

Deaf Adolescents' Health Knowledge and Health Literacy: Preliminary Findings



Scott R. Smith, MD, MPH

Vincent J. Samar, PhD

University of Rochester School of Medicine and Dentistry

National Technical Institute for the Deaf & Rochester Institute of Technology

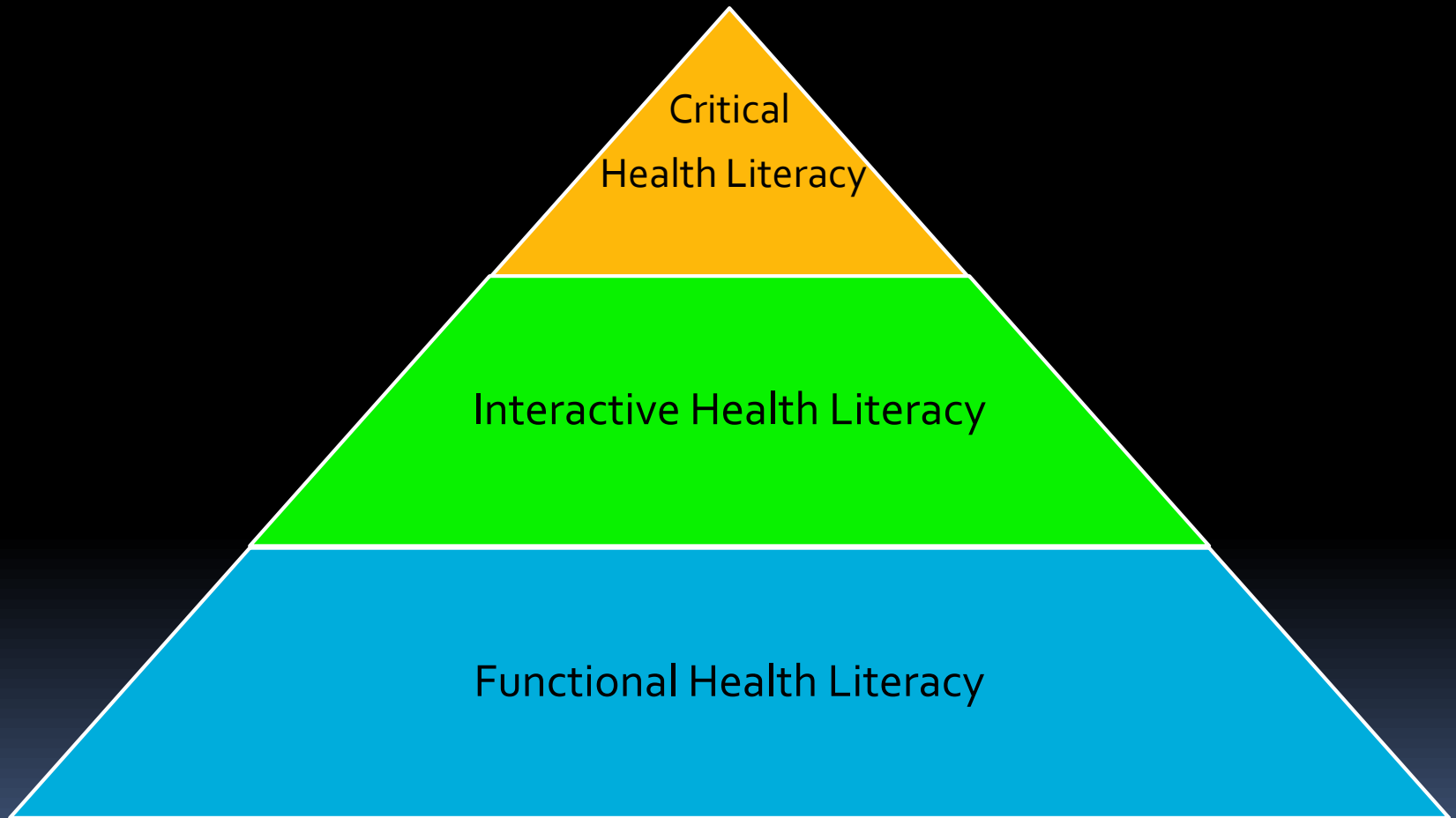
Deaf Adults' Health Literacy

- lower health literacy than predicted by their educational level (Pollard, 2009)
- poor cardiovascular health knowledge (Margellos-Anast, et al. 2006; McKee et al., 2011)

