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# Context Matters: How History, Relationships, and Resourcefulness Shape Rural Physical Activity Systems

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## Abstract

Rural communities experience disproportionately high rates of chronic disease, a disparity influenced by lower levels of physical activity (PA) and persistent systemic and structural barriers. Using a constructivist grounded theory approach, we conducted 25 semi-structured key informant (KI) interviews to explore how county–municipal planners and parks and recreation professionals in 10 rural North Carolina counties navigate barriers (e.g., disinvestment, vulnerability to natural disasters, limited administrative capacity) and leverage facilitators (e.g., partnerships, shared infrastructure) to promote PA in their county. Findings revealed two structuring realities: *Acknowledging Historical Challenges and Seeking Community Engagement,* which consistently shaped stakeholders' approaches. KIs described the long-term impacts of industry loss, disinvestment, and natural disasters as defining features of their community landscape, highlighting how local trust, informal networks, and community voice are essential to every stage of their work. These orientations informed three interrelated processes: *Managing Financial and Organizational Resources***,** *Maintaining Community Infrastructure*, and *Exploring Opportunities for Community Development and Collaboration*. KIs emphasized the importance of relying on partnerships, relational networks, and adaptive strategies to sustain PA opportunities despite resource constraints. Our findings underscore the need for long-term and context-specific investment in relational and organizational capacity that aligns with communities' historical and structuring realities to improve rural PA opportunities.

**Keywords:** Rural, physical activity, community engagement, partnerships, constructivist grounded theory, parks and recreation

# L'importance du contexte : comment l'histoire, les relations et l'ingéniosité façonnent les systèmes d'activité physique en milieu rural

## Résumé

Les communautés rurales font face à des taux disproportionnellement élevés de maladies chroniques, une disparité influencée par de faibles niveaux d'activité physique (AP) et des obstacles systémiques et structurels persistants. À l'aide d'une approche constructiviste fondée sur la théorie ancrée, nous avons mené 25 entretiens semi-structurés avec des informateurs clés afin d'explorer comment les planificateurs des comtés et des municipalités ainsi que les professionnels des parcs et des loisirs de 10 comtés ruraux de Caroline du Nord surmontent les obstacles (par exemple, le désinvestissement, la vulnérabilité aux catastrophes naturelles, les capacités administratives limitées) et tirent parti des facteurs favorables (par exemple, les partenariats, les infrastructures partagées) pour promouvoir l'AP dans leur comté. Les résultats ont révélé deux réalités structurantes : la reconnaissance des défis historiques et la recherche de l'engagement communautaire, qui ont systématiquement influencé les approches des parties prenantes. Les informateurs

clés ont décrit les impacts à long terme du déclin industriel, du désinvestissement et des catastrophes naturelles comme des caractéristiques déterminantes de leur paysage communautaire, soulignant combien la confiance locale, les réseaux informels et la participation de la communauté sont essentiels à chaque étape de leur travail. Ces orientations ont guidé trois processus interdépendants : *la gestion des ressources financières et organisationnelles, le maintien des infrastructures communautaires et l'exploration des possibilités de développement communautaire et de collaboration*. Les informateurs clés ont souligné l'importance de s'appuyer sur les partenariats, les réseaux relationnels et les stratégies d'adaptation pour pérenniser les opportunités d'AP malgré les contraintes de ressources. Nos résultats mettent en évidence la nécessité d'investir à long terme et dans le contexte spécifique des communautés dans leurs capacités relationnelles et organisationnelles, en tenant compte de leur histoire et de leur structure, afin d'améliorer les opportunités d'AP en milieu rural.

**Mots-clés :** rural, activité physique, engagement communautaire, partenariats, théorie ancrée constructiviste, parcs et loisirs

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# 1.0 Introduction

## *1.1 Physical Activity and Rural Health Disparities*

Regular PA is a well-established factor in promoting health and preventing chronic diseases and premature mortality (Warburton & Bredin, 2017). Yet rural residents, who comprise 20% of the U.S. population (U.S. Census Bureau, 2020), are less likely to meet PA guidelines compared to their urban counterparts (Whitfield et al., 2019). More specifically, despite improvements in PA nationally, in 2017 urban adults meeting the combined aerobic and muscle-strengthening guidelines was 25.3%, whereas rural adults meeting the same guidelines was only 19.6% (Whitfield et al., 2019). This rural-urban disparity further contributes to increased chronic disease burden in rural areas (Benavidez et al., 2025; Garcia et al., 2017; Rhubart & Monnat, 2022), highlighting the need for context-specific strategies to address both environmental and social factors that impact PA access and engagement.

## *1.2 Structural and Systemic Barriers to Rural Active Living*

Economic and systemic barriers often persist in rural communities, complicating efforts to promote PA. However, barriers can manifest differently as rural communities vary widely in economic bases and histories (i.e., agriculturally dependent, post-industrial, natural amenity-rich, and chronically poor; Ulrich-Schad & Duncan, 2018). Although some amenity-based rural communities experience reinvestment tied to tourism and recreation economies, declines in key industries such as manufacturing, textiles, and agriculture in transitioning and chronically poor rural communities have led to economic downturns, rising unemployment rates, and declines in household incomes and thus local tax revenue (Hodges & Frank, 2014; Peters, 2019), constraining the ability of local governments to invest in recreational infrastructure and programming. Moreover, the impact of natural disasters such as hurricanes and flooding exacerbates existing vulnerabilities, diminishing access to health-promoting community resources and opportunities for PA and recreation (Paul et al., 2019). While some rural communities have pursued economic revitalization strategies through tourism and small business development, these

efforts are often hindered by infrastructure challenges and financial constraints (Hodges & Frank, 2014). Furthermore, building on rural community development scholarship, PA promotion in rural contexts is shaped not only by economic conditions or infrastructure availability, but by broader community capacity processes, including leadership, civic participation, cross-sector networks, and the ability to mobilize limited local resources toward shared quality-of-life goals (Abildso et al., 2021b; Matarrita-Cascante & Edwards, 2016).

