Understanding Travel Behaviors and Mobility Challenges Faced by Older Adults during the COVID-19 Pandemic

Troyee Saha 1, Kathy Lee 2,*, Kate Kyung Hyun 1, Jessica Cassidy 2 and Soeun Jang 2

1 Department of Civil Engineering, University of Texas at Arlington, Arlington, TX 76019, USA; tss2850@mavs.uta.edu (T.S.); kate.hyun@uta.edu (K.K.H.)
2 School of Social Work, University of Texas at Arlington, Arlington, TX 76019, USA; jessica.cassidy@mavs.uta.edu (J.C.); sxj7706@mavs.uta.edu (S.J.)
* Correspondence: kathy.lee@uta.edu

Abstract: Background: During the COVID-19 pandemic, older adults were considered one of the most vulnerable groups as they faced obstacles when traveling for daily activities. This study examined the impact of the pandemic on travel behaviors among older adults, aiming to shed light on the challenges they faced and potential strategies for support. Methods: We conducted semi-structured, individual interviews with older adults. The data were analyzed using thematic analysis. In addition, their trip frequencies and usage of different transportation modes were descriptively analyzed. Results: While the participants reduced overall trip frequency during the pandemic, they were more observant when discussing essential needs. Study participants emphasized their reliance on family members for rides to essential destinations. Non-drivers faced added stressors and fears, particularly regarding safety measures and hygiene protocols on public transportation. Several individuals embraced ride-hailing services as a viable transportation solution, indicating benefits such as reduced exposure to crowded public transit and increased convenience. Conclusions: Macro-level efforts should include supplementary technological and transportation assistance services, along with increased awareness of safety protocols within public transit. These initiatives are expected to enhance the accessibility of existing mobility systems for older adults.

Keywords: travel behaviors; trips; accessibility; driving; ride hailing

1. Introduction

It is well recognized that older adults aged 65 and older are particularly susceptible to adverse health outcomes amid the COVID-19 pandemic [1]. The pandemic has brought several challenges for this vulnerable population, including restricted access to medical care, delayed preventative care appointments, and disruptions in non-skilled home health aides for in-home care [2,3].

The COVID-19 pandemic has impacted the travel behaviors of older adults, highlighting transportation as one of the key factors exacerbating mobility challenges [4]. Older adults without a driver’s license or those who no longer drive were especially burdened by travel restrictions due to personal health and safety concerns [2,5]. Similarly, older adults with mobility disabilities experienced difficulties accessing both public and private transportation and reported a lack of accessible transportation options [6]. Historically, older adults with mobility disabilities took fewer daily trips, often lived in lower-income neighborhoods, and relied heavily on public transportation or paratransit services, such as on-demand buses, provider-based shuttles, and other special transportation services [7]. These challenges were exacerbated during the pandemic, resulting in significant disruptions to their daily routines [8].

Considering individuals with low socioeconomic status, older adults with limited financial resources and mobility challenges have faced increased difficulties during the
COVID-19 pandemic. Specifically, older adults with lower financial resources are more likely to experience limited physical function compared to those with higher incomes [9]. According to Franke et al. [10], the scope of activities individuals can engage in outside their homes is influenced by their economic resources as well as their transportation options. Consequently, financial barriers can impact various aspects of individuals’ lives, including social relationships, physical health, and overall living environments [10].

While car dependency is relatively high among older adults in the U.S., there are several alternative transportation options available for this population. Some non-drivers utilize local paratransit services, although the lack of awareness or availability of this service in many areas throughout the nation limits their popularity [11]. Additionally, older adults generally do not prefer ride-hailing services like Uber or Lyft due to a lack of knowledge about these services, privacy concerns, and higher costs [6]. Specifically, older adults with limited knowledge of basic mobile applications face additional challenges when trying to install required apps or make payments using their credit cards [12]. Despite the availability of various transportation options, older adults struggle to travel for essential errands or social activities, particularly during the COVID-19 pandemic [13]. Ravensbergen and Newbold [13] highlighted that these challenges were more prevalent among individuals who were dependent on public transportation or unable to adapt their mode of transportation. It is important to continue exploring the travel behaviors of older adults during the COVID-19 pandemic to identify specific needs and challenges [8,14]. This knowledge can inform the development of targeted interventions and refine existing ones to improve their mobility and overall well-being during and after public health crises.

