

# Association of Population Health Literacy and Social Vulnerability:

## Implications for Health Communication

Katherine Wargo, MPH, CHES and Jennifer Gay, PhD

University of Georgia College of Public Health, Athens, GA



### Background

Health literacy improves knowledge, skills, and behaviors necessary for better health outcomes.<sup>1</sup> Current surveillance at the individual level cannot inform public health message development.

Social vulnerability is the resilience of groups when facing external stressors on health.<sup>2</sup> Variables of social vulnerability are similar to those of health literacy.

### Research Hypothesis

An assessment that captures the reciprocal relationship between the individual and the social environment can estimate population health literacy.

### Methods

2012 Behavioral Risk Factor Surveillance System (BRFSS) data were used to impute population health literacy score using Demographic Assessment for Health Literacy (DAHL) (N=1177; Cobb n=254, DeKalb n=342, Fulton n=330, Gwinnett n=251).

Figure 1. Points subtracted to calculate a DAHL score adapted from Hanchate, A.D., et al<sup>3</sup>

		DAHL Points
Reference group		91.3
Gender	Male	-1.8
Age	70-74	-5.5
	75-79	-10.9
	80-84	-16.2
	85+	-27.8
Race/ethnicity	Black	-15.9
	Hispanic	-6.7
	Other	-8.7
Years of school completed	0-8	-30.2
	9-11	-15.9
	12 or GED	-6.2

DAHL scores by county; Cobb = 84, DeKalb = 80, Fulton = 81 and Gwinnett = 85

Correlations between DAHL and 2010 Social Vulnerability Index (SVI) themes were calculated. Correlations account for the complex sampling frame of BRFSS.

Figure 2. Demographics age ≥ 70 years, sex, minority race/ethnicity and education ≤ high school, used to calculate a DAHL score

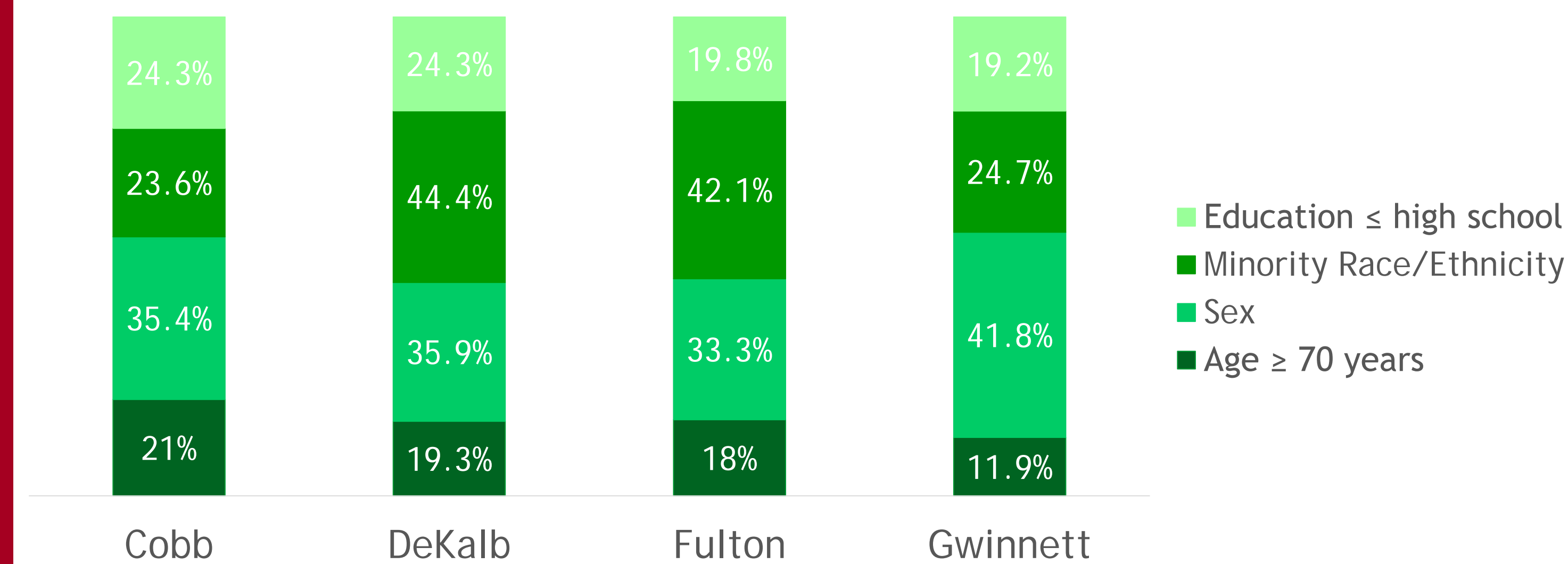


Figure 3. Overall vulnerability, Socioeconomic Status, Housing Composition, Race/Ethnicity, and Housing/Transportation, as measured by the Social Vulnerability Index, where 1.00 is most vulnerable and 0.00 is least vulnerable

