

Racial Disparities in Health Literacy and Numeracy: The Role of Sociodemographic and Psychological Risk Factors

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INTRODUCTION

- The constructs of **health literacy** and **health numeracy** offer a useful framework for practitioners across medical disciplines to measure and potentially explain an individual's risk for **health disparities**

OBJECTIVE: To assess ethnoracial disparities in health literacy and numeracy and their association to sociodemographic and psychological risk factors among a mixed clinical outpatient sample

METHOD

Participants

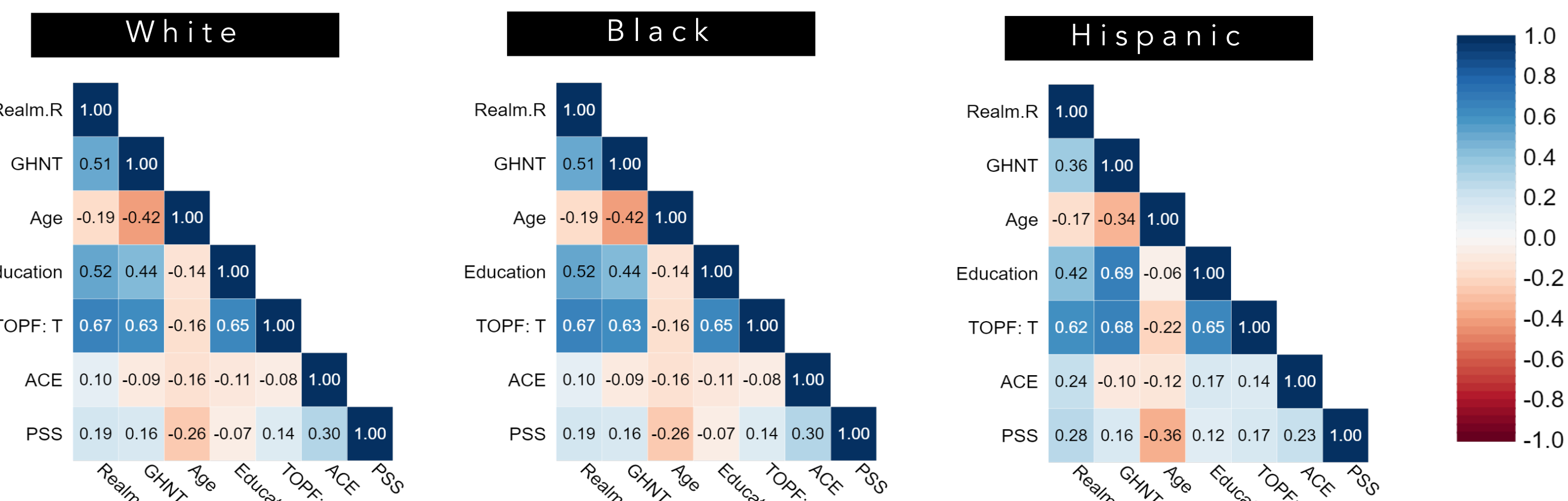
- Cross-sectional data from **198 patients** who were administered the General Health Numeracy Test-Short Form (GHNT), Rapid Estimate of Adult Literacy in Medicine-Revised (REALM-R), Adverse Childhood Experiences Checklist (ACE), Perceived Stress Scale (PSS), and Test of Premorbid Functioning (TOPF-SS) were examined

	White (n = 95)	Black (n = 75)	Hispanic (n = 28)	Group differences
Age (y)	44.5 (16.0)	49.6 (17.9)	32.5 (14.8)	H < B
Education (y)	14.5 (2.7)	12.5 (2.6)	13.4 (2.8)	B < W
Sex				ns
Male	40 (42%)	33 (44%)	16 (57%)	
Female	55 (58%)	42 (56%)	12 (43%)	
Realm-R	104.9 (13.6)	88.3 (16.7)	99.6 (16.5)	B < H & W
GHNT	7.4 (1.2)	5.0 (2.6)	6.5 (1.7)	B < H & W

Analyses

- Participant characteristics were compared by ethnoracial group status via chi-square and ANOVA tests
 - Black participants scored lower on health literacy and numeracy than both White and Hispanic participants
- Multivariate regression models evaluated associations between health literacy and numeracy with sociodemographic and psychological risk factors across ethnoracial groups.