Previous studies investigating older adults’ outdoor activities during the pandemic reported drastically lower engagement and limited social interactions among older adults accessing daily social activities [15–17]. For example, Beck and Hensher’s study [15] showed a decrease in older adults’ travel activity during the COVID-19 pandemic across various transportation modes. This decline was observed in different aspects of travel purposes, including commuting to work, grocery shopping, trips for social and recreational purposes, and personal business. Similarly, from a global perspective, a study that focused on older adults’ outdoor activities during the pandemic using data from 27 countries indicated that older adults were not only more inclined to avoid outdoor activities but also to refrain from using public transportation [16]. Other studies also pointed to an increased level of social isolation resulting from social distancing mandates during the pandemic, which was linked to worsened health outcomes among older adults [3]. While existing studies mainly explore older adults’ travel behaviors during the COVID-19 pandemic concerning limited activity patterns and social isolation, our study sought to broaden this scope. By examining a wider range of factors, such as the specific impact of travel frequency restrictions, differences between drivers and non-drivers, and older adults’ travel behaviors across various transportation modes, our research contributes a comprehensive understanding that extends beyond the issue of reduced engagement.

Recent transportation research has increasingly used the theory of subjective well-being to examine how different transportation modes and service quality impact individuals’ overall well-being (e.g., positive affect, negative affect, and overall life satisfaction), often referred to as travel well-being [18,19]. Travel well-being considers how the experience of using different transportation modes affects individuals [18,19]. For example, transportation modes or services that are perceived as inconvenient or unsafe can increase negative effects. However, studies on travel well-being conducted before the COVID-19 pandemic did not account for factors introduced by pandemic-related restrictions, such as social distancing measures, travel restrictions, and heightened concerns about cleanliness and safety. This study first examined older adults’ travel behaviors and their perceptions of various transportation modes during the pandemic. To provide additional insights, we recognized new unprecedented conditions, particularly for older adults, and aimed to address the newly emerging needs and challenges faced by older adults during the pandemic. Our research question was: how did the travel behaviors and perceptions of
different transportation modes among older adults change before and during the COVID-19 pandemic? We hypothesized that the COVID-19 pandemic altered travel behaviors and perceptions of transportation modes among older adults. We focused on addressing these gaps by discussing targeted policy recommendations aimed at enhancing transportation accessibility and safety for older adults during public health emergencies.

2. Materials and Methods

2.1. Study Design

The original study. This qualitative study was designed as a follow-up to a large research project [20]. The original study aimed to develop strategies to enhance mobility and accessibility for community-dwelling older adults [20]. Prior to the COVID-19 outbreak in the United States, we used convenience sampling methods to recruit study participants. We delivered a brief presentation about this study during their in-person monthly meetings with the older adult volunteers of AmeriCorps (i.e., the Seniors Foster Grandparent Program and Senior Companion Program). Note that these programs have income eligibility for volunteers at 200% of the poverty guideline [21]. Our study inclusion criteria included those who can communicate in English and are aged 55 and older to match the age qualification of volunteer programs in the partner organization. While 65+ is commonly used to refer to older adults in the field of aging, the age of 55+ is often used to refer to older adults in transportation research [22]. In addition, the participants were required to be able to provide consent for themselves. The volunteers were asked to complete the survey, and those who completed the survey also had the option to provide their contact information (both phone number and email address) on the survey form. As a result, we surveyed 147 older adults residing in the Dallas/Fort Worth metroplex in Texas.

