

Health Literacy and Self-Reported Health Over 20-Years: Results from the National Longitudinal Study of Adolescent Health

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HARC 2012

October 22, 2012

Key Health Literacy Skills May Vary



Background

- Few studies have explored the relationship of health literacy to health over time.
- Yet the health literacy skills most relevant to adolescent health may vary from those most critical in young adulthood, middle adulthood, and older age.

Study Goal

- Quantify the relationship between health literacy domains and self-reported health over the life course, specifically from adolescence to mid-adulthood.
- 3 domains:
 - Vocabulary
 - Numeracy
 - Health information

Data

- National Longitudinal Study of Adolescent Health (AddHealth) data from four time intervals across 20 years.
- Only respondents with full data on key variables ($n=3,333$) across all four time periods were included.



Health Literacy Variables

- All obtained from the first time interval
 - Subjects were in grades 7-12.
- Vocabulary was measured by the AddHealth Peabody Picture Vocabulary Test
 - High vs. not high.
- Numeracy was measured from math grades in school
 - Low vs. not low.
- Health information was measured as a continuous variable created from 17 items regarding whether the topic had been covered in school.
 - Continuous in models.
 - Dichotomized in descriptive statistics.

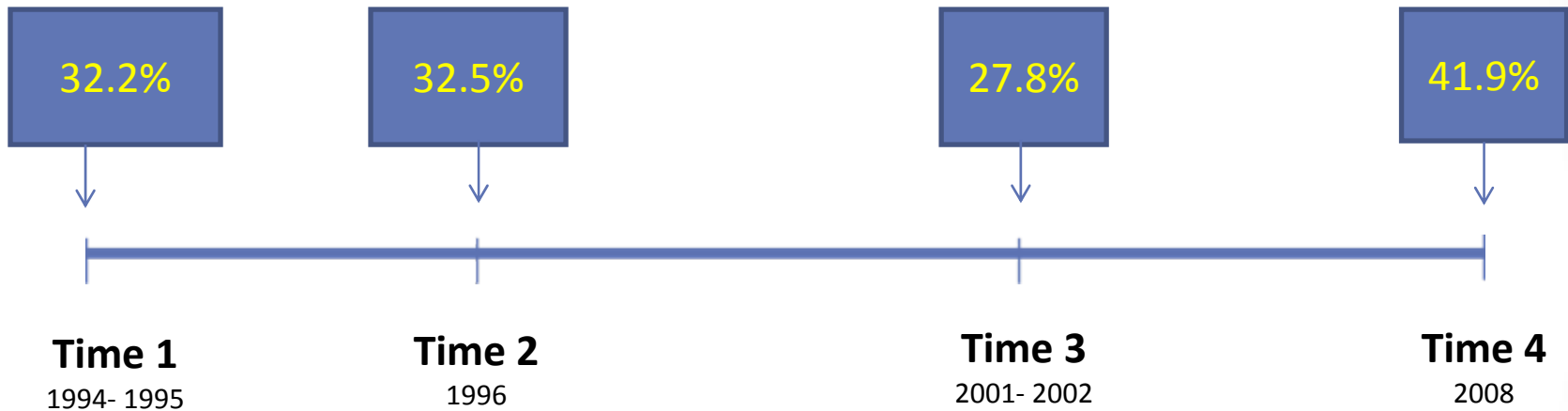
Other Variables

- Self-reported health status
 - Excellent, very good vs. good, fair, poor
 - Measured at four time intervals
- Sociodemographics
 - Age, sex, mother's education, English language, race/ethnicity
 - Employment, born USA
- Health care access
 - Needed medical care but did not get it.

Statistics

- Descriptive statistics
- Final Model: Mixed-effects multivariate logistic models with random intercepts varying by ID, cluster and wave.
- Weights were used to make estimates unbiased, considering the complex sampling scheme.
- All analyses were performed using the open source statistical software R.