Poor Deaf Health Literacy During Adolescence

- might lead deaf people to experience
 - worse preventive health care than hearing individuals (Barnett et al., 2002)
 - more frequent Emergency Department visits (McKee et al., 2011)
 - higher rates of obesity and pre-diabetes (Barnett et al., 2011)
- little or no data regarding health literacy of deaf adolescents

Health Literacy Model



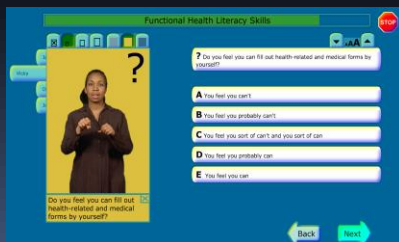
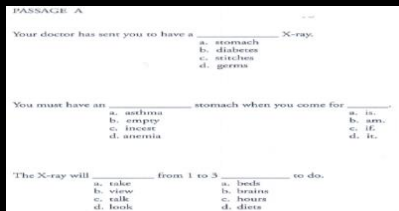
Research Problem

- average deaf high school senior reads at 4th grade level (Traxler, 2000)
- most measures of health literacy rely on functional reading skills
- to evaluate deaf adolescents' critical and interactive health literacy, standard instruments must be translated into sign language

Research Objectives

- use linguistically valid measures to assess and compare deaf and hearing adolescents health literacy
- identify subgroups of deaf adolescents who might be at increased risk for weaker health literacy

Measures



Name	Construct	Translated
<i>Health Literacy Skills Instrument: Short Form (HLSI-S)</i> (Bann, et al. 2012)	Overall Health Literacy	Questions and answers
<i>Short Form of Test of Functional Health Literacy (S-TOFLHA)</i> (Baker, et al., 1999)	Functional Health Literacy	Not translated
<i>Comprehensive Heart Disease Knowledge Questionnaire</i> (Bergman, et al. 2011)	Critical & Interactive Health Literacy	Questions and answers
<i>Single Item Literacy Screener</i> (Chew, et al. 2004) and Original Critical and Interactive Health Literacy Items	Critical & Interactive Health Literacy	Questions and answers

Participants

National convenience samples from two summer university programs for high school students

Total $n = 253$ adolescents	Deaf adolescents ($n=156$)	Hearing adolescents ($n=97$)
Age (M, SD)	17.0 (0.8)	15.9 (1.1)
Gender	53.8% male	35.4% male
Race/Ethnicity	53.6% white, non-Hispanic	43.4% white, non-Hispanic
Parent Education	66.4% college+	88.5% college+
Family Finances	53.4% few or no problems	71.1% few or no problems

