

Examining The Impact of Rural Built Environments in Pike County, Pennsylvania

- Despite a renewed interest in physical activity as a preventative strategy for overall health, rural communities face unique challenges in encouraging physical activity through their built environments.
- Pike County is a rural-designated county in Northeastern Pennsylvania, facing challenges in its built environment that are comparable to similarly designated areas.
- The Physical Activity Neighborhood Environment Survey (PANES) is a validated tool useful for assessing local opinions regarding physical activity. **The findings in this study suggest a need not only for infrastructure renewal but also for measurement tools that are sensitive to the needs of rural areas, rather than an urban-focused lens.**

Issue

As rates of obesity and cardiovascular disease continue to rise globally, there is a renewed focus on physical activity as a key prevention strategy.¹ While broadly endorsed, opportunities to engage in physical activity are not equally available across geographic regions, particularly in rural areas where infrastructure is limited and distances to amenities are greater.^{2,3} Rural communities also possess unique features, such as natural trails, small-town centers, and community institutions (e.g., churches, libraries) that serve dual social or recreational functions. As such, involving residents is essential when evaluating neighborhood supports for physical activity, particularly in areas where traditional urban metrics may not be applicable.²

Background

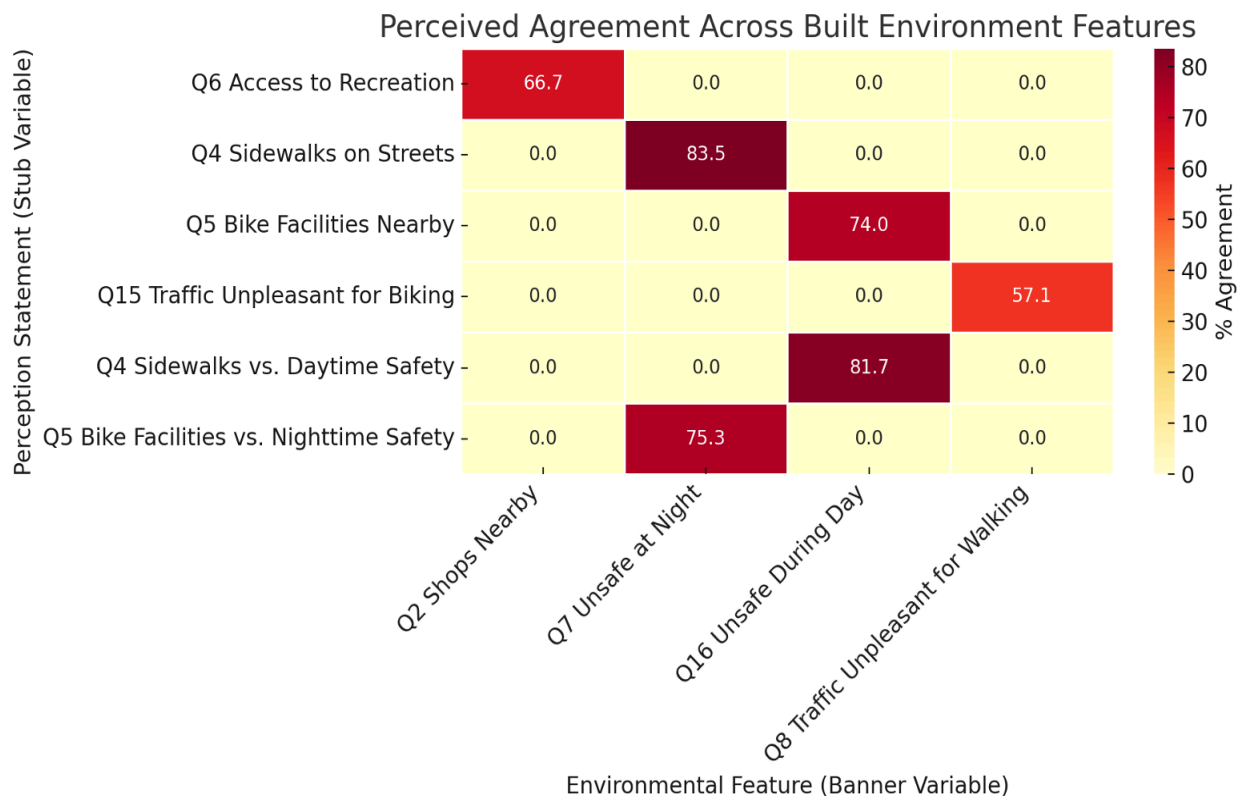
Pike County, Pennsylvania, is a rural-designated county in Northeastern Pennsylvania.⁴ With an aging population that often reports poor access to essential services, such as healthcare and supportive infrastructure, the county shares similarities with other rural-designated areas in Pennsylvania.^{5,6} To assess the impact of Pike County's built environments, the Physical Activity Neighborhood Environment Survey (PANES), a validated 17-item scale, was used to capture perceptions of neighborhood environments and environmental factors that shape opportunities for engaging in physical activity.⁷ The survey was distributed online to residents 18 or older within Pike County.

