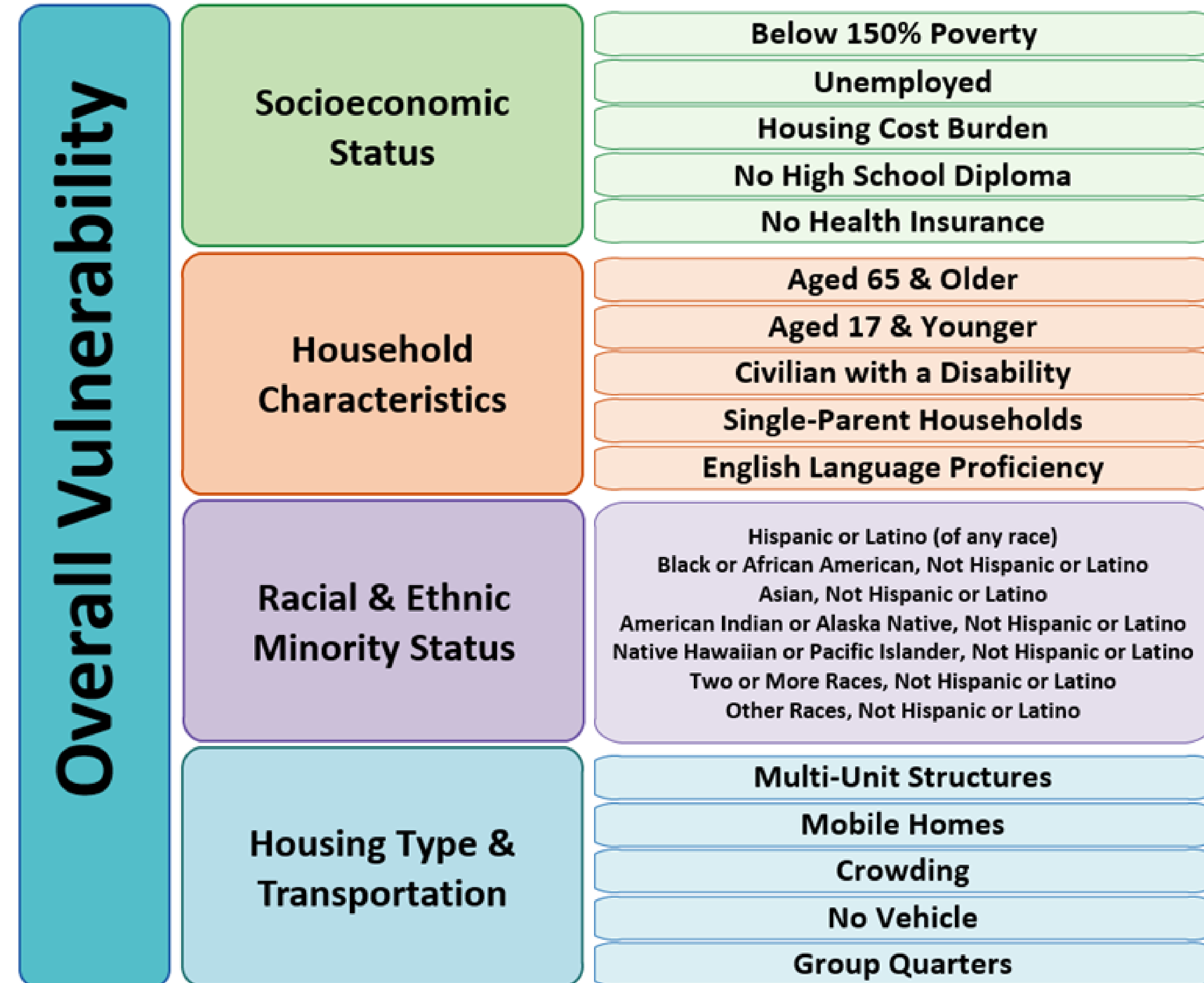


Background

- The WHO suggests that social determinants of health (SDOH) account for 30-55% of health outcomes.¹
- CDC develops and publishes Social Vulnerability Index (SVI) dataset, which includes elements of SDOH.
- Social Vulnerability: The degree to which a community exhibits certain social conditions which may affect that community's ability to prevent human suffering and financial loss in the event of disaster.²
- SVI ranks census tracts on 16 social factors and further groups them into four related themes.