The present study. Four months following the unexpected outbreak of COVID-19, we additionally designed this present qualitative study. We conducted semi-structured individual interviews from July through August 2020 to understand if and how the COVID-19 pandemic affected their mobility, travel behaviors, and daily lives. We contacted the participants from our pre-COVID survey to ask for their voluntary participation in the individual interview. Due to the limited resources and methods to promote this added study during the pandemic peak (from July through August 2020), we were only able to reach 18 participants via telephone. This study was approved by the University of Texas at Arlington Institutional Review Board (#2020-0034).

2.2. Study Procedure

The interview guideline consisted of 12 questions related to five main constructs: (1) the overall mobility and transportation-related challenges experienced during the pandemic; (2) how the COVID-19 pandemic affected their daily activities and travel behaviors; (3) any accommodations made to improve their mobility and daily life; (4) social networks they utilized to improve daily activities; and (5) other assistance they utilized or expected during the pandemic. Interview guidelines are available upon request.

All the interviews were conducted over the phone by trained graduate research assistants and audio-recorded for transcription. The participants provided verbal consent before the interview began. Each interview lasted approximately 40–60 min. We mailed the participants a USD 5 Walmart gift card as an incentive and a copy of the consent form. The audio files were transcribed verbatim by a professional company.

2.3. Data Analysis

The pre-COVID survey consisted of responses from 146 older adults. However, to compare their mobility patterns before and during the pandemic, we segregated the responses of the older adults who participated in the interview during the COVID-19 pandemic (n = 18) and only analyzed their quantitative responses for this study. The quantitative data were analyzed using descriptive statistics. Then, we analyzed the qualitative data using thematic analysis [23] to further explore changes in their travel behaviors and per-
ceptions of different modes of transportation during the pandemic. The first and second authors familiarized themselves with the data and generated initial codes. During this process, potential themes were developed. The third and fourth authors reviewed the initial themes, and these four authors collaboratively defined the themes. We analyzed the quantitative and qualitative data independently and interpreted the results together. To ensure the trustworthiness of the data, interdisciplinary researchers from gerontology and transportation engineering collaboratively analyzed the data and focused on confirming the objective perspectives of the findings [24]. We also utilized peer debriefing by inviting another researcher who was not involved in this research to review the interpretations of the findings [24]. In the Results Section, we used nicknames to maintain the confidentiality of the participants.

3. Results

3.1. Participants

The demographics of the participants who completed the interview during the COVID-19 pandemic (N = 18) were represented by an average age of 73.5 years, with the majority between 65 and 74 years old (61%), and 75 and 84 years old (22%). The majority of the participants were female (94.4%), and more than three-fourths were African American (78%), not working (78%), and living alone (78%) at the time of the interview. About one-fifth of the participants had a college degree (22%), and 39% had a high school degree/GED. Approximately half of the participants listed their annual household income as less than USD 29,999. More than half of the participants (56%) reported the ability to walk more than ¼ mile at once. In contrast, around 40% of the participants could only walk less than ¼ mile at once or had severe difficulties with their mobility (see Table 1).

Table 1. Sociodemographic characteristics of the participants (N = 18).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>55–64</td>
<td>1</td>
</tr>
<tr>
<td>65–74</td>
<td>11</td>
</tr>
<tr>
<td>75–84</td>
<td>4</td>
</tr>
<tr>
<td>Over 85</td>
<td>1</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White or Caucasian</td>
<td>2</td>
</tr>
<tr>
<td>Black or African American</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>0</td>
</tr>
<tr>
<td>Part-time</td>
<td>3</td>
</tr>
<tr>
<td>Not employed (e.g., out of work, retired, etc.)</td>
<td>14</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1</td>
</tr>
<tr>
<td><strong>Living arrangement</strong></td>
<td></td>
</tr>
<tr>
<td>Married or living with a partner</td>
<td>2</td>
</tr>
<tr>
<td>Living alone (single, separated, or widowed)</td>
<td>14</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>High school diploma or equivalent</td>
<td>7</td>
</tr>
<tr>
<td>Post-high school education/training (no degree)</td>
<td>6</td>
</tr>
<tr>
<td>College degree</td>
<td>4</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1</td>
</tr>
<tr>
<td>Variables</td>
<td>N Participants</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>Income</td>
<td></td>
</tr>
<tr>
<td>Less than USD 10,000</td>
<td>7</td>
</tr>
<tr>
<td>USD 10,000–USD 29,999</td>
<td>3</td>
</tr>
<tr>
<td>Over USD 30,000</td>
<td>3</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>5</td>
</tr>
<tr>
<td>Mobility</td>
<td></td>
</tr>
<tr>
<td>Able to walk more than ¼ mile at once</td>
<td>10</td>
</tr>
<tr>
<td>Able to walk less than ¼ mile at once</td>
<td>4</td>
</tr>
<tr>
<td>A lot of difficulty with mobility</td>
<td>3</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
</tr>
</tbody>
</table>