### *1.3 Built and Natural Environments in Rural Communities*

The built environment plays an essential role in shaping PA behaviors. Features such as public parks, sidewalks, multi-use trails, and recreational facilities serve as essential infrastructure for promoting walking, biking, and other recreational activities (Hansen et al., 2015; Müller et al., 2024; Sallis et al., 2016). Better-quality built environments are positively associated with greater PA levels, especially walking, among adults (McCormack et al., 2022). However, rural communities, especially those in the southern United States, tend to have limited access to these amenities and fewer planning and funding resources (Abildso et al., 2021a; Hansen et al., 2015; Kegler et al., 2022). Furthermore, perceptions of poor maintenance, safety concerns, and longer distances between destinations are associated with lower PA engagement, especially walking, in rural areas (Baxter et al., 2022).

Although rural communities often face infrastructural limitations, they also possess unique assets that can serve as facilitators to active living. For instance, access to natural environments has been shown as an enabling factor for promoting PA in rural communities (Abildso et al., 2021b; Jones et al., 2021). Further, communities that have integrated PA into broader community development efforts through collaboration, grant-seeking, or tourism promotion have had greater success in promoting PA among rural residents (Abildso et al., 2021a; Abildso et al., 2021b; Kellstedt et al., 2021a).

### *1.4 Planning and Parks and Recreation Stakeholder Roles in Rural Physical Activity Promotion*

County/municipal planners and parks and recreation professionals are key actors in shaping environments that support active living. Their roles often involve navigating limited public resources to develop and maintain local infrastructure and programming. In rural areas, these professionals often work in dual or multifunctional roles, navigating challenges such as limited staffing, funding constraints, political resistance, and overwhelming community needs (Lobao & Kelly, 2019). To overcome these barriers, they rely on building strategic partnerships. Previous studies have shown that rural communities with stronger intersectoral collaboration and adaptable leadership are more successful in building environments that support PA (Abildso et al., 2021b; Kellstedt et al., 2021a). However, the specific processes by which rural stakeholders overcome resource limitations and leverage community assets at the local level remain poorly understood. Thus, the current study seeks to fill this gap by addressing the following research question: *How do rural county/municipal planning and parks and recreation stakeholders navigate barriers and facilitators to promote physical activity in their county?* By centering the perspectives of local actors, this qualitative study aims to contribute to a deeper understanding of rural systems change and further inform policy, systems, and environmental interventions to promote PA in rural areas.

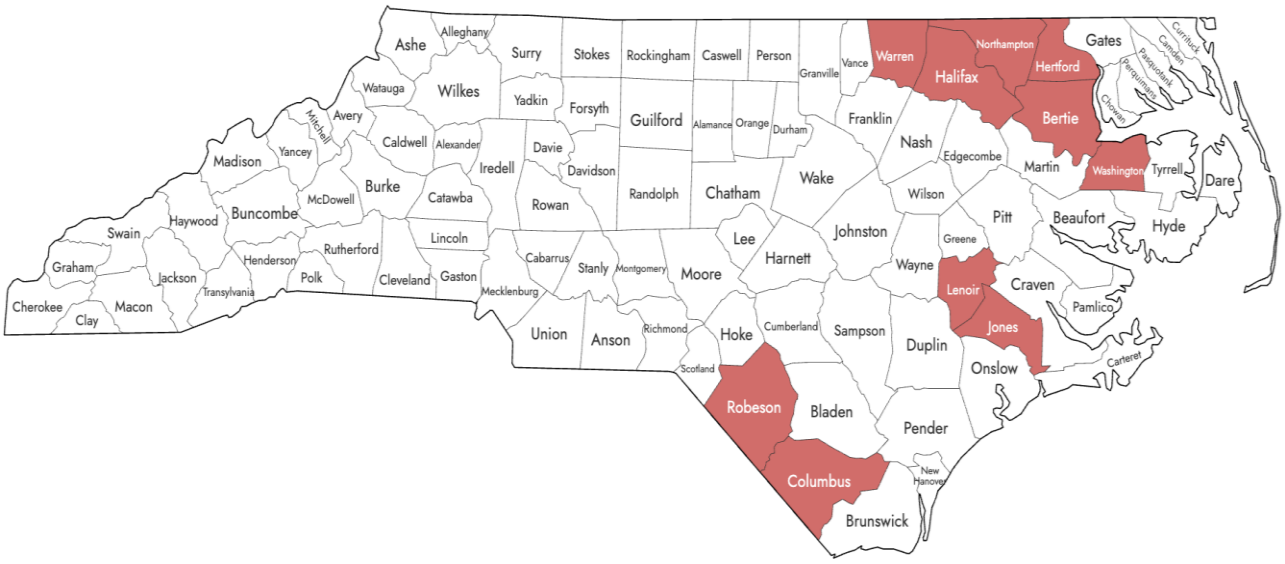
## 2.0 Methods

Constructivist grounded theory was chosen as the methodological foundation for this study because it offers a flexible yet rigorous framework for examining how meaning is constructed through interaction (Charmaz, 2006). Rather than approaching data as neutral facts to be discovered, it recognizes that both researchers and participants actively shape the analytic process (Creswell & Poth, 2024). Building upon this perspective, we examined how, when, and to what extent participants' experiences are situated within broader, and often obscured, social positions, networks, contexts, and relationships (Charmaz, 2006). This orientation was particularly well-suited for our study, which sought not only to elucidate participants' accounts but also to situate these accounts within the complex social and structural conditions that shape them. We identified and developed patterns and conceptual linkages among categories that emerged from the data, operating from the premise that multiple realities and indeterminacy are inherent in participants' experience (Charmaz, 2006).