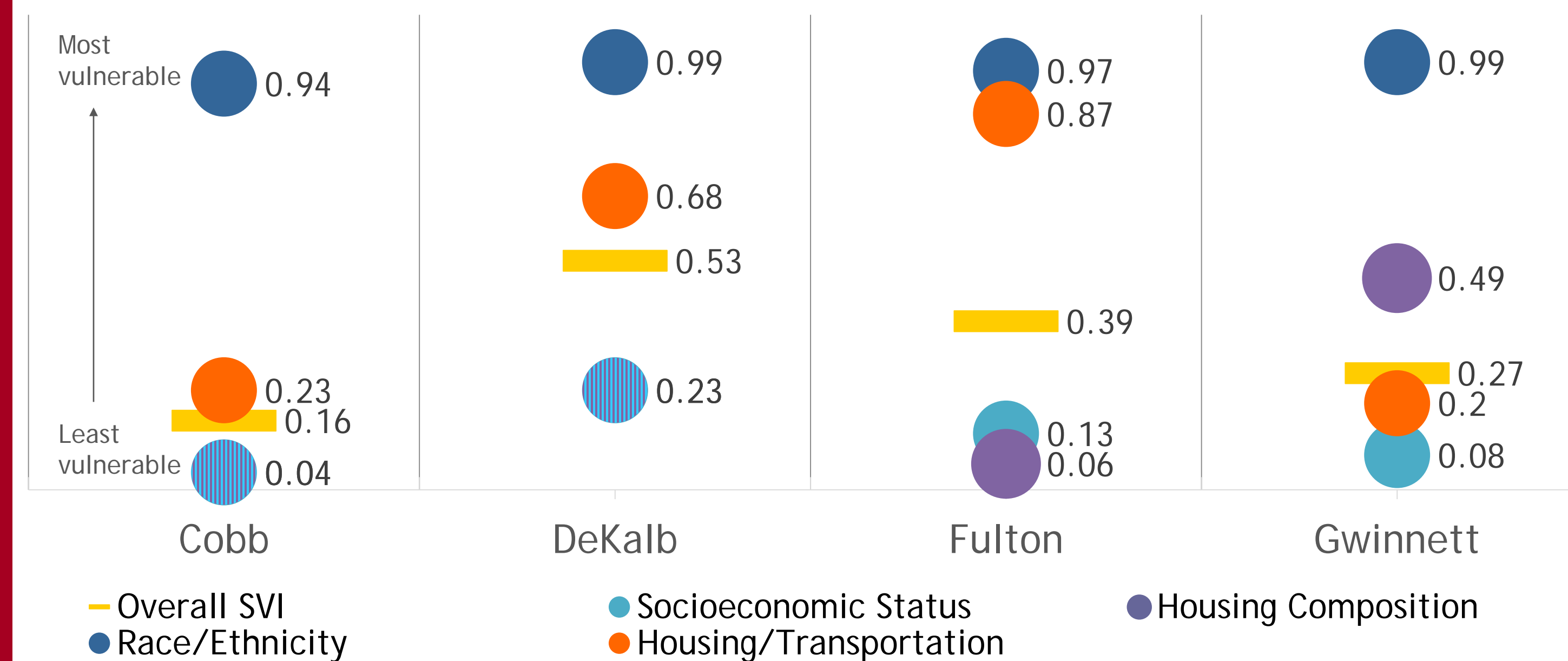


Table 1. Correlation coefficients of DAHL and social vulnerability themes

	(1)	(2)	(3)	(4)	(5)	(6)
(1) DAHL	1.00					
(2) Overall SVI	-0.17*	1.00				
(3) Socioeconomic Status	-0.17*	0.99*	1.00			
(4) Household Composition	0.11*	0.04	0.05	1.00		
(5) Race/Ethnicity	-0.07*	0.79*	0.75*	0.61*	1.00	
(6) Housing/Transportation	-0.19*	0.75*	0.66*	-0.47*	0.39*	1.00