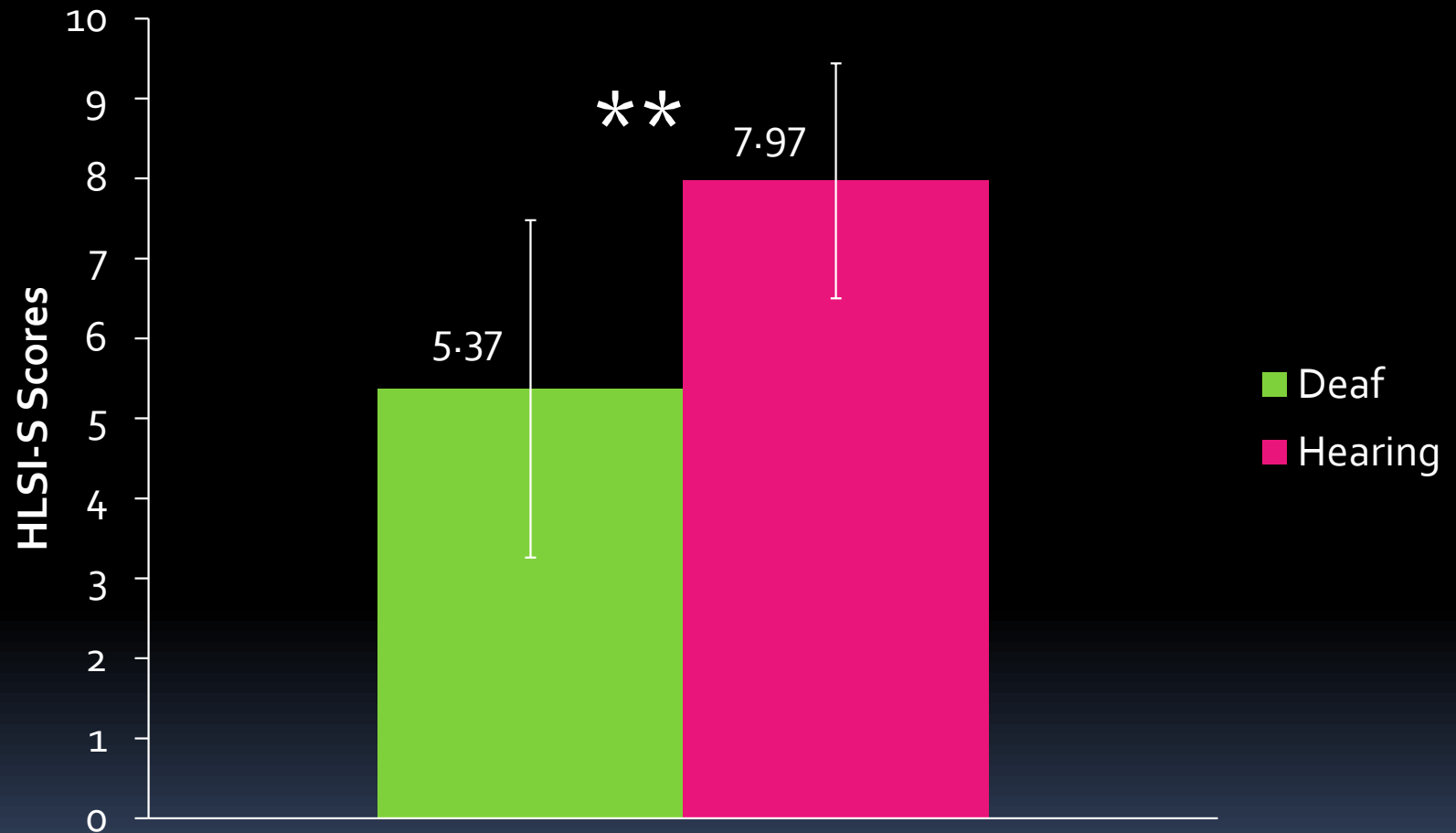
Demographics

- age became deaf
 - ▣ 82% became deaf before age 3
- language fluency
 - ▣ 65% fluent in sign language
 - ▣ 72% fluent in English
 - ▣ 38% fluent in both languages