### *2.1 Setting:*

In 2023, a research team at North Carolina State University was awarded funding from the Centers for Disease Control and Prevention (CDC) to support efforts to improve access to healthy eating and PA in ten North Carolina counties (see Figure 1).

*Figure 1*: Map of study counties.




*Source:* Authors.

Table 1 summarizes key health, socioeconomic, and demographic characteristics of the 10 study counties. Chronic disease risk indicators include adult obesity (age-adjusted percentage of adults ≥18 years that report a body mass index ≥ 30 kg/m2) and physical inactivity (age-adjusted percentage of adults ≥18 years reporting no leisure-time PA). Economic distress indicators include overall and

child poverty rates (percentage of all individuals and children ≤ 18 years living in a household with an income below the federal poverty level, respectively) and food insecurity rates (percentage of the population who did not have access to a reliable source of food during the past year). Additionally, percent rural population and Rural-Urban Continuum Codes (RUCC) are included to describe the degree of rurality of each county. RUCCs categorize U.S. counties into nine groups based on population size and the degree of adjacency to metropolitan areas (codes 1–3 represent metropolitan areas and codes 4–9 represent nonmetropolitan areas, with 9 being the most rural classification). At the time funding was awarded, each of these rural counties reported adult obesity rates exceeding 40%, along with above-average poverty and physical inactivity rates and low overall health rankings (see Table 1).

Table 1. *Health, Socioeconomic, and Demographic Information by North Carolina County*

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **NC** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Rural Population[a] | 100 | 59 | 90 | 76 | 100 | 100 | 59 | 100 | 89 | 75 | 33.3 |
| USDA Rural-Urban Continuum Code[b] | 8 | 4 | 9 | 8 | 9 | 9 | 4 | 8 | 6 | 4 | – |
| % Non-Hispanic African American Residents[c] | 50 | 53 | 57 | 61 | 42 | 49 | 32 | 29 | 30 | 23 | 22 |
| % Non-Hispanic American Indian/Alaska Natives[c] | 6.1 | 4.3 | 0.7 | 1.5 | 0.9 | 1.2 | 0.2 | 1 | 4 | 43.6 | 2 |
| % Hispanic Residents[c] | 4 | 3 | 3 | 4 | 6 | 9 | 9 | 6 | 6 | 9 | 11 |
| % Non-Hispanic White Residents[c] | 41 | 40 | 41 | 35 | 48 | 55 | 55 | 67 | 63 | 29 | 62 |
| Overall Poverty Rate (2022)[c] | 20 | 27 | 24 | 35 | 20 | 21 | 21 | 18 | 23 | 28 | 13 |
| Child Poverty Rate (2023)[d] | 31 | 42 | 32 | 32 | 34 | 36 | 32 | 30 | 30 | 38 | 18 |
| Food Insecurity Rate (2022)[d] | 17 | 18 | 15 | 16 | 16 | 18 | 18 | 16 | 17 | 20 | 14 |

***Table 1 continued***

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adult Obesity Rate (2022)[d] | 42 | 41 | 40 | 43 | 44 | 41 | 40 | 38 | 39 | 42 | 34 |
| Physical Inactivity (2022)[d] | 31 | 30 | 27 | 31 | 30 | 30 | 29 | 28 | 29 | 33 | 23 |
| Health Outcome Ranking[d]† | 92 | 97 | 86 | 84 | 89 | 87 | 90 | 70 | 91 | 100 | – |

Study Counties: (1) Warren; (2) Halifax; (3) Northampton; (4) Hertford; (5) Bertie; (6) Washington; (7) Lenoir; (8) Jones; (9) Columbus; (10) Robeson.

a: Data from U.S. Census Bureau 2020 Urban/Rural Classification–2025 Data Release

b: Data from 2023 USDA Economic Research Service

c: Data from U.S. Census Bureau 2022 Population Estimates

d: Data from County Health Rankings & Road Maps

†: Health Factor Rankings evaluate health behaviors, clinical care, social and economic factors, and the physical environment. Rank out of 100 counties in NC.

## *2.2 Participant Sample*

In partnership with each N.C. Cooperative Extension County office, participants were recruited through purposive sampling, leveraging established community relationships, to ensure the inclusion of individuals with relevant expertise in PA promotion and community planning. The research team intentionally selected KIs from each of the ten targeted rural counties. Eligibility criteria required participants to: (a) work within one of the specified counties; (b) be at least 18 years of age; and (c) be employed in either parks and recreation, health promotion, or community planning/economic development to capture their perspectives on facilitators and barriers to PA.

Recruitment was conducted via telephone and email using standardized recruitment scripts. All participants provided informed consent before participation. The initial round of interviews included (n=21) KIs representing nine of 10 counties. One additional round of theoretical sampling interviews (n = 4) was conducted to achieve theoretical saturation, resulting in a total of 25 participants. Following the final round of sampling, the distribution of participants by sector was as follows: parks and recreation (44%, n = 11), health promotion (16%, n = 4), and community planning/economic development (40%, n = 10). All study procedures and materials were approved by the North Carolina State University Institutional Review Board (approval #27079).

## *2.3 Interview Procedure*

Researchers conducted semi-structured interviews that balanced consistency across sessions and flexibility, allowing participants to elaborate on their experiences. Reflective preparation prior to data collection supported methodological rigor and researcher awareness throughout the process. Before each interview, researchers reviewed the study data and obtained written informed consent. Interviews were conducted in person or via Zoom, lasting 40–60 minutes, and were recorded.