CORRELATION ANALYSES



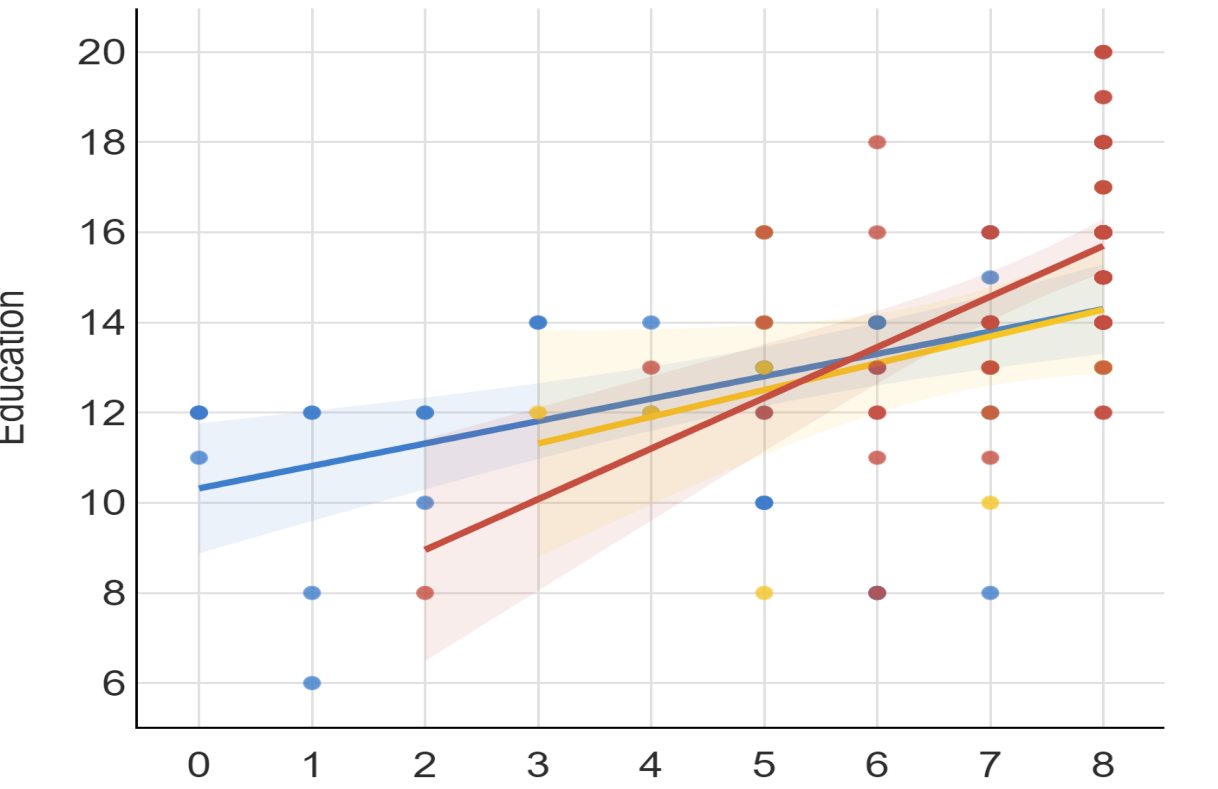
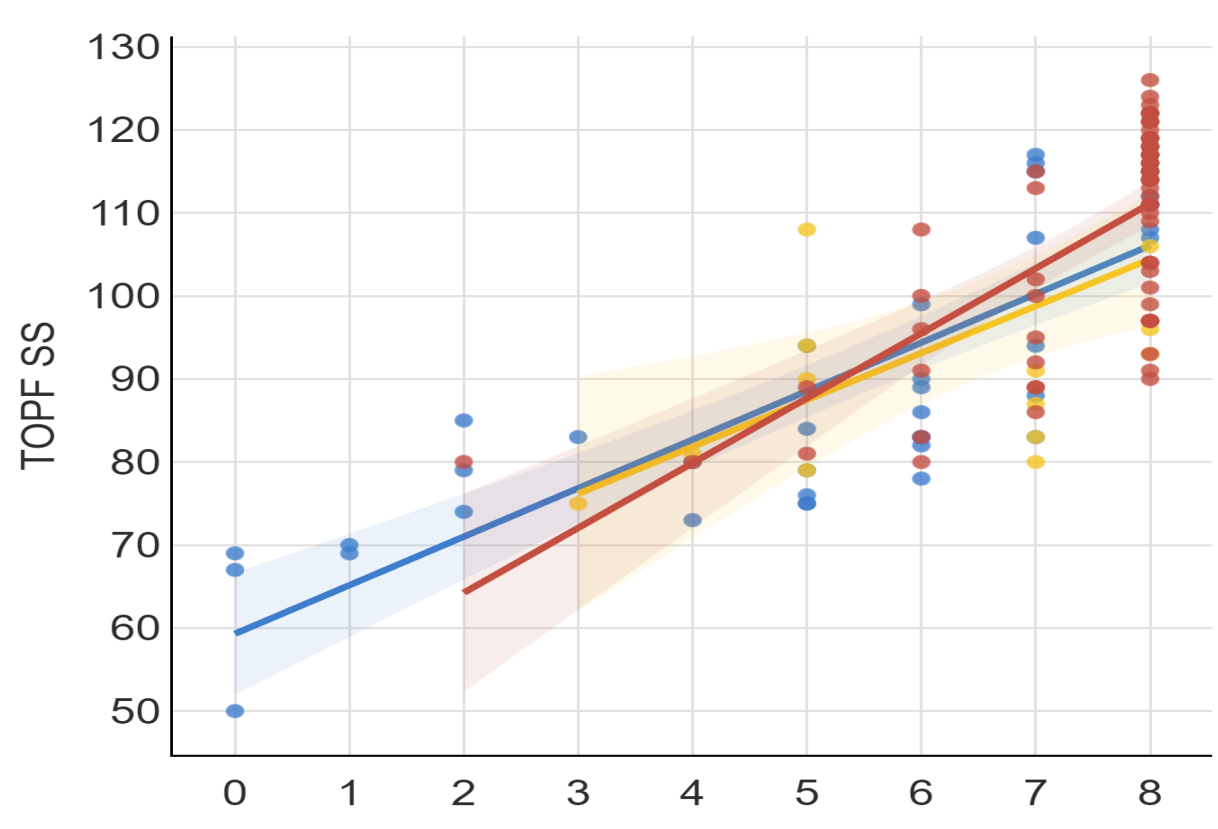
- Across ethnoracial groups, correlation analyses revealed that health literacy and numeracy were strongly associated with sociodemographic variables TOPF-SS and education, while more weakly associated with psychosocial variables ACE and PSS