Demographics

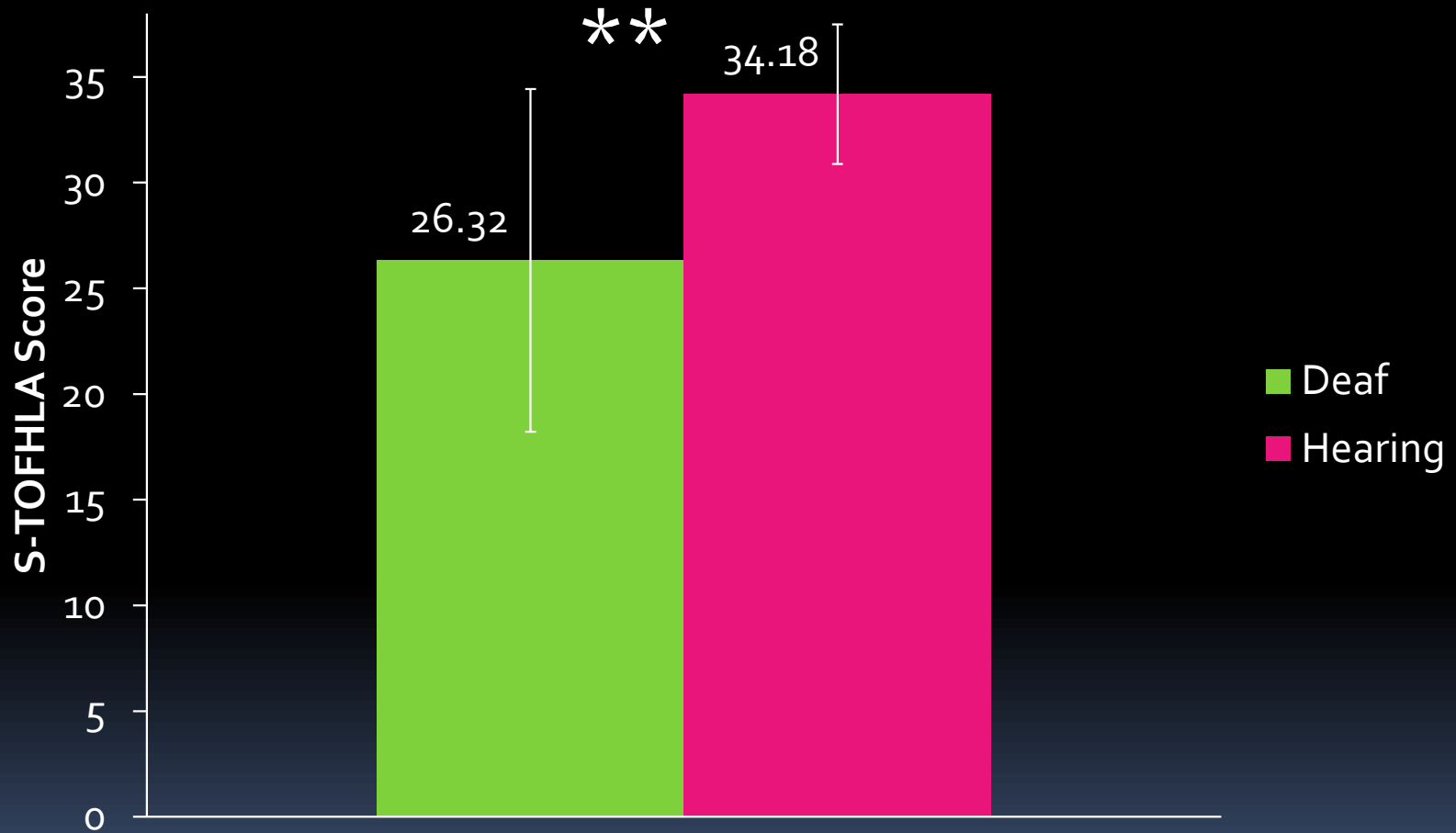
- cultural identification
 - 60% endorsed a deaf self-identity
- educational background
 - 40% currently attending schools with mostly deaf students
 - 40% in schools with mostly hearing students
 - 20% attend both types of schools