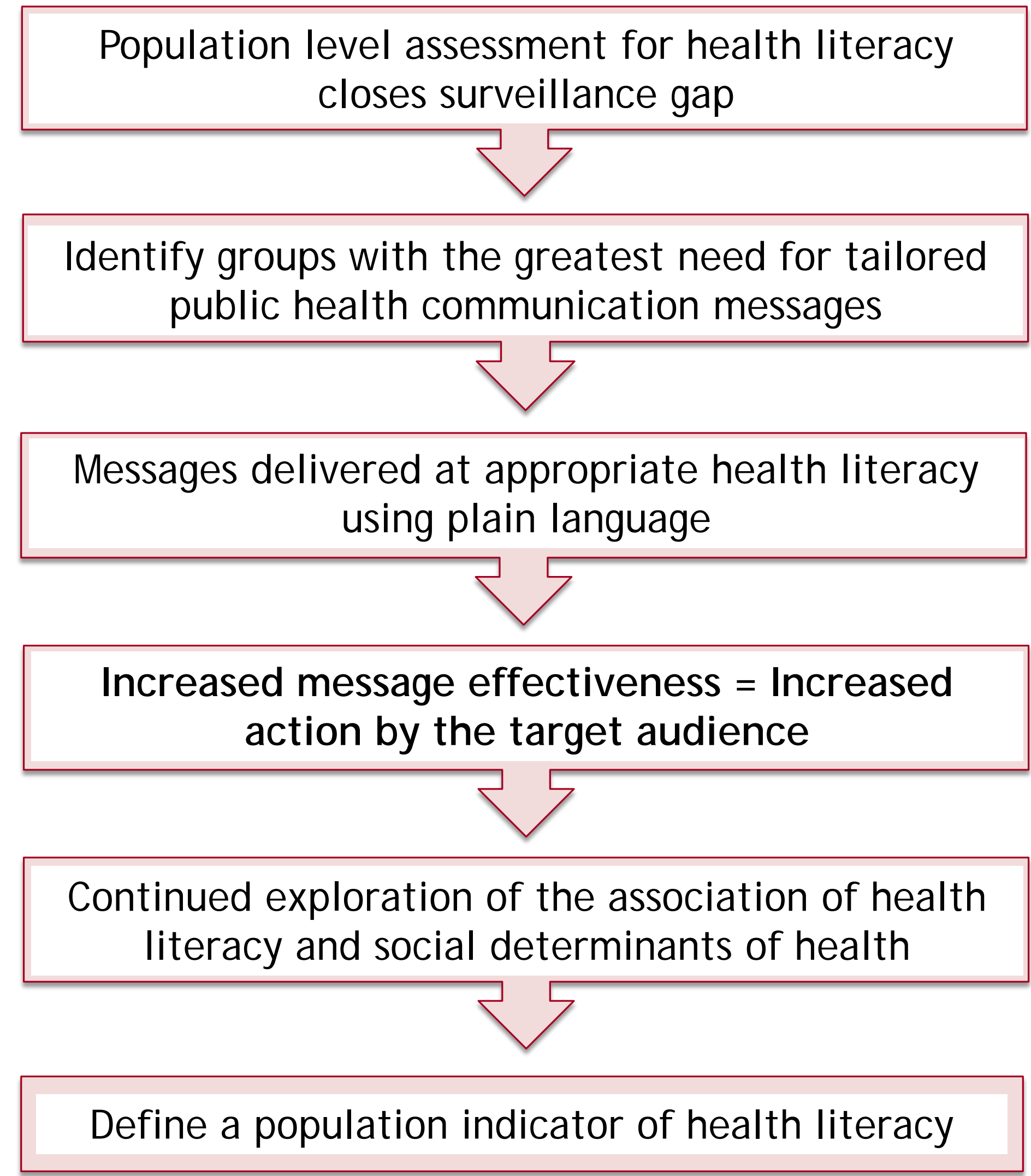
\*Significant at p=0.05

### Conclusions

DAHL scores varied at the county level, and were associated with social vulnerability as measured by the SVI. The DAHL may be a practical model for population health literacy assessment as existing, publicly available surveillance data may be used to compute scores.

A limitation of the DAHL is that it is designed for older adults. Future studies may expand the scoring calculation to include a wider age range.

### Implications for Health Communication



### References

- Guzys, D., et al. *BMC Public Health*, 15, 215.
- Flanagan, B.E., et al. *Journal of Homeland Security and Emergency Management*, 8(1), 1-22.
- Hanchate, A. D., et al. *Journal Of General Internal Medicine*, 23(10), 1561-1566.