Fig 1. Social Vulnerability Index Components and Themes²



- SDOH play a significant role in stroke patients' health outcomes.
- Social factors, both at the individual and community level, such as educational status, income, insurance coverage, availability of emergency medical service, proximity to stroke center, access to rehabilitation facilities, etc. play a major role in determining patient outcome.
- There is an increased focus on SDOH data collection within healthcare (e.g., z-codes).
- AHA Get With The Guidelines (GWTG) tool documents data of 10 unmet social needs of hospitalized stroke patients:

- | | |
|---------------------------------|---------------------------|
| 1. Education | 6. Mental Health |
| 2. Employment | 7. Personal Safety |
| 3. Financial Strain | 8. Substance Use |
| 4. Food | 9. Transportation Barrier |
| 5. Living Situation/
Housing | 10. Utilities |

Study Objectives

- Assess the correlation between the GWTG social needs data and SVI data at the census tract level

Table 1. Spearman correlations between Social Vulnerability Index rankings and stroke patient social needs

SVI Component Percentile Ranking	Social Needs									
	Education	Employment	Financial Strain	Food	Living Situation/ Housing	Mental Health	Personal Safety	Substance Use	Transportation Barriers	Utilities
Below 150% Poverty	0.02	0.44	0.84*	0.31	0.82*	0.62*	0.82*	0.56	0.55	0.37
Unemployed	-0.79*	0.10	0.67*	-0.01	0.72*	0.53	0.71*	0.68*	0.70*	-0.08
Housing Cost Burden	-0.54	0.17	0.88*	0.34	0.82*	0.89*	0.85*	0.93*	0.72*	0.19
No High School Diploma	0.87*	0.08	0.48	0.10	0.92*	-0.31	0.78*	-0.28	-0.68*	0.48
No Health Insurance	0.41	0.01	0.71*	-0.15	0.87*	0.14	0.92*	0.18	0.54	0.29
Socioeconomic Status theme	0.09	0.13	0.94*	0.18	0.92*	0.62*	0.93*	0.79*	0.60	0.30
Aged 65 & Older	0.77*	-0.47	-0.67*	0.24	0.49	-0.24	0.61	-0.48	0.28	-0.17
Aged 17 & Younger	-0.38	0.32	0.68*	-0.48	-0.61	-0.07	-0.56	-0.31	-0.22	-0.14
Civilian with a Disability	0.81*	-0.09	-0.28	0.36	0.71*	-0.05	0.61	-0.28	-0.03	0.36
Single-Parent Households	-0.87*	0.31	0.79*	-0.30	0.77*	0.71*	0.66*	0.50	0.75*	0.03
English Language Proficiency	0.58	-0.09	0.50	0.07	-0.04	0.16	-0.02	0.49	0.18	0.21
Household Characteristics theme	0.58	-0.22	0.65*	0.05	0.53	0.33	0.47	0.39	-0.09	-0.07
Racial and Ethnic Minority Status theme	-0.76*	0.67*	0.82*	0.06	0.55	0.85*	0.55	0.90*	0.82*	-0.12
Multi-Unit Structures	0.13	0.87*	0.58	0.44	0.47	0.62	0.60	0.68*	0.57	0.10
Mobile Homes	0.68*	-0.12	0.16	-0.01	0.66*	-0.06	0.55	-0.18	-0.15	0.23
Crowding	0.63*	0.62	0.66*	0.18	0.45	0.47	0.64*	0.81*	0.63*	0.37
No Vehicle	-0.32	0.17	0.75*	0.51	0.79*	0.85*	0.85*	0.81*	0.78*	0.67*
Group Quarters	0.51	0.36	0.76*	0.17	0.83*	0.49	0.72*	0.52	0.58	0.25
Housing Type/ Transportation theme	0.58	0.38	0.87*	0.16	0.87*	0.56	0.78*	0.66	0.53	0.70*
Overall SVI	0.37	0.07	0.79*	0.10	0.75*	0.73*	0.72*	0.77*	0.71*	0.43

Shaded * p<0.05

Methodology

- 2021 Georgia Coverdell Acute Stroke Registry (GCASR) data matched with the 2021 Georgia Hospital Discharge Data System to obtain patients' residence coordinates.
- Data was then geographically linked with 2020 SVI at the Georgia Census Tract level.
- Spearman rank correlations were assessed between:
 - The proportion of stroke patients that indicated a specific unmet social need within a given census tract.
 - The decile ranking of a specific SVI component for a given census tract.

Results

- Among the 22,930 stroke patients treated at GCASR-participating hospitals, 10,019 had social needs data.
- No major sociodemographic or disease-related differences were noted between patients with and without social need data.
- 15 of 16 SVI components had a statistically significant correlation at the 0.05 alpha level with at least one social need.
- Correlation strength ranged from mild ($r < 0.4$) to strong ($r > 0.8$).

Conclusions

- Most elements of the SVI at the census tract level are moderately or strongly correlated with one or more social needs, suggesting SVI may serve as supplemental and/or proxy measures for patient social needs data.
- SVI data, regularly updated by the CDC and publicly available, could be incorporated into electronic health data to inform patient care coordination and post-discharge referrals.

1. WHO. Social determinants of health. <https://www.who.int/health-topics/social-determinants-of-health>. As accessed on 01/23/2024.
 2. Agency for Toxic Substances and Disease Registry. CDC SVI Documentation 2020. https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2020.html. As accessed on 01/23/2024.