Overall Health Literacy



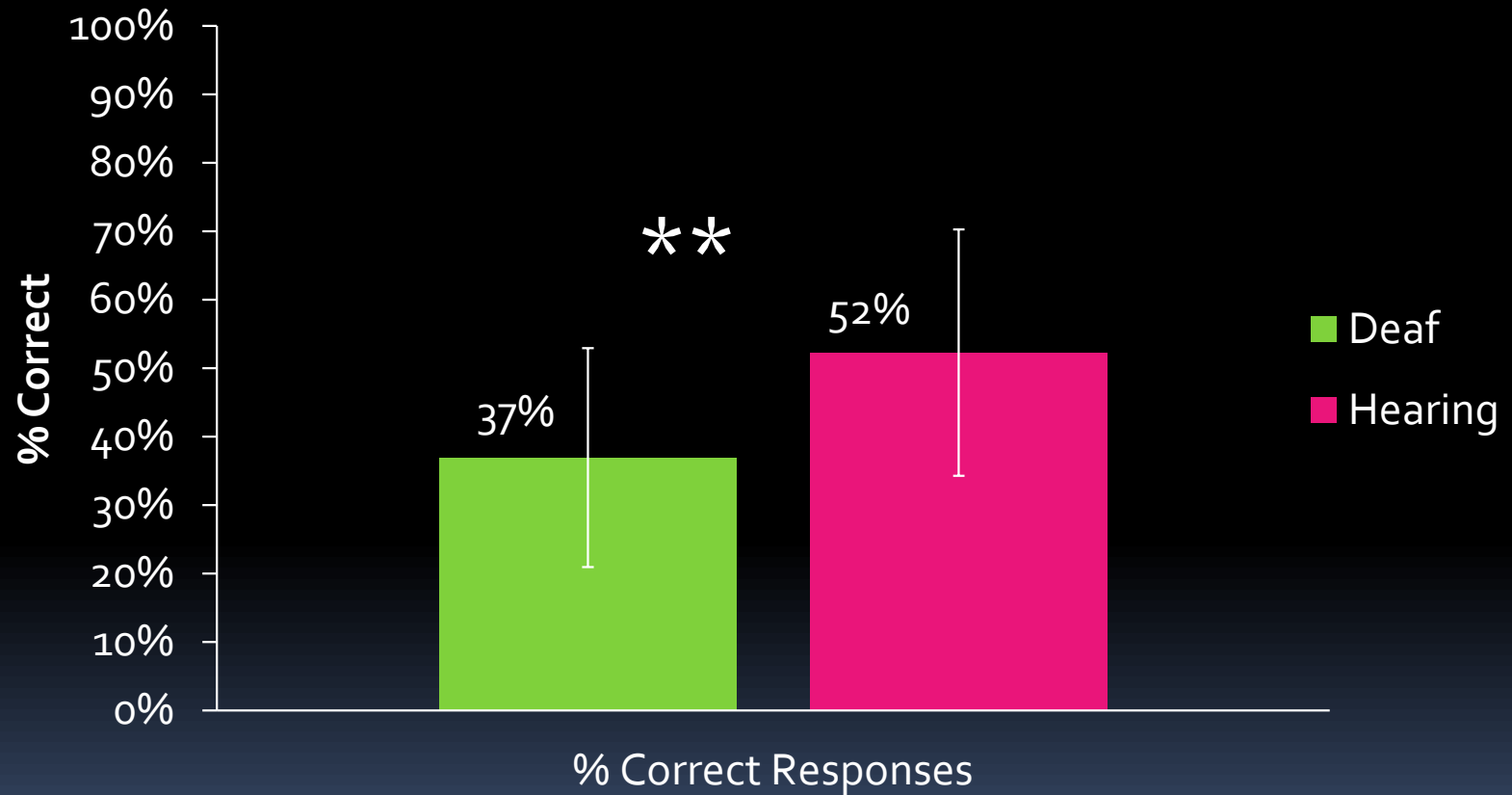
**Statistically significant difference at $p < 0.01$, even after adjusting for age, gender, race/ethnicity, & SES

Functional Health Literacy



**Statistically significant difference at $p < 0.01$, even after adjusting for age, gender, race/ethnicity, & SES

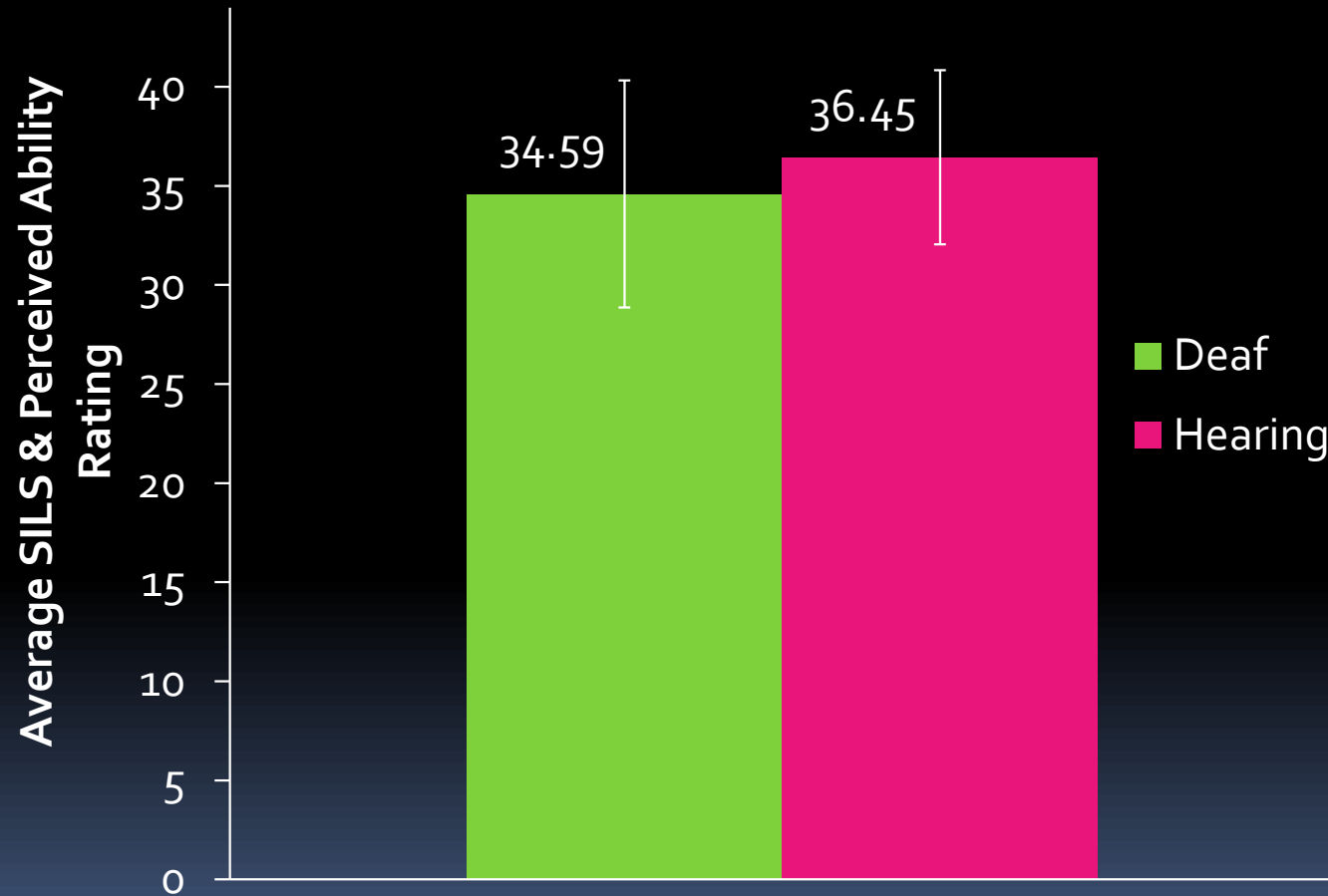
Critical & Interactive Health Literacy: *Heart Disease Knowledge*



