The Role of Connected Communities and Technology Access on Perceived Health in Southern Arizona

MAP Talk Webinar
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Our digital, physical, and biological worlds are converging impacting economy, social well-being, and physical health.
Social Determinants of Health (SDOH)

- Health Care and Quality
- Neighborhood and Built Environment
- Social and Community Context
- Economic Stability
- Education Access and Quality
Southern Arizona
Southern Arizona is a unique geographic location which contributes to population health.

- Population is quickly growing and aging
- Cardiovascular disease, cancer, and diabetes are leading causes of mortality
- $18.6B economic burden
- Technology landscape rapidly advancing
Determine relationship between SDOH, technology access, and perceived health in SAZ using geographic information systems (GIS) analysis
C3: Connected Community Classification

Final SDOH score from PCA component named and cut into deciles to represent classifications

A C3 score of 10 indicates more connected communities while a 1 indicates more isolated communities

118 Zip Code Tabulation Areas (ZCTA) in Southern Arizona with available and complete data

Analyzed using ArcGIS Pro + STATA 17

Moran’s I: 0.29
Z-Score: 2.47
P-value: 0.01

C3 Significantly Clusters
Technology access is **positively** associated with perceived health

<table>
<thead>
<tr>
<th>Good Overall Health</th>
<th>SAR Coef $\beta$ (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone</td>
<td>$0.84$ (-0.10, 1.79)</td>
</tr>
<tr>
<td>Tablet</td>
<td>$1.58$ (0.40, 2.75)*</td>
</tr>
<tr>
<td>Laptop/Desktop</td>
<td>$1.95$ (0.57, 3.34)*</td>
</tr>
</tbody>
</table>

Spatial autoregressive (SAR) models adjusted for health behaviors.
*All significant p-values <0.001
C3 directly effects technology access and indirectly effects perceived health

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<tr>
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<tr>
<td><strong>C3 (Direct)</strong></td>
<td>1.74 (1.00, 2.48)*</td>
<td>3.24 (2.44, 4.05)*</td>
<td>2.80 (1.76, 3.84)*</td>
</tr>
<tr>
<td><strong>Good Overall Health</strong></td>
<td>0.01 (-0.05, 0.08)</td>
<td>0.02 (-0.05, 0.10)</td>
<td>0.16 (0.07, 0.25)*</td>
</tr>
</tbody>
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Spatial autoregressive (SAR) models adjusted for health behaviors.
*All significant p-values <0.001
C3 and technology *directly* effect health behaviors

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<th>Health Behavior</th>
<th>SAR Coef B (95%CI)</th>
<th>P-Value</th>
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<tr>
<td>Low Fruit/Veg Intake</td>
<td>-0.35 (-0.51, -0.19)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Physically Inactive</td>
<td>-0.32 (-0.48, -0.16)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Obese</td>
<td>-0.20 (-0.35, -0.06)</td>
<td>0.005</td>
</tr>
<tr>
<td>Smoking</td>
<td>-0.34 (-0.62, -0.07)</td>
<td>0.01</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>0.77 (0.49, 1.06)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Spatial autoregressive (SAR) models adjusted for demographics, technology access, and rurality
Connected communities with greater access to technology have better population health.
Data to Action

Research, Programs, and Policies for:

- Internet Access
- Food Security
- Educational Attainment
- Health Insurance Coverage

Population Engagement in Protective Health Behaviors

Better Population Health Outcomes
Acknowledgments

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Carlie Felion, MSN, APRN, FNP-BC, PMHNP-BC (PhD Student)
Christopher Krupnik, MS (GIS Analyst)
Thank you!

Let’s stay connected:

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