Six team members (A.H-M., J.B., M.E., A.H., L.M., P.G.) with previous experience and training in qualitative interviewing conducted the interviews using a standardized interview guide with primary questions (see Table 2) and optional probes. Recordings were transcribed verbatim using either Zoom or Rev.com, then reviewed for accuracy and redaction of identifiers.

Immediately after each session, interviewers wrote reflective memos capturing contextual observations and early analytic impressions, which we systematically filed with the corresponding interview data to support analysis. Immediate member checking (e.g. paraphrasing and reflecting responses) was conducted to reduce participant burden during the initial interview phase as these occurred during the busy summer/fall months for parks and recreation professionals. However, interview summaries were shared with participants of the theoretical sampling phase (n=4) which occurred during the winter to enhance interpretive trustworthiness and ensure participant voice and representation (Birt et al., 2016; Padgett, 2008).

Table 2. *Interview Guide Sample Questions*

| **Category** | **Example Question** |
|---|---|
| Understanding Community Context | What are some of the changes you've noticed over time in the county/community related to residents' PA and access to parks and other recreation services? |
| | What do you think are some of the things related to those trends? |
| | In the past 20 years, what do you think are the most important events (local or not) that have impacted your [community/county]? |
| Barriers | What are some of the challenges you encounter in your work that make it difficult to reach your goals? |
| | What challenges limit your engagement with community members? |
| Facilitators | What are some of the resources in your [county/community] that help you reach your goals? |
| | What facilitates your engagement with community members? |
| | What organizations or groups are most active in promoting work around PA in the [county or specific community]? |

## *2.4 Data Analysis*

Data were analyzed in Dedoose version 9.0.17 using a constructivist grounded theory approach (Charmaz, 2006). Inductive coding allowed themes to emerge from the data, progressing through open, focused, axial, and theoretical coding with constant comparison throughout (Charmaz, 2006).

For open coding, each team member independently reviewed transcripts, sharing memos and collaboratively generating initial codes. Pairs then coded additional

transcripts, reconciling differences through discussion and, when needed, a third coder. Analytical memos documented coding rationales and reflections. Weekly meetings supported iterative refinement of the codebook, including definitions, parameters, and examples.

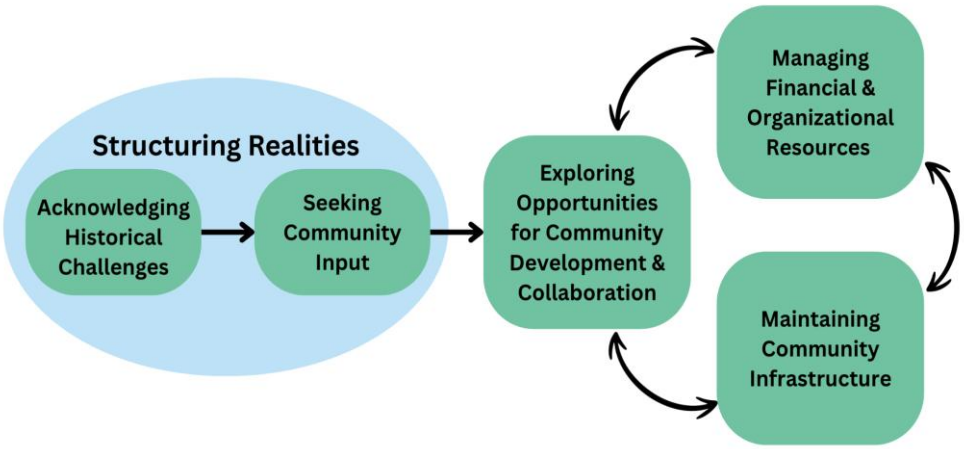
After reconciling across eight transcripts, we moved to focused coding of the remaining data. Axial coding explored relationships among categories, emphasizing conditions, actions/interactions, and consequences (Strauss & Corbin, 1998). Theoretical coding clarified connections between categories, drawing on the six Cs framework (causes, contexts, consequences, covariances, contingencies, and conditions; Glaser, 1978). The primary analyst (P.G.) led this stage, integrating team feedback to refine the emerging framework. One round of theoretical sampling (n=4) addressed conceptual gaps by specifying relations between categories, and saturation was achieved (n=22). The resulting theory offered an integrated understanding of intersecting elements (Miles & Huberman, 1994).

## 3.0 Results

Drawing on the reflections and insights of KIs, we developed a conceptual framework that captures how these KIs navigated challenges to promote PA in their rural communities (see Figure 2).

### *3.1 Model Overview*

*Figure 2.* Navigating rural physical activity conceptual map.




At the heart of the model are two structuring realities and persistent orientations that shaped how participants saw their work and understood what was possible: *acknowledging historical challenges* and *seeking community input***.** Rural stakeholders described these two central categories not as optional strategies but as conditions that rural stakeholders must continuously acknowledge and work within. They shaped how participants interpreted constraints, engaged with partners, and assessed the potential for action.

*3.1.1. Acknowledging historical challenges* refers to how participants situated their current efforts within a broader trajectory of rural economic and infrastructural decline. KIs spoke about the long-term impacts of industry loss, disinvestment, and

natural disasters not as background information, but as defining features of their community landscape. These experiences influenced how they assessed capacity, prioritized needs, and approached new projects. Past disruptions, such as the closure of textile mills or hurricanes that devastated parks and roads, lingered in memory and shaped new planning conversations. Participants did not treat these events as exceptions; instead, they accepted them as part of an ongoing, structural reality that had to be taken into account in any community health initiative.

*3.1.2 Seeking community input* captures how participants prioritized listening to and understanding the perspectives of community members as a foundation for effective action. Rather than assuming they already knew what communities needed, participants emphasized the importance of asking questions, gathering feedback, and grounding their efforts in residents' daily realities. Seeking input was seen as a way to ensure that programs and investments reflected genuine local priorities and would be embraced by those most affected.