**Statistically significant difference at $p < 0.01$, even after adjusting for age, gender, race/ethnicity, & SES

Critical & Interactive Health Literacy:

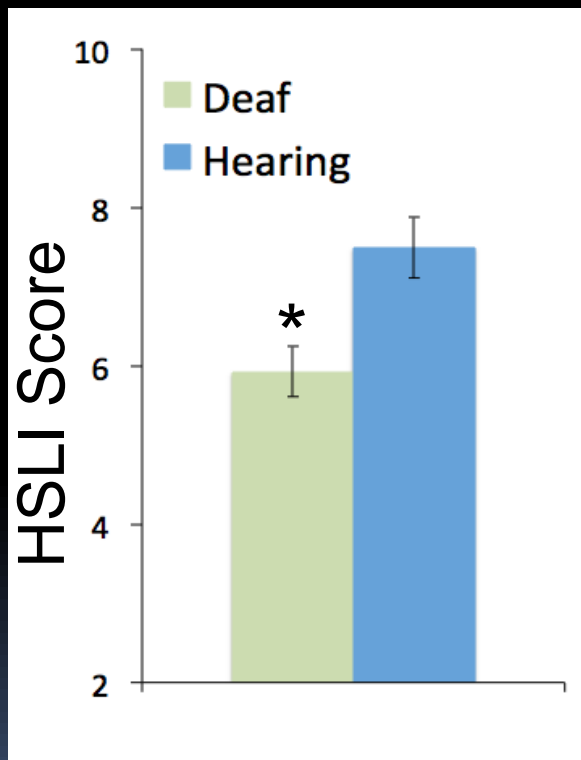
Confidence & perceived ability to deal with health information



