequate HL
The Socio-Ecologic Approach: Multi-Level Thinking re Context

1. Will better *individual* health literacy lead to “healthier choices” by vulnerable populations---in the face of food insecurity, food access problems, unsafe neighborhoods, etc…that are determined by social context?

1. Will attempts to affect individual health literacy be hampered by nature of health systems that care for vulnerable populations? Organization and workplace characteristics of clinics reflect the social capital of populations they serve. (Varkey, Separate and Unequal. *Arch Int Med* 2009)

1. Studies of HL and BP/DM control reveal differences by setting (HL predicts disease control in less resourced settings, but not in more resourced settings)
Will Improving Health Literacy – as a Public Health Approach – Reduce Health Disparities?

1. Depends on the approach taken
   - Lalonde’s “at-risk populations” (those with high risk behavior for specific conditions)
   - Rose’s “population approach” (focus on those with average risk exposure, e.g. entire population)
   - Frohlich’s “vulnerable populations approach” (focus on fundamental causes, life course trajectory, and concentration of risk).

2. Approaches that apply Lalonde’s and Rose’s population approach may be neutral or exacerbate disparities

3. Successful approaches will need to combine Rose’s Population and Frohlich’s Vulnerable Population approach (link improvements in population health with reductions in disparities)

4. This suggests that targets will need to be vulnerable populations and settings that care for them, neighborhoods they live in.

5. Multi-sectoral and participatory

Frohlich, AJPH 2008
Conclusions

1. Health literacy may be a mediator of disparities in health outcomes, but many questions remain.
2. More research is needed to explore this question that take a socio-ecological, multi-level and life course approach.
3. Health literacy interventions have potential to reduce disparities, but often do not.
4. If health literacy is to be a target to reduce health disparities, interventions will need to target vulnerable populations, and where they live and receive services.
Literacy and the Digital Divide in Diabetes*
N= 14,102

*For difference between those with and without limited health literacy, p for all<0.01

Sarkar, Karter, Schillinger J Health Comm 2010
Food for Thought: “Public Health Literacy”

1. *Degree to which individuals and groups can obtain, process, understand, evaluate, and act upon information needed to make public health decisions that benefit the community*

1. Target populations: The public

1. Purpose: Improve the health of the public

1. Aims: Engage more stakeholders in public health efforts; address determinants of health

1. Multidimensional: conceptual foundations; critical skills; civic orientation

D Freedman et al AJPM 2009