These two core structuring realities informed the three interrelated system-level categories: *Exploring opportunities for community development and collaboration, managing financial and organizational resources***,** and *maintaining community infrastructure*. These categories functioned as part of a dynamic system. For example, financial limitations shaped which facilities could be built or maintained, but visible infrastructure often attracted new partners or grants. Partnerships, in turn, expanded organizational capacity and helped sustain infrastructure in the long term.

KIs described these relationships as cyclical, adaptive, and mutually reinforcing. Rural communities succeeded not by following a linear path, but by weaving together resources, relationships, and shared commitments in response to shifting conditions. The model illustrates that promoting PA in these communities is not simply a matter of funding or planning. It requires navigating an evolving system shaped by structural hardship, relational strength, and resilience that rural professionals have come to understand, accept, and skillfully navigate.

## *3.2 Acknowledging Historical Challenges*

While planning and promoting PA opportunities, KIs emphasized their constant awareness of the historical challenges that influenced the assets and resources available to them. Participants consistently described how long-term economic shifts, such as the decline of industries that once served as economic anchors, disrupted community infrastructure and reduced opportunities for PA. The loss of major employers, such as textile mills and manufacturing plants, led to population decline, loss of public revenue, and reduced investment in recreational spaces and programs. As one KI noted, "some of our industries have left, and I think that's probably what has hurt us, probably in the last 20 years with [manufacturing plant] was a big one" (KI-8).

KIs described how these economic losses also indirectly affected PA opportunities by eroding the tax base that funded parks, recreational programs, and community events, which had historically encouraged active lifestyles. One KI explained:

> You've got a tax base drying up, so there's less money for improvements, people leaving. So there's fewer people in school, fewer kids in school, fewer housing developments being built. So it just probably declined the

> amount of people being physically active in the area and let the infrastructure degrade a little bit more than it usually would, cut down on any opportunities that it could have come in, like recreation centers or programs, things like that. (KI-5)

This historical context shaped how rural residents and leaders engaged with one another to seek advice and share ideas about improving community health and PA opportunities. Participants reflected on how they had to adapt to economic downturns and natural disasters, fostering collective problem solving and reliance on informal advice networks. As one informant summarized, "all rural areas have to figure out how to deal with the shift that took place maybe 20–25 years ago, from loss of industry. That shaped everything" (KI-18).

Several participants described how the intertwined effects of environmental disaster and economic decline accelerated long-term outmigration and community loss. One KI reflected:

> Going back to the flooding issue, that's really the issue that comes into the last 20 years is those hits in terms of population…it doesn't happen overnight. It's kind of a dripping effect. But that population loss in the past two censuses, I mean, I think it's a product of really those two things of natural disasters and loss of manufacturing jobs out there. (KI-22)

Historical challenges also influenced how communities managed financial and organizational resources for PA. Large-scale disasters, such as Hurricane Florence (2018) and Hurricane Matthew (2016), forced local governments to prioritize recovery efforts at the expense of long-term investment in parks and trails. As one city planner stated:

> Our main priority was getting the people back out healthy, living back into their homes, back having access to the grocery stores, back having access to the farmer's market...a lot of our parks were flooded, so we really couldn't access the park. (KI-14)

The compounded effects of Hurricanes Matthew and Florence were described as transformative, reshaping both the physical and emotional landscape of the region. As another KI explained:

> Hurricane Matthew and Hurricane Florence. No doubt. Those were 500-plus-year flood events that happened 23 months apart. And quite honestly, we still, that was 2016 and 2018, we're still recovering, and I don't know that recovery will ever be fully complete. (KI-25)

Despite devastation, informants emphasized that disasters prompted reflection and adaptation. One KI noted:

> Natural disasters are always front of mind in this county. I think both from an individual standpoint and from a local government standpoint. Obviously, we've kind of got it down to a science by now, but everything we think about, if it's a transportation project, if it's an economic development project, if it's emergency management planning, flooding and hurricanes are always at front of mind for us. (KI-22)

The economic, environmental, and social disruptions these communities experienced over decades directly influenced how they expanded PA opportunities, managed limited resources, and pursued collaborative development efforts.

### *3.3 Seeking Community Input*

As KIs addressed historical challenges, they emphasized engagement strategies tailored to the realities of rural areas. *Seeking community input* refers to the trust, relationships, and networks within a community, which guides the development, implementation, and sustainability of PA initiatives.

KIs explained that engagement was essential for sustaining local resources, particularly in areas where infrastructure and funding streams were limited. Community voices became powerful mechanisms for mobilization, underscoring the need to enter communities with openness and follow the residents' lead. One KI shared:

> Just go in and ask people what they want. Just listen to 'em. Just listen to them because they don't want to be told what you want to do. They want to tell you what they need and what they want. And if they don't want anything, then move on to a place that does…you don't waste your time trying to do something that you think needs to be done. (KI-5)

This quote underscores the importance of entering communities with a willingness to listen. The KI advocated for asking residents what they need rather than imposing preconceived solutions, emphasizing that genuine engagement involves following the community's lead. This insight reinforces a broader pattern in the data: participants described how strong relational networks and local voices often mobilized action and sustained initiatives in the absence of formal infrastructure or funding.

KIs also described how community engagement was critical for ensuring that collaborations produce outcomes that are responsive to community needs. Without direct and sustained community input, they shared, even well-funded collaborations risk creating facilities or programs that lack alignment with resident priorities. One KI emphasized this link between engagement and community buy-in: "we get community involvement so that it's not me making a decision, it's the community saying, this is now our priority" (KI-14).

This insight reinforces the core of our conceptual map: *Seeking community input*. For these KIs, it was not just a preparatory step; it was an ongoing practice that sustained participation and relevance across the life of collaborative projects. It was also a way for them to address the historical challenges that shaped their communities by working together.

