Transportation Practices of People Living with HIV in Rural Areas

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Abstract

Transportation has evolved throughout the past several years through developments in HCI and sociotechnical systems. However, there has been a lack of studies examining transportation in rural areas for vulnerable populations. Our study focuses on the transportation facilitators and barriers faced by people living with HIV in rural areas. We were informed through 31 surveys and 18 interviews with people living with HIV in rural areas and their case coordinators. We highlight the importance of utilizing a patchwork of transportation methods and having social networks to support transportation needs. Emerging, popular forms of urban transportation do not translate well due to differences in trust, infrastructure, rural culture, and stigma.

Introduction

HCI research has significantly contributed to advances in transportation access and availability. However, there has been a lack of studies focusing on transportation in rural contexts rather than urban areas. Rural areas differ in that they often have limited access to public transportation, taxis, and real-time ridesharing services[1,2]. People living in rural areas rely more on personal vehicles[3,4], and effects of poverty are amplified in rural areas because of longer travel distances and less transportation access[5,6]. Thus, when designing sociotechnical systems for rural areas, it is important to consider what barriers and facilitators rural residents face, as well as which lessons learned from studies in urban areas are applicable to rural areas. Addressing people living with HIV in rural areas, transportation to health-enhancing resources such as employment, food, and healthcare[7] are important because lack of access to transportation is negatively correlated with HIV treatment adherence[8–10]. Given previous work with underserved populations[11–17], it is important to understand the role of community and healthcare stakeholders in transportation access to these resources[7]. In our study, we investigate transportation used by people living with HIV in rural areas and the role of community-based and healthcare organizations in facilitating this travel.

Literature Review

Lack of transportation limits access to health-enhancing resources such as employment, healthy food, and healthcare[7]. In rural areas where people depend on automobile ownership because of limited alternatives[4,18,19], transportation barriers can be exacerbated for those who cannot afford their own vehicle[20,21]. Primarily due to long distances and associated increased costs, people living in rural areas have limited access to these resources[19,22–26].

Reliable and consistent transportation are important for people living with HIV to help them miss fewer doses of their antiretroviral medications[8–10]. Past studies show that people living with HIV in rural areas face greater transportation barriers than their urban counterparts[9,27,28]. High poverty, age, and disability rates compounded with rural transportation barriers create increased challenges for people living with HIV in rural areas[9,27,29,30].

In current HCI research, there is an emphasis on assessing transportation in urban contexts. Past studies have examined technology designed to inform users of available transportation,[31–36], ridesharing services[37–39], and interpersonal trust[40–45]. More recent studies have focused on technologies designed to help underserved populations overcome transportation barriers[44,46]. It is important to consider how these past studies may apply to rural contexts. Research on transportation in rural areas in the past has focused on informing users of available transportation modes[47–49].

Methods

This study took place in a rural state in the United States (US) Midwest. The region is primarily agricultural. Due to a past outbreak linked to the opioid epidemic in the US, there are increased numbers of people living with HIV in the area. 26 counties in the region are considered medically underserved for primary care, and residents may have limited internet access[50].

Recruitment occurred with collaboration from a HIV support center located in the study region. Surveys were distributed through the support center to people living with HIV, as well as an abridged version of the survey to support staff. The survey collected information regarding vehicle access, travel to work, grocery stores, healthcare, and questions about healthcare, disability and chronic conditions, access to technology, and demographics. Survey respondents were asked if they would follow-up with a phone interview.

Phone interviews were conducted with people living with HIV and their case coordinators. Participants were asked about their transportation practices, challenges faced, and the applicability of urban-based transportation models to their local contexts. In total, 22 surveys and 14 interviews were conducted with people living with HIV, and 9 surveys and 4 interviews were conducted with their case coordinators.

Findings

The majority of participants living with HIV were male, white, and living on less than $2,000 per month. Just under two-thirds of the participants had a car. The participating case coordinators were majority female, white, and employed full time.

Driving a personal vehicle was the most common form of transportation. When not available, participants went through a process of identifying other transportation opportunities. First, personal means were examined. Could the participant drive his or herself, or was he or she familiar with public transportation (when available)? Next, the participant may ask for personal favors from friends or family. Last, participants resorted to asking their case coordinators for help or utilized insurance-provided paratransit services.

Case coordinators gave rides to healthcare appointments, acting as a "last line of defense" for their clients. They also arranged financial assistance for travel to healthcare appointments and problem-solved with clients about their transportation needs. Though there was general interest in other community-based organizations helping with transportation, no participant used transportation services from them.

Facilitators of transportation included car ownership, having a support network, medical insurance, light reciprocity, and confidential modes of transportation. Barriers included lack of infrastructure and safety, physical health and disabilities, lack of independence, temporal matching, coordination breakdowns, lack of knowledge of available transportation services, spatial matching, stigma and cultural boundaries, lack of interpersonal trust, and affordability.

Discussion

Though not all participants owned cars, those that did relied on their personal vehicles. This aligns with prior research emphasizing the importance of personal vehicles because of a lack of public and private transportation in rural areas, especially for vulnerable populations living with disabilities[4,18,51,52]. Lack of car ownership, infrastructural challenges, long distances, physical health, scheduling mismatches, and affordability all compound to greater transportation barriers. People living with HIV in rural areas have "to weave together" different transportation options[9]. Our findings extend prior research that emphasizes the importance of social networks in rural contexts[1,53,54]. Compared to past urban studies, there is a greater concern about independence in rural areas[55]. There was also a lack of awareness of what transportation modes were available.

Our findings, along with past research, point towards a technological design that delivers contextualized information for users. Public transportation is not always available, and ridersharing may not be a good fit for rural populations because of concerns of trust and availability. A sociotechnical application could help coordinate favors between users, such as the model proposed by Dillahunt & Veinot (2018)[7] does. Application interfaces between rider, family and friends, and case coordinator would allow users to see available transportation modes from their community as well as their social network.

Conclusion

Our study examined the facilitators and barriers of transportation experienced by people living with HIV in rural areas. By collaborating with and understanding the needs of vulnerable populations, future sociotechnical systems can prove to be promising in both rural and urban contexts.

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