Findings

A total of 127 respondents completed the PANES survey. Cross-tabulations were conducted to explore potential relationships between questions regarding environmental features (e.g., sidewalks, bike paths, recreational spaces) and perceived barriers (e.g., crime, traffic). These analyses aimed to identify emergent patterns in how residents perceive their built environment. Six crosstab pairs were selected for analysis:

- Q2 x Q6** – Shops and recreation areas
- Q4 x Q7** – Sidewalks and nighttime safety
- Q5 x Q16** – Bike facilities and daytime safety
- Q8 x Q15** – Traffic and walking/biking experience
- Q4 x Q16** – Sidewalks and daytime safety
- Q5 x Q7** – Bike facilities and nighttime safety

The graphic below is a heat map, with each cell containing a percentage value showing the proportion of respondents who agreed with both of the intersecting questions. The row questions (Y-axis) represent the *perception statements* from the PANES survey, while the column questions (X-axis) represent the *environmental features* or conditions. Only values above 50% are visualized, in line with an analysis threshold of greater than 50% indicating a meaningful association. The darker the red, the higher the percentage of agreement, with pale yellow indicating 0% agreement.



Key findings:

- Sidewalks and overall perception (Q4 x Q7)
 - 83.5% who perceived sidewalks as present also agreed shops were nearby – hinting at a clustering of walkability features
- Sidewalks and safety (Q4 x Q16)
 - 81.7% of those who felt unsafe during the day also reported a lack of sidewalks – suggesting a strong perceived link between infrastructure and safety
- Bike facilities and nighttime safety (Q5 x Q7)
 - 75.3% of those who felt unsafe at night also reported no bike facilities, indicating safety concerns may correlate with perceptions of poor infrastructure
- Bike facilities and traffic (Q5 x Q16)
 - 74.0% agreement suggests poor traffic conditions are linked to perceptions of inadequate bike infrastructure
- Recreation and shops (Q6 x Q2)
 - 66.7% of those who agreed shops were nearby also reported access to recreational facilities – suggesting these features may co-occur in certain areas
- Traffic and walking (Q15 x Q8)
 - 57.1% reported that traffic makes biking unpleasant, and that they also felt traffic made walking unpleasant – revealing a general concern about road conditions

Considerations

The cross-tabulation analysis revealed consistent patterns indicating widespread infrastructure limitations across the surveyed rural community. Within Pike County, access to sidewalks and bike facilities remained low regardless of perceived safety levels, suggesting that physical barriers to active transportation exist independently of crime concerns.

Associations between environmental features also revealed notable trends. A strong relationship emerged between perceptions of traffic and discomfort with both walking and biking, highlighting traffic as a shared barrier to active mobility. In contrast, access to recreational spaces appeared more available than access to shops or transit, suggesting an uneven distribution of community amenities. Overall findings indicate that Pike County is a rural environment with significant gaps in walkable and bikeable infrastructure, despite safety not being perceived as a major concern.

Policy Recommendations

Targeted planning addressing infrastructural deficiencies to support equitable opportunities for physical activity

To better serve Pike County and other rural communities, addressing the previously mentioned issues is key. By constructing better-built environments, reducing the impact of existing traffic on walkability and biking, and equally distributing community amenities, rural communities like Pike County may see a shift in attitude towards physical activity.

Greater need for development of measurement tools that reflect rural realities rather than relying solely on urban-centric metrics

This study highlighted the value of assessing neighborhood environments through the perspectives of rural residents. PANES provided a useful framework for evaluating environmental supports for physical activity. Findings, however, suggested that several items in the survey may not have fully captured the lived experiences of individuals in rural areas. The cross-tabulation relationships support the need for context-sensitive planning in rural environments, where infrastructure gaps may strongly shape residents' sense of safety and access. In particular, the consistently reported lack of infrastructure, even in areas perceived as safe, underscores the need for measurement tools that reflect rural realities rather than relying solely on urban-centric metrics.

References

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