HEALTH LITERACY (REALM-R)

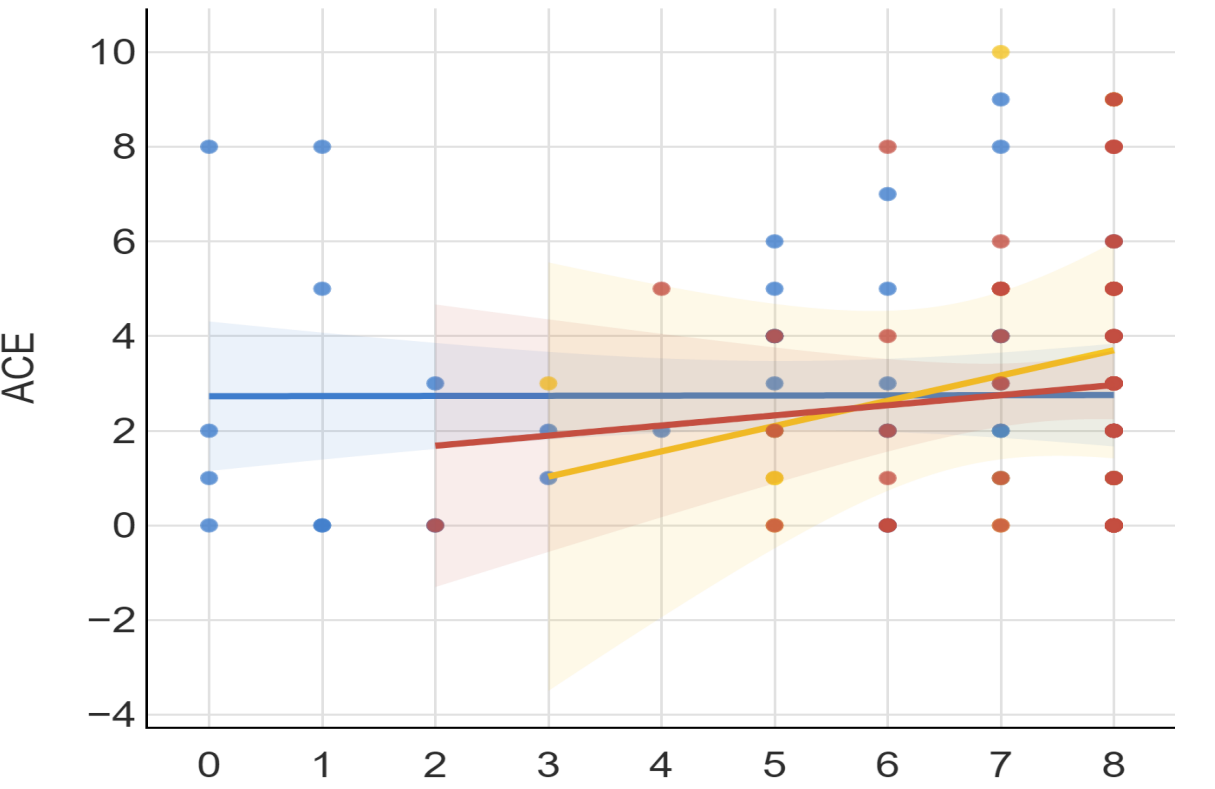
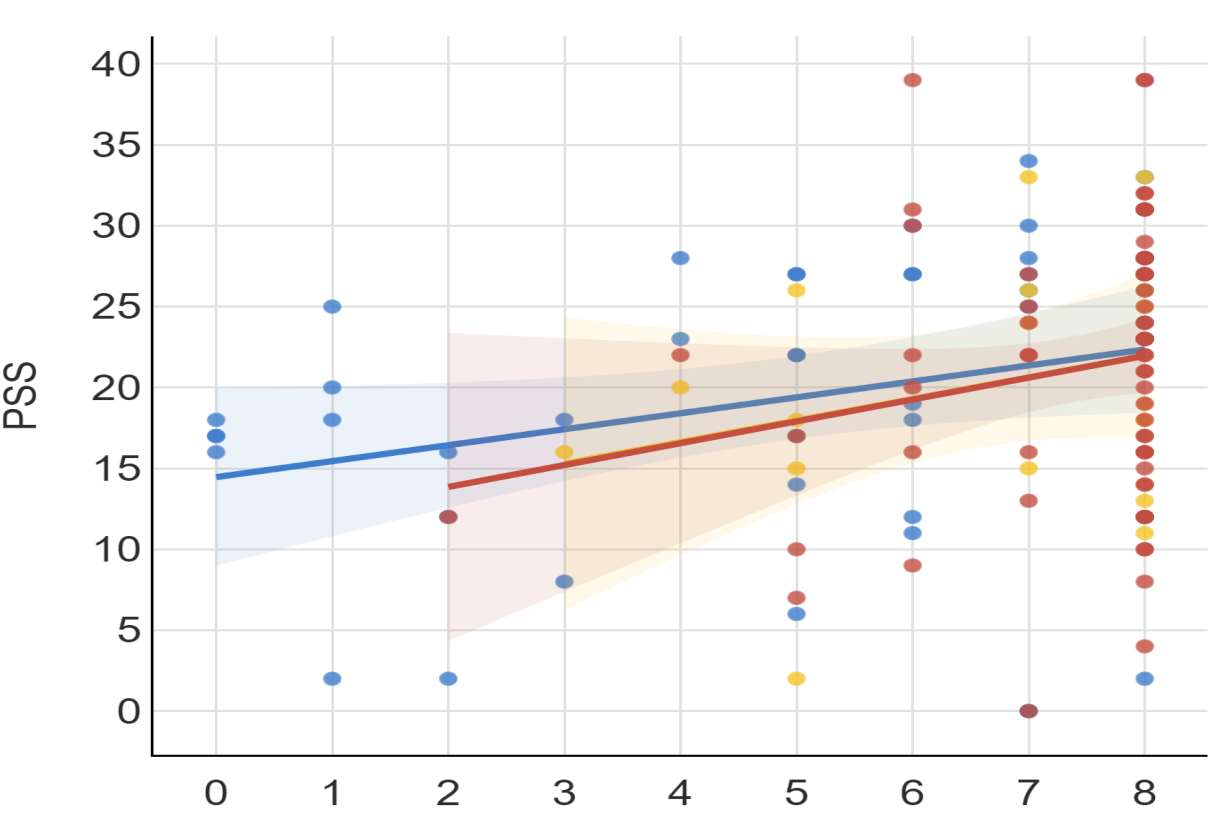
Regression Analyses				
	Estimate	Robust SE	t	p
(Intercept)	-2.57	1.38	-1.87	.064
Age	0.00	0.01	0.42	.676
Education	0.06	0.06	1.03	.304
TOPF SS	0.08	0.01	6.47	< .001
ACE	0.04	0.05	0.86	.392
PSS	0.01	0.02	0.59	.556
Ethnoracial: Black	-0.77	0.28	-2.71	.008
Ethnoracial: Hispanic	0.18	0.39	0.47	.641