3.2. Travel Patterns before the COVID-19 Pandemic

The pre-COVID survey asked about daily trip frequency, the primary mode of transportation, overall perceptions of various transportation modes, and participants’ socioeconomic characteristics. The survey of these 18 participants revealed that a little more than half (56%) drove their cars. The remaining participants used taxis/paratransit or public transit for their daily activities before the pandemic. Among car owners, 45% drove one to five times a week, and 44% drove six to ten times a week for essential, social, or health-related purposes. Individuals who do not own cars preferred using paratransit services, public transportation, or getting rides from family or friends. Interestingly, none selected public transportation as the most preferred mode for health-related activities such as exercise, and no one chose ride-hailing services as their first choice for any trip purposes due to their lack of familiarity or knowledge of the service and limited financial resources.

3.3. Travel Behavior Changes during the COVID-19 Pandemic

Before the COVID-19 lockdown period, the interview participants made an average of six weekly trips; however, it significantly dropped to one or two per week during the COVID-19 pandemic. During the pandemic, 50% of the participants still drove their cars, 39% used taxis, paratransit, or public transit, and 17% utilized ride-hailing services. Two-thirds of the ride-hailing users also used paratransit or public transit.

Our qualitative analysis provided insight into changes in travel behavior during the COVID-19 pandemic. Four themes emerged: (1) limiting travel frequency for essential needs; (2) added stressors and fears among non-drivers; (3) reliance on familial support for transportation; and (4) embracing ride-hailing as a transportation solution.

**Limiting travel frequency for essential needs.** Since the COVID-19 pandemic posed a threat of virus transmission from people, older adults were afraid of going out in general, thus reducing the frequency of their trips. Our participants’ reduced trip frequency was more observant when discussing essential trips (e.g., grocery shopping). Overall, older adults—either drivers or non-drivers, including (para)transit users—tried to obtain all their necessary grocery items or medicines by taking fewer trips than pre-pandemic. For example, Linda used paratransit before the pandemic and still used it during the pandemic for grocery shopping, but she had to reduce the number of trips.

“Travel less now… And in reference to the senior centers, there have been some that in the past that I have visited, but because of this COVID-19, of course, we’re not able, I’m not able, and I do not think anyone else is either, to go even to the senior center”. (Linda)

Those who drove their vehicles also reduced the frequency of their weekly trips for essentials. For example, Mary and Esther used to manage their daily trips for essentials on their own. However, they developed fears and had to significantly reduce their trip frequency.
“I’ve only been out once this week. I pick up my groceries from Kroger probably every two weeks”. (Mary)

“No, I just do not go to the store as often (as I used to). . .I still get anxious because there are, of course, a lot of people and it’s hard walking six feet from the people like when the aisles are really narrow or there’s quite a few people”. (Esther)

**Added stressors and fears among non-drivers.** Although our participants reduced trip frequencies regardless of the mode of transportation they used in general, our findings showed a significant impact on daily trips among non-drivers. For example, while those who drove their vehicles did not miss doctors’ appointments, around half of the participants who relied on shared mobility options such as paratransit or public transportation before the pandemic appeared to miss doctors’ appointments or grocery trips.