### *3.4 Exploring Opportunities for Community Development and Collaboration*

*Exploring opportunities for community development and collaboration* captures how rural leaders actively build and sustain partnerships to enhance community assets and expand PA opportunities. Through collaboration, communities share expertise, pool resources, and strengthen their capacity to support long-term development in resource-constrained environments.

Collaboration was consistently framed as a financial necessity. For KIs, partnerships were the only viable pathway to access funding streams and sustain basic operations in the face of chronic underinvestment. One KI noted:

> They're essential. I mean, if we didn't have those relationships, we wouldn't be able to do a majority of what we do. I mean, as you know, with government funding, it's very limited what you can do. You're always looking for someone to partner with on a grant. (KI-23)

Other partnerships provided in-kind support. These relationships demonstrated that even when financial contributions were limited, collaboration itself created opportunities to extend program reach. One informant explained:

> Some of those community partnerships I mentioned. The [community organization], our Health Department. They're a huge asset for us, and they might not be able to help us on the financial end, but just the partnership with those is really going to be an asset for our new fitness center. (KI-10)

Collaborations with schools offered another example of shared benefit and resource exchange. One KI explained:

> Yes, we have a joint use agreement with the [town] schools… but the school is able to use dual fields. That's where they have their baseball, all of their baseball games for the high school. They use the canal trail for cross-country. (KI-12)

These agreements illustrated how community and educational institutions worked together to maximize limited infrastructure, expanding opportunities for recreation and PA through coordinated use of shared spaces.

At the local level, collaboration reflected deeply rooted social networks and a culture of mutual assistance. One KI explained:

> I think a lot of times just the networking that it creates…Yeah, I would say people and partnerships for sure...there's a network of folks that somebody around here is going to be able to help you some way. So I think that's a critical thing that we lean on all the time. (KI-22)

In this way, collaboration bridged structural constraints and community resilience. Partnerships extended the reach of limited resources and deepened collective ownership of local initiatives. Through ongoing communication and shared reliance, participants worked to transform historical challenges into opportunities for adaptive, community-driven development.

### *3.5 Managing Financial and Organizational Resources*

*Managing financial and organizational resources* captures how rural leaders actively coordinate funding, staffing, and administrative capacity to sustain programs and partnerships. This category illustrates how communities develop creative strategies to navigate fiscal constraints, share expertise, and maintain essential services. This domain operates in a cyclical relationship with *Exploring opportunities for community development and collaboration* and *Maintaining community infrastructure.*

Resource management often requires flexibility and creative problem-solving, as communities must continually adapt to shifting budgets, staffing limitations, and competing priorities to sustain essential programs and services. One KI shared:

> So, I think funding is a huge barrier but also, I think, manpower. We have limited staff and you know there's just not enough time in the day. We have facilities enough to do more, but we don't have the manpower to kind of manage that or to always. (KI-12)

Participants stressed the need for specialized administrative capacity to navigate these interconnected demands. They noted that the ability to identify and manage grants, communicate across agencies, and sustain partnerships depended on staff with the right expertise. As one explained, “that's something we would definitely need is a grant writer” (KI-23). This recognition reflected how organizational infrastructure and financial management were inseparable: without dedicated administrative skill, even promising opportunities could not be fully realized.

Ongoing limitations in staffing and funding underscored the structural vulnerabilities that shaped local capacity for program delivery and maintenance. One KI noted: “I'd say 90% is funding. You know, we're a small municipality...keeping our facilities up is hard, because number one, we don't have our tax base like we used to” (KI-8).

Despite these barriers, participants expressed persistence and strategic planning, emphasizing long-term commitment to maintaining community assets and identifying incremental opportunities for improvement even within constrained budgets.

> We try and find resources where we can, if we lean heavily on grant support, we were very lucky with [federal funds], but that's gone away and I think we're trying to make that connection of a little bit more cash or more financial resources would give us a little more flexibility. (KI-22)

Informants described financial management as a balancing act between strategic planning and structural limits on borrowing and grant capacity: “but even that,

there's a limit because the city can only borrow so much money or we can only have so many grants at one time to be able to manage them properly" (KI-23).

Informants emphasized across other categories that collaboration and infrastructure were integral to sustaining financial and organizational capacity. Managing financial and organizational resources required creativity, persistence, and strategic coordination across agencies and sectors. Through partnerships, shared expertise, and adaptive planning, communities worked to maximize limited budgets and staff to maintain programs and facilities.

### *3.6 Maintaining Community Infrastructure*

*Maintaining community infrastructure* involves caring for, sharing, and reinvesting in physical spaces such as parks, trails, schools, and recreation centers that sustain community life and PA. In rural areas, these spaces act as essential assets that anchor social connection, support collaboration, and reflect local commitment to health and vitality. Participants described how they worked to preserve resources, strengthen partnerships, and make visible improvements that signaled readiness for future investment.

Participants also highlighted how shared facilities such as school gyms, parks, and walking trails served as catalysts for collaboration. These spaces provided rare environments where organizations came together to plan, share responsibilities, and build trust. As one KI explained,

> So we do have, they're starting a baseball program and a softball program, and so we have a formal agreement with [community college] to use one of the baseball fields and one of the softball fields at [park] for their program (KI-25).

This example shows how the scarcity of infrastructure compels actors across sectors to engage in cooperative planning, forming partnerships out of necessity and building trust through shared use. Another KI described, "The public schools of [county], we work together and we share facilities...We jointly do programming together with some activities" (KI-23).

These shared arrangements do more than optimize space; they establish foundations for deeper collaboration, such as joint program design, resource sharing, and co-investment in infrastructure maintenance. In doing so, community infrastructure both embodies and fosters opportunities for collective practice.