Results: Poor Health



Percent Self-Reported Poor Health by Health Literacy Domains (n=3,333)

	Wave 1	Wave 2	Wave 3	Wave 4
Vocabulary				
High Peabody	21.9%	25.7%	18.3%	24.4%
Not High Peabody	32.7%	32.8%	28.1%	43.0%
Health Information				
Not Low Health Info (>10/17):	32.1%	31.5%	27.2%	40.6%
Low Health Info (≤10/17)	33.5%	37.1%	31.1%	48.0%
Numeracy				
High Numeracy	29.8%	30.2%	26.1%	39.8%
Low Numeracy	42.1%	40.6%	35.2%	50.5%

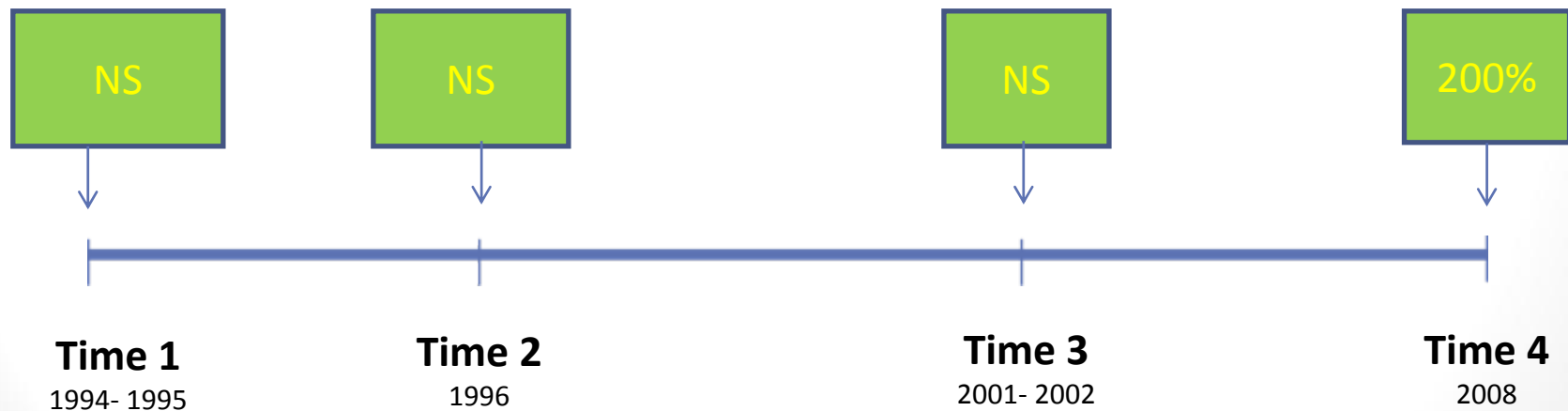
Significant ($p < 0.05$) comparisons are highlighted.

Results

- In final models, all three health literacy domains were significantly associated with health status, but their strength varied over time and domains.

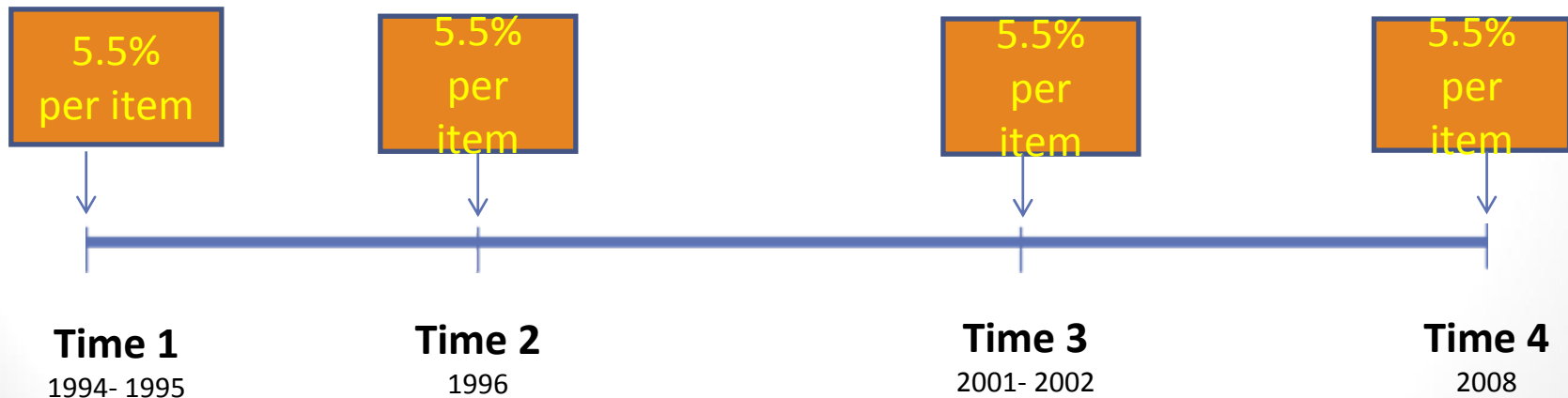
Vocabulary

- Vocabulary was not significantly associated with health across times 1-3, but was at time 4 (ages 24-32).