- The sociodemographic variable of TOPF-SS was significantly associated with health literacy scores
- ACE and PSS were not significantly associated with health literacy scores
- Group differences between Black and White participants remained significant after accounting for sociodemographic & psychosocial variables

Sociodemographic



Psychosocial

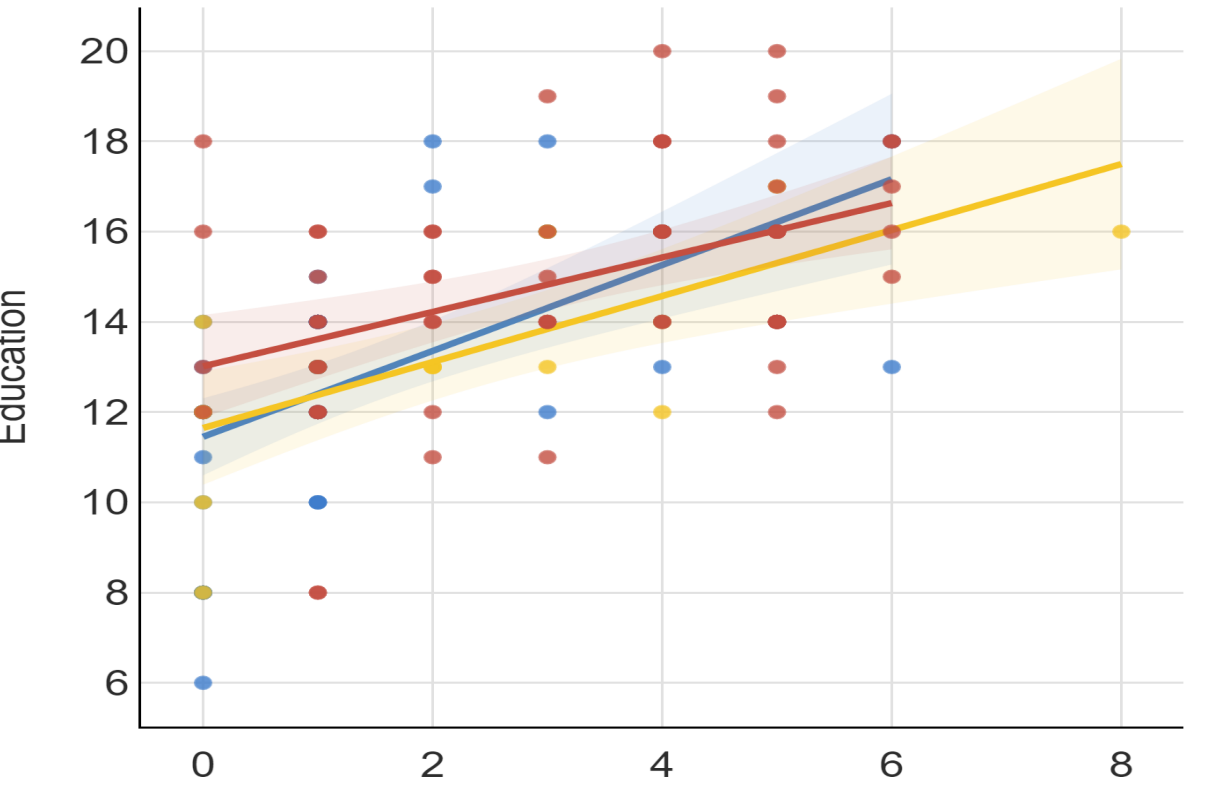
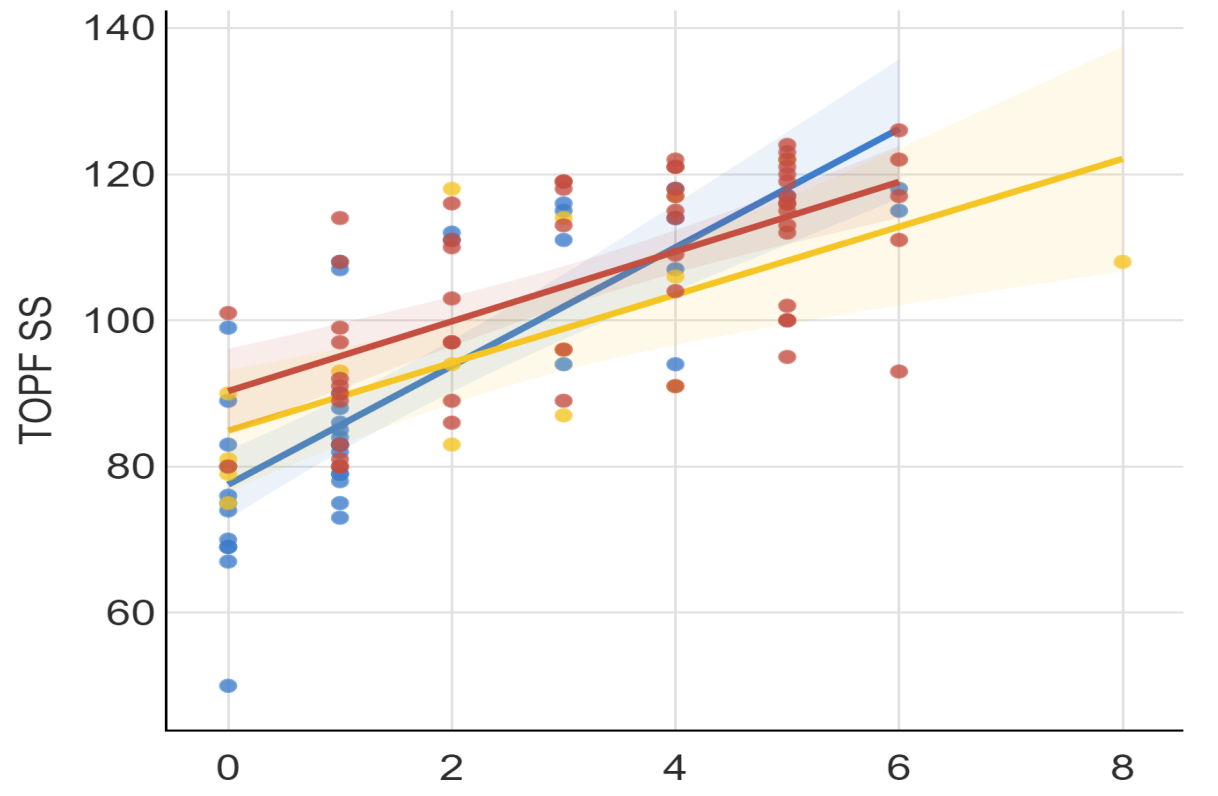