KIs saw physical spaces as outcomes of financial investment and as indicators of organizational readiness. Even modest local investments signaled initiative and credibility with external funders. One KI illustrated,

> Now that we've renovated. We were also able to recently get some grant funding to put in some accessible restrooms. where the Splash pad is which is, has been helpful as well, because the restrooms inside the facility are not ADA accessible because the building was built years and years ago. (KI-12)

Minor infrastructure improvements can serve as a signal to regional or state-level partners, embodying a local commitment and sound resource management. In turn, this readiness can attract further support. Participants also emphasized that once established, infrastructure evolves into a shared platform that grows in value through collaborative use. One participant illustrated: "We have [a park] with all of the baseball and softball amenities there. I know that [youth baseball association] attracts a lot of participation out from the county residents, not just the city residents" (KI-25).

This example underscores how infrastructure can become a collective resource, reinforcing the need for sustained collaboration and continued investment. Infrastructure itself transforms into a focal point for future development and a hub for new partnerships.

*Maintaining community infrastructure* functions as an essential component of an interwoven system that upholds PA in rural communities. Participants emphasized that sustaining infrastructure depends on ongoing coordination, shared investment, and collaboration across sectors. By working together to preserve and enhance community spaces, rural leaders strengthen local capacity and create lasting foundations for collective well-being.

## 4.0 Discussion

As KIs have found ways to promote health in their communities, they have adopted several key strategies to undertake this work. They have made PA decisions against the backdrop of persistent historical challenges that have shaped their ability to do their work. They also relied on trusted advisors and the community to find ways to adapt and persist in their work despite these challenges. The broad and deep historical challenges they faced were related to natural and human-made disasters, which led to chronic issues such as limited resources for PA work. Understanding this historical context is essential for designing effective strategies to expand PA opportunities in rural areas, as these efforts are inextricably linked to the broader realities of economic decline, disaster vulnerability, and resource constraints.

Even as KIs described shared historical challenges, ongoing community engagement, and collaborative approaches to managing resources and infrastructure across counties, the sample reflected meaningful variation in rural context that merits attention, particularly in rural-urban continuum codes (RUCC) classification. While all counties were classified as rural, several were adjacent to metropolitan areas (RUCC 4, 6, or 8), whereas others were nonadjacent and more geographically isolated (RUCC 9). Metropolitan adjacency may offer potential access to regional infrastructure, institutional partnerships, or service spillover; however, prior comparative rural research suggests that such contextual differences alone do not determine community capacity for PA promotion. In their comparative case study of rural counties with differing PA prevalence, Abildso et al. (2021b) found that physically active rural communities were distinguished by the presence and interaction of multiple forms of community capital including human, social, organizational, political, and built capital rather than by rural classification alone. Importantly, the authors emphasize that leadership, cross sector collaboration, and the ability to strategically mobilize limited resources shaped PA opportunities across rural contexts. Consistent with this framework, KIs in the present study described similar constraints and strategies regardless of metropolitan adjacency, suggesting that while proximity to urban areas may shape available resources at the margins, it

does not fundamentally alter the structural and relational processes through which rural practitioners promote PA. Future research could more explicitly examine how metropolitan adjacency interacts with administrative capacity, partnership density, and resource mobilization to shape PA systems across diverse rural contexts.

Rural communities face systemic barriers that shape their ability to both fund and implement health promotion programs. These include higher rates of poverty and unemployment, decreasing populations and declining tax bases, all of which lead to a crumbling health infrastructure in many rural areas and higher rates of morbidity and chronic diseases (Coughlin et al., 2019; Leider & Henning-Smith, 2020). There is a growing literature describing the 'deaths of despair' in rural communities, which notes how morbidity in rural communities is directly linked to economic insecurity and a reduction in social investments (Knapp et al., 2019). This structural reality, combined with natural disasters and the impacts of climate-related health crises, undergirds how local decision-makers are (or are not) able to do their work. Additionally, although institutional racism is widely recognized as a structural determinant shaping inequities in rural communities (Bailey et al., 2017; Bell & Owens-Young, 2020; Kozhimannil & Henning-Smith, 2018), it was not explicitly raised by participants in this study and therefore was not represented as a theme in our findings.

As KIs navigated these historical challenges, they sought advice from fellow practitioners and engaged the broader community to ensure that PA strategies addressed the impacts of historical challenges and natural disasters and made sense for their rural areas. In practice, participants described seeking community input as occurring primarily through informal, relationship-based approaches (e.g., ongoing conversations with residents and trusted local partners) rather than formalized mechanisms such as surveys or structured listening sessions, suggesting that engagement strategies may be shaped by limited community and organizational capacity in rural settings. This reflects recent calls by scholars for more nuanced community-based work in rural areas, specifically, taking an intersectional approach that focuses on the "structural, historical, and policy influences" (Novak et al., 2020; p. 1343) that shape disparate health outcomes in rural communities across various markers of identity and place (Hardison-Moody et al., 2025; Novak et al., 2020). In rural settings, where formal resources may be limited, strong community ties and local knowledge are essential for identifying needs, mobilizing assets, and ensuring efforts reflect lived realities (Hardison-Moody et al., 2021). Given that a majority of PA intervention research has taken place in urban communities (Müller et al., 2024), there is an increased need for this kind of community engagement in rural communities, which can foster collaboration and ensure that strategies are culturally relevant and responsive to historical and structural challenges.