Health Information

- Health information was significantly associated with health across all 4 time periods at a similar strength.
- **For each additional item** learned at school there was a 5.5% increase in probability of good health status.



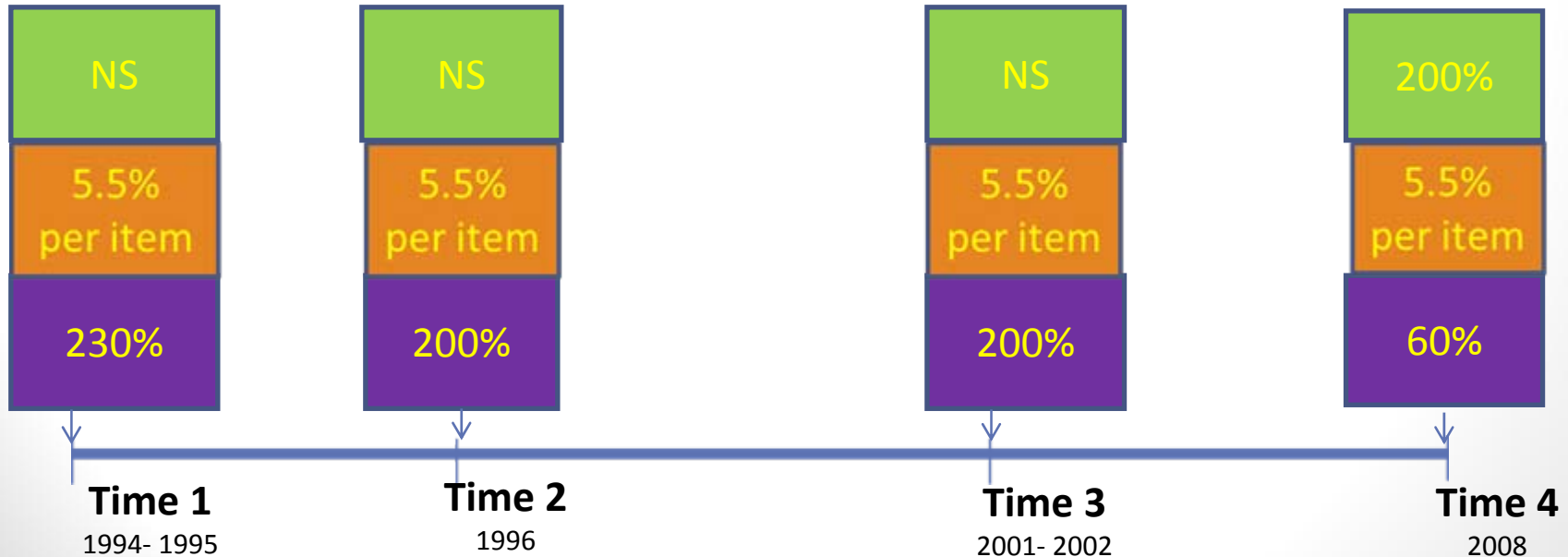
Numeracy

- Numeracy had the strongest effect at time 1, and declined slightly over time, while still remaining significant.



Discussion

- **High vocabulary** particularly valuable at older ages.
- **Health information** learned in school remained equally valuable across the life course.
- **Higher numeracy** associated less strongly at older ages.



Limitations

- Not standard health literacy measures.
- No oral health literacy and other domains.
- Health literacy measures only in Time 1.
- Points in time.
- General health.

Conclusions

- The three health literacy domains had distinct relationships with self-reported health over time.
- Health education had lasting value.
- Numeracy important in adolescence.
- Vocabulary important in early adulthood.
- Further research!

Acknowledgements

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis.

Thank you! Mahalo!

