Relationships between Racial Composition of Past and Current Social Environments and Adult Health Literacy

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BACKGROUND

Public health models have expanded our conceptualization of health literacy, encompassing dimensions that go beyond individual-level competencies and the medical context. There has been growing interest in the relationship between health literacy and social determinants of health.

The purpose of this study was to examine how racial composition of multiple past and current social environments was related to adults' health literacy.

METHOD

Data Collection:

546 adult patients completed:

- Self-administered written questionnaire on demographics (i.e., age, race, ethnicity, sex assigned at birth, educational attainment, employment status, household income, location of residence, health insurance coverage and self-reported health status)
- Verbally administered component assessing health literacy (i.e., REALM-R and NVS) and perceived racial composition of 6 past and 4 current social environments using a pictorial measure

Data Analyses:

- Built multilevel logistic regression models to examine relationships between racial composition of past and current social environments and health literacy
- Controlled for sociodemographic characteristics that had bivariate associations of p < 0.10 with health literacy

Table 1. Demographic characteristics of 546 participants overall and by racial composition of social environments.

Characteristic	Overall	Mostly White Environments				
		Past			Current	
		0/1	2+		0/1	2+
	n = 546	n = 311	n = 235		n = 372	n = 174
	Mean (SD)	Mean (SD)		p value	Mean (SD)		p value*
Age (years)	50.8 (11.5)	51.4 (11.8)	50.1 (11.1)	0.18	51.0 (11.8)	50.4 (10.7)	0.58
% Under the poverty level	24.9 (11.1)	27.3 (10.6)	21.7 (11.0)	<0.001	28.1(10.3)	18.2 (9.8)	<0.001
REALM-R				<0.001			<0.001
Adequate health literacy	303 (55.5)	138 (44.4)	165 (70.2)		185 (49.7)	118 (67.8)	
Limited health literacy	243 (44.5)	173 (55.6)	70 (29.8)		187 (50.3)	56 (32.2)	
NVS				<0.001			<0.001
Adequate health literacy	209 (38.3)	77 (24.8)	132 (56.2)		122 (32.8)	87 (50.0)	
Limited health literacy	337 (61.7)	234 (75.2)	103 (43.8)		250 (67.2)	87 (50.0)	
Race/ethnicity				<0.001			<0.001
non-Hispanic White	175 (32.1)	27 (8.7)	148 (63.0)		69 (18.5)	106 (60.9)	
Black (including multi-racial)	335 (61.4)	259 (83.3)	76 (32.3)		278 (74.7)	57 (32.8)	
Other	36 (6.6)	25 (8.0)	11 (4.7)		25 (6.7)	11 (6.3)	
Sex				0.79			0.14
Female	350 (65.9)	199 (66.6)	151 (65.1)		244 (68.2)	106 (61.3)	
Male	181 (34.1)	100 (33.4)	81 (34.9)		114 (31.8)	67 (38.7)	
Educational attainment				<0.001			0.09
Less than HS	86 (16.6)	58 (20.0)	28 (12.2)		62 (17.8)	24 (14.1)	
HS/GED	194 (37.4)	123 (42.4)	71 (31.0)		138 (39.5)	56 (32.9)	
Some college or above	239 (46.1)	109 (37.6)	130 (56.8)		149 (42.7)	90 (52.9)	
Household income				0.044			0.013
Less than $20,000	347 (72.0)	204 (75.8)	143 (67.1)		248 (75.6)	99 (64.3)	
$20,000 or more	135 (28.0)	65 (24.2)	70 (32.9)		80 (24.4)	55 (35.7)	
Insurance				0.001			0.001
None	142 (28.3)	62 (21.8)	80 (36.9)		80 (23.3)	62 (39.5)	
Public	275 (54.9)	166 (58.5)	109 (50.2)		201 (58.4)	74 (47.1)	
Private	84 (16.8)	56 (19.7)	28 (12.9)		63 (18.3)	21 (13.4)	

SD: Standard Deviation; *p value by t-test or Chi-Square test; REALM-R: Rapid Estimate of Adult Literacy in Medicine – Revised; bold indicates p < 0.05; NVS: Newest Vital Sign; HS: High School; GED: General Education Diploma

Table 2. Multivariable models of the relationship between the racial composition of past and current social environments and the Rapid Estimate of Adult Literacy in Medicine – Revised.

Predictors	REALM-R (n = 419)					
	Past			Current		
	OR	95% CI	p value	OR	95% CI	p value
Perceived racial composition						
0/1 (ref.)						
2+	1.79	(1.04, 3.07)	0.036	1.07	(0.60, 1.93)	0.81
Race/ethnicity						
non-Hispanic White (ref.)						
Black (including multi-racial)	0.45	(0.23, 0.86)	0.015	0.32	(0.18, 0.56)	<0.001
Other	2.81	(0.72, 10.92)	0.14	2.11	(0.56, 7.90)	0.27
Educational attainment						
Less than HS (ref.)						
HS/GED	1.67	(0.87, 3.22)	0.12	1.72	(0.90, 3.28)	0.10
Some college or above	4.08	(2.11, 7.87)	<0.001	4.45	(2.33, 8.49)	<0.001
Household income						
$20,000 or more (ref.)						
Less than $20,000	0.92	(0.54, 1.56)	0.75	0.93	(0.55, 1.57)	0.78
St. Louis Location						
City (ref.)						
County	0.88	(0.49, 1.57)	0.67	0.91	(0.51, 1.63)	0.74
Other	1.10	(0.51, 2.36)	0.81	1.04	(0.49, 2.21)	0.93
Insurance						
None (ref.)						
Public	0.68	(0.40, 1.15)	0.15	0.66	(0.39, 1.12)	0.12
Private	0.71	(0.35, 1.43)	0.34	0.69	(0.34, 1.39)	0.30
% Under the poverty level	0.97	(0.94, 0.99)	0.018	0.97	(0.94, 0.99)	0.030

REALM-R: Rapid Estimate of Adult Literacy in Medicine – Revised; OR: Odds Ratio; CI: Confidence Interval; ref.: reference group; bold indicates p < 0.05; GED: General Education Diploma

RESULTS

- Majority identified as Black or multi-racial, had high school diploma or less, and household income < $20,000

REALM-R results

- 56% have adequate health literacy
- Participants with 2+ past mostly white social environments more likely to have adequate health literacy (aOR = 1.79; 95% CI: 1.04-3.07) in multivariable model
- No significant relationship between racial composition of current social environments and REALM-R

NVS results

- 38% have adequate health literacy
- Participants with 2+ past mostly white social environments more likely to have adequate health literacy (aOR = 1.94, 95% CI: 1.15-3.27) in multivariable model
- No significant relationship between racial composition of current social environments and NVS

CONCLUSIONS

- There is an association between the racial composition of past, but not current, educational and residential social environments and adult health literacy

FUTURE DIRECTIONS

The findings highlight the importance of examining social determinants over the lifecourse for impact on health literacy.

Policies ensuring equitable access to educational resources in school and community contexts are critical to improving equitable health literacy for adults.

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