Our conceptual framework outlines how these structural realities and a community-oriented approach to problem-solving have shaped how KIs think about community health as they implemented the key strategies of *Managing Financial and Organizational Resources*, *Maintaining Community Infrastructure*, and *Exploring Opportunities for Community Development and Collaboration*. In particular, our findings reinforce and extend previous research on the structural fragility of rural PA systems, particularly the challenges communities face in maintaining even minimal financial and organizational capacity. As noted in earlier work (Edwards et al., 2014), rural public service systems are often stretched thin, with entire county-wide departments dependent on a single staff member or informal volunteer

networks that are unsustainable. More recent studies continue to document these same structural barriers, underscoring the limited progress made in addressing the staffing shortages, sustainability challenges, and administrative burdens that shape rural health promotion (McGladrey et al., 2020; Wende et al., 2024). This study builds on those observations by highlighting how deeply embedded these vulnerabilities are in rural organizations where a lack of administrative infrastructure compounds funding gaps, and where even pursuing external support requires capacity that often does not exist.

Consistent with Umstattd Meyer et al.'s (2016) critique that rural health promotion too often relies on urban solutions in disguise, KIs emphasized the futility of grant opportunities that presume access to matching funds, pre-existing partnerships, or full-time administrative personnel. These gaps reflect a systemic exclusion rooted not in apathy or disorganization, but in historical patterns of underinvestment and depopulation. Without dedicated administrative capacity (e.g., grant writers, shared coordinators, or regional planning support), even the most motivated local leaders are structurally disadvantaged in accessing the very resources that might strengthen their systems. Our findings highlight several priority areas for future research and policy. Rural communities need scalable strategies to build organizational resilience (e.g., redundancy planning, shared staffing models, or succession support). Volunteer-dependent systems should be better understood and resourced in ways that avoid overburdening informal labor. Expanding administrative capacity through regional grant-writing or planning infrastructure is also critical. Finally, the equity dynamics of fragile systems, where responsibility is concentrated in a single person or agency, warrant closer examination. Without addressing these gaps, rural communities will continue to be structurally disadvantaged in advancing sustainable PA efforts.

Additionally, KIs spoke earnestly of their commitment to maintain community resources and infrastructure seriously, even as they acknowledged the limitations of those resources. They recognized how garnering new resources—like a walking trail—could lead to additional investment in their communities. Still, they noted how difficult it was to obtain and maintain those resources, reiterating how critical partnerships were to this work. As researchers have pointed out, there is a dearth of research on the types of policy, systems, or environmental changes that can best support increasing PA in rural areas (Wende et al., 2025); instead, rural communities are often tasked with implementing the evidence-based practices that have been designed for and with urban areas (Afifi et al., 2022). As a result, we know little about the effectiveness of interventions in rural areas, which may deter potential funders from supporting this work (Barnidge et al., 2013). As a result, rural communities are often held to the exact implementation and evidence-based standards as their urban counterparts, but they are tasked with doing this work with far fewer resources (Afifi et al., 2022). Thus, participants described that establishing partnerships and collaborations, then, were the only ways they could achieve more with less.

Finally, our findings underscore the central role that collaboration and community relationships play in sustaining rural PA opportunities. Rather than operating through formalized coalitions or top-down programs, rural communities rely on overlapping social networks, shared leadership, and place-based trust to mobilize action. These findings reinforce prior research that highlights the value of intersectoral partnerships and civic engagement in promoting rural PA (Abildso et al., 2021b; Kellstedt et al., 2021b), while also extending that work by showing how these partnerships serve as informal vehicles of community development. In contrast

to urban planning approaches that emphasize built-environment interventions (Zhang & Warner, 2023), the rural strategies described by KIs emphasized shared use of existing spaces, volunteerism, and cultural familiarity as key assets. This aligns with earlier findings that rural collaboration is not merely a workaround for limited resources; it is a normative orientation embedded in rural service delivery (Edwards et al., 2014). Yet, as participants noted, the sustainability of these partnerships remains precarious. As noted by (Barnidge et al., 2015), even effective partnerships risk collapse without ongoing engagement, administrative coordination, or leadership continuity. This study advances that concern by demonstrating how collaborative systems, while often resourceful, remain vulnerable to turnover, burnout, and the absence of formal support structures.

Consistent with Umstattd Meyer et al.'s (2016) call to develop rural-specific solutions, our findings suggest that fostering community development in rural areas requires not only programmatic funding but also long-term investment in the relational and organizational capacity that enables collaboration to flourish. This includes exploring regional governance structures or collaborative frameworks (e.g., shared service agreements or multi-county coalitions), and funding interagency coordinators, establishing shared convening spaces, and providing technical assistance for community development processes (Edwards et al., 2011). Without such structural innovations, even the most motivated rural leaders will remain constrained by systemic limitations beyond their control.

### *4.1 Strengths & Limitations*

This study offers several strengths. Drawing on KI interviews across multiple rural communities, it provides a systems-level perspective on organizational, financial, and relational factors shaping PA opportunities, an angle often overlooked in individual-focused studies. Diverse community contexts enhance transferability, revealing both shared structural challenges and local adaptations. Findings extend prior research by illustrating how administrative fragility and relational infrastructure operate in practice. They also offer timely guidance for funders, demonstrating how urban-centric models can overlook the relational strengths (e.g., long-standing relationships and cross-sector familiarity) that, when supported, can drive community-led health promotion in rural communities.

The study also faces limitations. Informants were purposively selected, likely emphasizing supportive perspectives while overlooking dissenting voices or informal stakeholders. Although geographically varied, findings may not generalize to all rural contexts with different governance, cultural norms, or economic conditions. Reliance on retrospective accounts reflects participants' interpretations rather than direct observation, which may narrow perspectives on how others experienced strategies. Finally, while themes related to youth and underserved populations emerged, the analysis focused primarily on community systems rather than population-specific experiences. Although the counties were racially diverse, the study did not systematically examine how race, ethnicity, or other demographics shaped informants' perspectives. As a result, equity issues raised in prior research on rural racial divisions (Edwards et al., 2014) remain underexplored and represent an important area for future study.

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