“I missed some doctor’s appointments because, number one, I was reluctant to. . . because I use public transportation per se, paratransit, and it’s a shared ride. So, I’m reluctant to go out there when I really didn’t know what I may be exposing myself to. . . Since the pandemic, I go to no doctor’s appointments, I get nobody doing my hair, and I’m just very careful that I keep my distance from anybody in the store. I’m trying to be totally in compliance”. (Linda)

Throughout the interview, our participants addressed personal safety concerns due to the high health risks associated with exposure to COVID-19 viruses. However, participants who primarily relied on public transportation emphasized their concerns about safety stemming from the COVID-19 pandemic. A couple of participants were especially concerned about other passengers not wearing masks. For example, Sam has been a frequent transit user before and during the pandemic; however, she did not feel other people were taking appropriate measures to stay safe from the virus. Also, Ruth, who used public transportation five times a week before the pandemic, no longer felt comfortable taking the buses during the pandemic.

“A lot of them, they do not like to wear their mask, so they do not wear a mask, and you may see about two or three people on the bus that do have one, and I am one of them wearing a mask”. (Sam)

“They do not want to wear their mask. They do not want to do social distancing and it irritates me”. (Ruth)

In addition, our participants discussed the cleanliness of the bus fleet. Several participants expected transit service providers to play active roles in operating the system safely and cleanly by enforcing distanced seating as well as frequent disinfection of the bus.

“I do not think it would be too safe, and if everybody wore a mask or whatever, I do not know how they clean the buses. I do not know how to sterilize them or whatever. So that would be kind of the main problem for me”. (Emily)

**Reliance on familial support for transportation.** Some participants highlighted the importance of relying on family and friends to meet their needs, regardless of their primary mode of transportation. Many older adults in our sample showed independence despite not having their vehicle prior to the pandemic; however, the pandemic affected their overall independent living. For example, Pam used to use a paratransit service daily and never relied on others to go grocery shopping, which was no longer the case during the pandemic. Also, Elizabeth used to drive herself for essential trips, but her daughter took over grocery shopping during the pandemic.

“Some days I just have to skip going to the store. I need stuff, but I can’t go get it. . .I just have to wait until one of my kids can come and take me to the store”. (Pam)

“My daughter is mostly doing the groceries, but she works at a grocery store. So, when she misses something, or I have to pick up medicine or something like that I’ll go. She mostly does all the grocery shopping”. (Elizabeth)
Several participants also relied on their family members for transportation to make essential trips. Ruth used to use public transportation and had never relied on family or friends to help with transportation prior to the pandemic; however, she did not feel safe on the bus during the COVID-19 pandemic and ended up asking her brother to give her a ride to access healthcare services as well as groceries.

“My brother now takes me to my doctor’s appointment... I was able to go to the library. I was able to go to the grocery store by myself. When my brother takes me to the doctor, he also takes me to a grocery store”. (Ruth)

Embracing ride-hailing as a transportation solution. Several participants mentioned that they now preferred ride-hailing services and paratransit to public transit. Prior to the pandemic, people had yet to consider or prefer using ride-hailing services for their trips to essential or healthcare services due to their unfamiliarity with the service and constrained financial resources. However, many discussed their positive experience with using ride-hailing services. They indicated that ride-hailing services were not as crowded as public buses, making it easy to maintain social distancing and feel safe traveling. For example, Nelda relied on ride-hailing as well as paratransit services to meet her daily needs. She was satisfied with her experience with these services.

“I take a Lyft. I rode them last month when I went to the doctor. They were very nice. I did not have a problem... I also used paratransit services for two days last week, and it was good. I did not have any problem. It helped me. I am glad I am riding it. I do not have to deal with the public like that”. (Nelda)

While the participants’ discussion supported the benefits of ride-hailing services over the expensive costs associated, a few specifically mentioned financial assistance provided by their insurance to utilize such services. For example, Meghan reported that her insurance covered the transportation services she used.