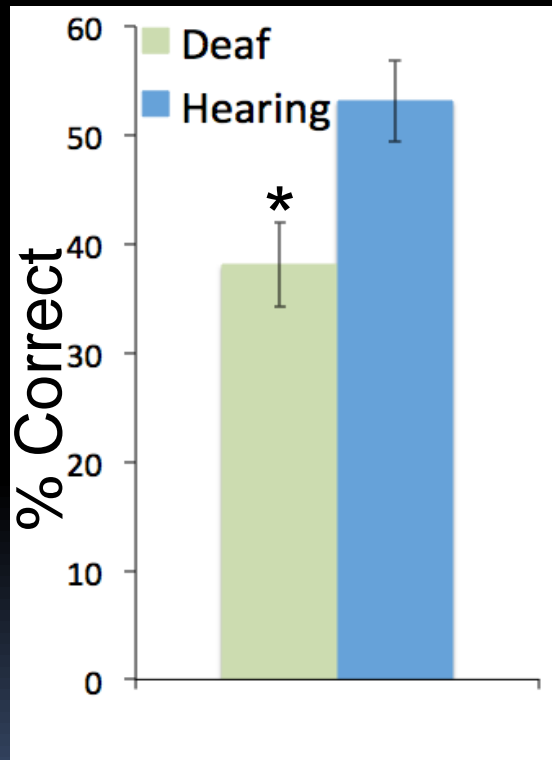
No statistically significant difference at $p > 0.05$

Adjusted for functional health literacy

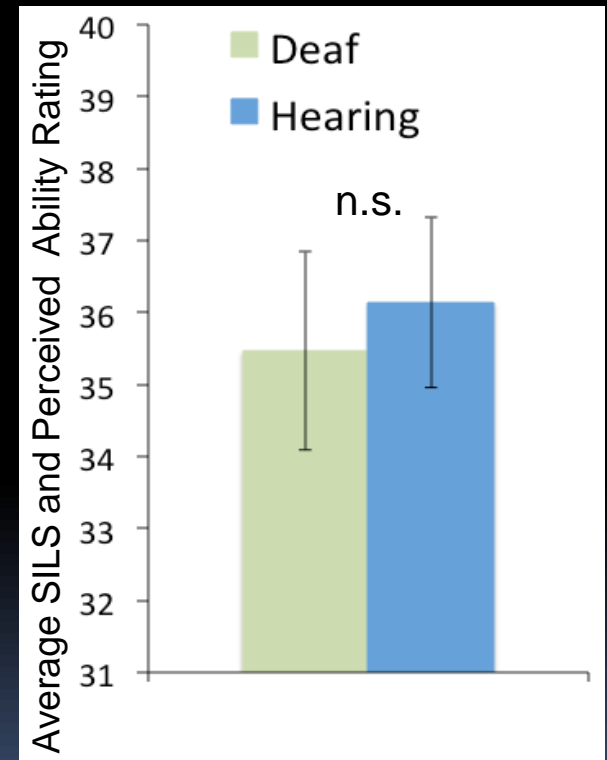
Overall Health Literacy



Heart Disease Knowledge



Confidence & Perceived Ability to Deal with Health Information



Also adjusted for age, gender, race/ethnicity, & SES

*Statistically significant difference at $p < 0.05$; Error bars are 95% CI

Adolescents with Stronger Health Literacy

- hearing
- white/non-Hispanic
- parents with higher education levels
- reported family history of high cholesterol, heart attack, or stroke

Deaf Adolescents with Stronger Health Literacy

- bilingual with capabilities for both oral and sign language communication
- endorse a deaf self-identity

Conclusions & Implications

- Deaf adolescents have weaker functional, critical, and interactive health literacy even when common demographic variables are controlled
- general health literacy is less in deaf compared with hearing adolescents even when their functional health literacy skills are equivalent
 - role of barriers to incidental learning
(Hauser et al., 2010; Pollard 1998)

Conclusions & Implications

- Deaf adolescents at increased risk for very weak health literacy:
 - racial/ethnicity minorities
 - lower socioeconomic status
 - those who are not bilingual
 - those who do not endorse a deaf self-identify

Acknowledgements

- Our Research Team and Collaborators
 - ▣ Jacqueline Pransky, Lorne Farovitch, Pratik Mehta, and Poonam Waral
 - ▣ Deaf and hearing college student actors and actresses
 - ▣ Robert Pollard, PhD and Peter Hauser, PhD
 - ▣ Thomas A. Pearson, MD, PhD
 - ▣ National Technical Institute for the Deaf Outreach Program
 - ▣ University of Rochester Summer Campus Programs
 - ▣ National Center for Deaf Health Research
 - ▣ Deaf Studies Laboratory
- This study was supported by grant number Ko1 HL103173-01 from the National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health. This work was also partially supported by Cooperative Agreement Number U48DP001910 from the US Centers for Disease Control and Prevention (CDC).

Questions, Feedback, Comments?



Thank you very much!!!