HEALTH NUMERACY (GHNT)

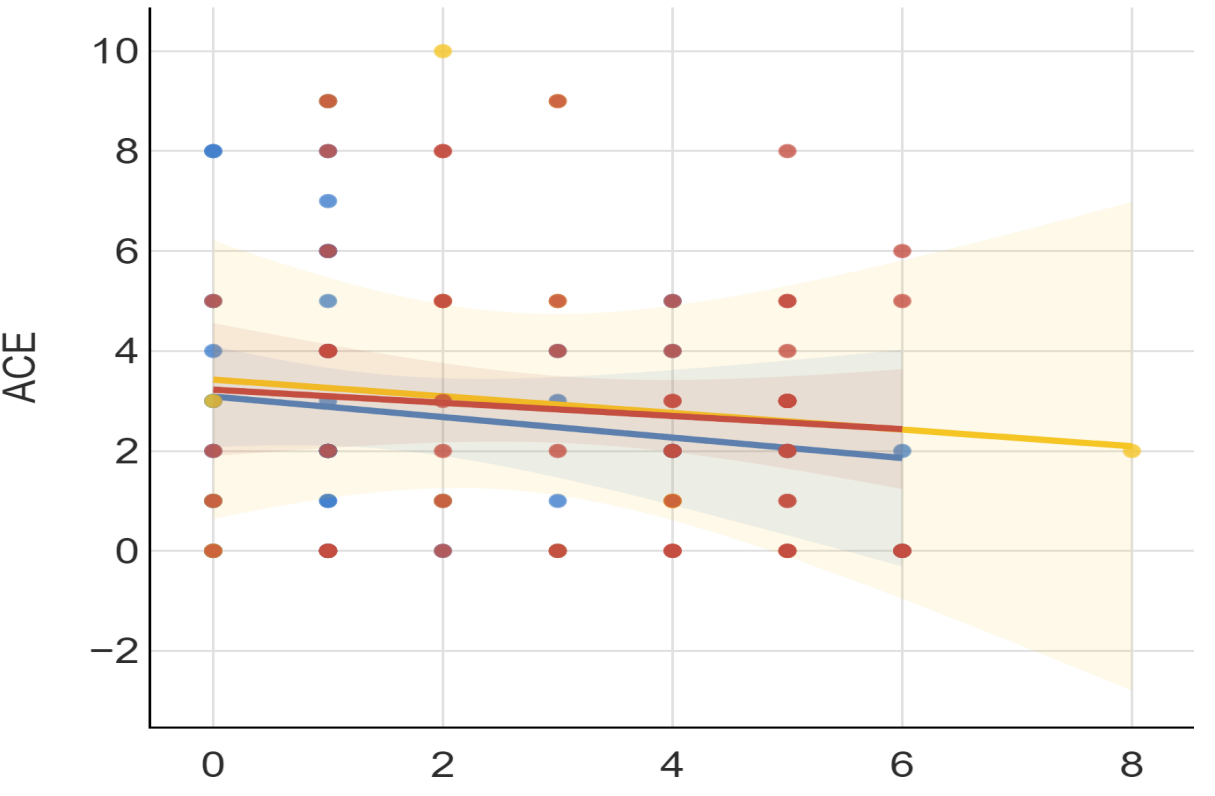
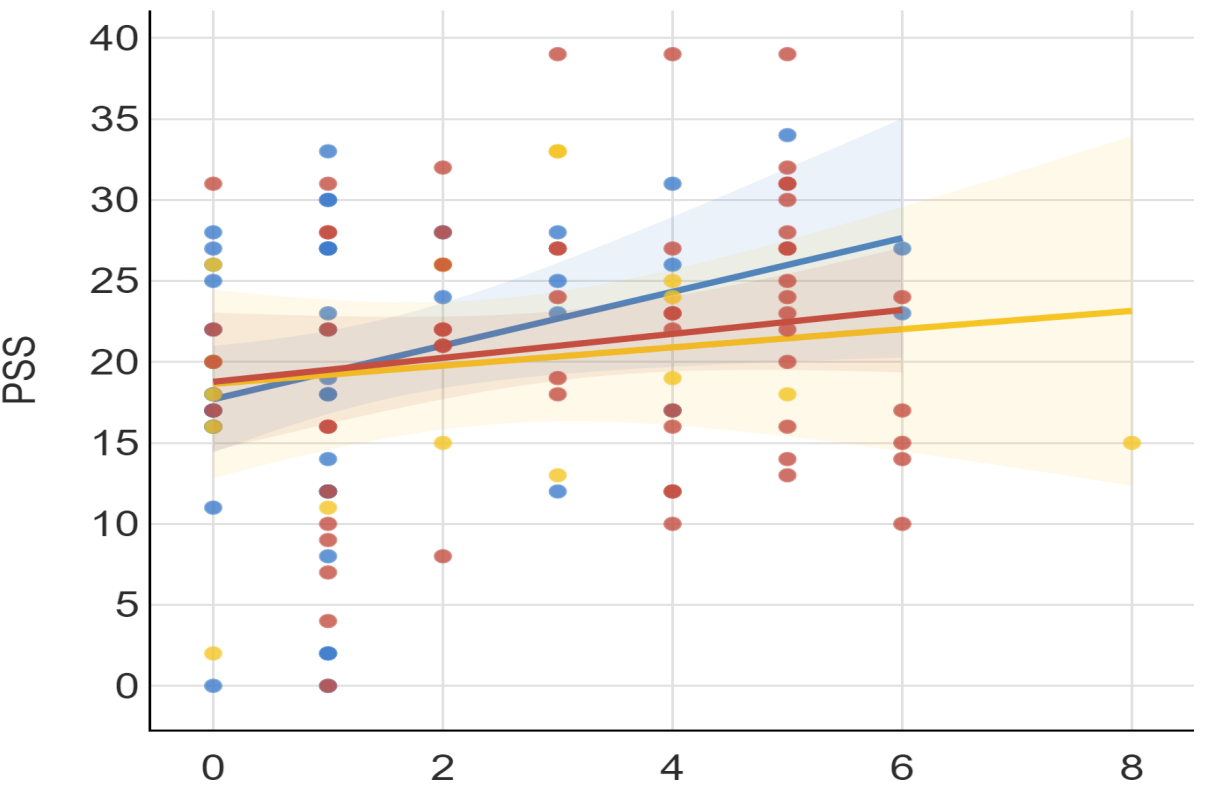
Regression Analyses				
	Estimate	Robust SE	t	p
(Intercept)	-3.55	1.09	-3.27	.001
Age	-0.03	0.01	-2.92	.004
Education	0.17	0.07	2.57	.011
TOPF SS	0.05	0.01	4.23	< .001
ACE	-0.07	0.05	-1.47	.144
PSS	0.01	0.01	0.42	.677
Ethnoracial: Black	-0.32	0.31	-1.03	.306
Ethnoracial: Hispanic	-0.30	0.45	-0.66	.510

- Sociodemographic variables TOPF-SS and education were significantly associated with health numeracy scores
- ACE and PSS were not significantly associated with health numeracy scores
- There was no significant effect of ethnoracial group on health numeracy after accounting for sociodemographic & psychosocial variables

Sociodemographic



Psychosocial



DISCUSSION

- The present study found lower health literacy and health numeracy scores among Black participants as compared to both White and Hispanic participants
- Health literacy was most strongly associated with TOPF-SS
 - Unique effects of education not observed, despite that health literacy is thought to reflect more complex skills than word-reading alone
- Psychosocial variables ACE and PSS did not associate with health literacy or numeracy
 - Health literacy/numeracy skills may reflect more distally acquired academic skills compared to childhood risk factors or present stress
- Group differences in health literacy between Black and White participants remained significant after adjustment for sociodemographic & psychosocial variables
 - Disparities between ethnoracial groups may reflect group differences in variables not presently assessed, including socioeconomic status and/or discriminatory experiences in healthcare
- Both education and TOPF-SS were associated with health numeracy
 - Indicates health numeracy skills require literacy as well as independent effect of academic skills