“I have not missed the doctor’s appointment because with my insurance, they have transportation for us, and they come and get us and take us and bring us back home”. (Meghan)

4. Discussion

This study’s primary finding revealed that many participants increased their use of ride-hailing services during the COVID-19 pandemic. Despite some initial reservations, those who used these services reported positive experiences and found them convenient. This finding highlights ways in which older adults adapted their transportation approaches during the pandemic. Research shows that many older adults experience challenges with technology as well as affordability when utilizing ride-hailing services [25]. Despite the pandemic prompting older adults to seek out alternative transportation options, it remains crucial to promote options that cater to their specific needs. Community-based education and assistance programs help older adults access transportation services more effectively. For example, St. Barnabas Senior Services in California offered a phone-based program called GoGo Grandparent, allowing older adults to book ride-hailing services without using a mobile app. Similarly, Lyft introduced a service in Florida that enabled older adults to book rides over the phone with the help of agents. Considering the long-term implications for older adults in future public emergencies, it is critical to ease their technological challenges. Ride@50+ in Canada offers virtual travel training programs designed to educate older adults about using diverse local transportation options. These programs not only assist older adults in effectively using ride-hailing services but also prepare them to address their mobility needs promptly in urgent situations.

In addition, the findings from this study underscored that non-drivers among the older adult participants faced significant challenges during the pandemic related to their travel patterns and perceptions of safety. Many participants discussed poor social distancing on buses and trains as a major concern. Due to the crowded nature of public transit, especially during peak hours, many cities typically enacted rules and mandates to ensure passenger
safety. Despite the Centers for Disease Control and Prevention’s recommendations for frequent cleaning and disinfecting of surfaces to reduce the risk of virus spread, these efforts were not widely publicized. Consequently, many older adults were unaware of the safety protocols in place and continued to have concerns and misconceptions about public transportation. Given the persistent concerns about safety on public transit, it is essential to maintain the increased implementation of safety measures and efforts. AARP provided guidelines that emphasized safety protocols, such as mask-wearing, across various transportation modes [26]. By consistently providing information and resources related to transportation and mobility, a growing number of older adults can be reached, alleviating their concerns about transportation options for future public health crises. We also suggest that enhancing media coverage, campaigns, and advertisements about safety measures could improve public awareness and make information more accessible to older adults. This would increase their confidence in the safety of public transit options and their comfort in choosing public transportation [27,28].

Lastly, the other findings of this study align with the existing literature. Similar to the findings of Beck and Hensher [15], our study revealed that many participants were unable to maintain their normal travel behaviors from the pre-pandemic period. Regardless of their primary mode of transportation, all the participants in this study reduced their trip frequency. Moreover, the adjustments were evident for both drivers and non-drivers, particularly concerning essential trips. Several participants made conscious efforts to reduce essential trips in order to minimize potential exposure to the virus. These findings highlight the importance of understanding their coping mechanisms during such challenging times. Some paratransit providers across the nation adjusted their services to include a food delivery option for paratransit riders (e.g., Access Transportation in Seattle and Dallas Area Rapid Transit (DART)). However, many older adults still reduced their use of transportation services during the pandemic [29]. Initiatives like the COVID-19 Transportation program and webpage developed by the National Aging and Disability Transportation Center played an important role in disseminating information about COVID-19 vaccination sites and other support services as well as transportation resources. These programs not only addressed immediate health risks but also bolstered the overall preparedness of older adults, thereby increasing the mobility of this vulnerable population. Such training and exercises are integral to planning for risk reduction at the urban level, ensuring that the mobility needs of older adults are met during emergency events.

Many older adults in this study relied on their family members to make essential trips. The findings suggest that in future public health emergencies, it is important to raise awareness of alternative transportation options among vulnerable older adults, especially those lacking social support. Considering the barriers older adults face, these alternative transportation options should be cost-effective and appropriately responsive to their vulnerabilities. Community-based organizations can expand mobility options by offering services such as volunteer driver programs or community vans to provide personal transportation services [30,31]. These efforts to respond to older adults’ needs for alternative transportation can benefit their well-being during unprecedented times, especially for those who do not have family or friends they can rely on for their daily needs.

Study Limitations and Future Directions

Although many participants had completed the survey before the pandemic, reaching out to them during the pandemic required tremendous effort from the research team. Due to limited resources for this additional qualitative study, we could only conduct interviews for two months. In addition, most of the AmeriCorps volunteers at the study location were female and African American. Given the demographic characteristics of the sample, the generalizability of the findings is limited. While the majority of the study participants were female, we were not able to identify travel behaviors potentially influenced by gender. It is possible that gender differences in travel behaviors during the COVID-19 pandemic are minimal. However, several studies highlight mobility gender gaps and trip mode differ-
ences among older adults [32,33]. Future research should explore gender-specific challenges or differences in modified travel behaviors during the pandemic, using a larger sample size with diverse demographic profiles. Furthermore, researchers should utilize transport system models (TSMs) to minimize risks for older adults and enhance preparedness before unprecedented events occur [34]. Several studies, including this one, have documented the health and mobility challenges faced by older adults during the COVID-19 pandemic. By using TSMs, these challenges and associated plans can be effectively identified and integrated into simulations [34]. Actions planned at the individual, community, and city levels can support risk reduction efforts. Community-based organizations and policymakers should establish standardized procedures to address mobility and transportation challenges for older adults. Promoting these plans early on can increase awareness and preparedness among individuals.

5. Conclusions

The findings of this study suggest broader implications of the pandemic for older adults. Overall, this study indicated a pattern of reduced trip frequency, which seemed to negatively impact the participants’ well-being. Although the majority of them still drove their cars, fewer people utilized paratransit services. Interestingly, ride-hailing services saw increased use despite being less popular before the pandemic. This study’s qualitative findings revealed various facets of older adults’ travel behaviors, including limited travel frequency for essential trips, different perceptions of mobility challenges between drivers and non-drivers, the influence of family roles, and the adoption of ride-hailing services. To better prepare for future crises, transportation systems and services should assess potential barriers that individuals might encounter in accessing various transportation modes during such emergencies. Then, they should develop strategies to overcome these barriers and address their needs, ensuring that they have safe, reliable, and accessible options for travel.

Specifically, this study underscores the importance of community-based support during emergencies. Community-based organizations can assist older adults with essentials and engage family members and caregivers in preparedness efforts to facilitate timely assistance. As the adoption of ride-hailing services among older adults presents opportunities to enhance mobility options for those who may face disruptions to traditional transportation services during crises, community-based organizations can also offer education and financial or technical assistance. For their safety and well-being beyond the scope of the COVID-19 pandemic, continued collaboration between community-based organizations, government agencies, and other stakeholders is critical. These partnerships will make sure that older adults have access to comprehensive support networks and promote their resilience and preparedness for future public health crises.


Funding: This study was part of a larger study funded by the National Institute of Transportation and Communities, a U.S. DOT University Transportation Center, under grant number 2016-UT-21.

Institutional Review Board Statement: This study was approved by the Institutional Review Board (or Ethics Committee) of The University of Texas at Arlington (protocol codes #2020-0034 and 23 March 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: Data are unavailable due to privacy.

Acknowledgments: We appreciate The Senior Source, Inc. for their technical support for this research.

Conflicts of Interest: The authors declare no conflicts of interest.
References


9. Koster, A.; Bosma, H.; Broese van Groenou, M.L.; Kempen, G.L.; Penninx, B.W.; van Eijk, J.T.; Deeg, D.J. Explanations of socioeconomic differences in changes in physical function in older adults: Results from the Longitudinal Aging Study Amsterdam. BMC Public Health 2006, 6, 244. [CrossRef] [PubMed]


34. Russo, F.; Rindone, C. Methods for Risk Reduction: Training and Exercises to Pursue the Planned Evacuation. Sustainability 2024, 16, 1474. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.