Ageing & Society (2025), **45**, 1947–1969
doi:10.1017/S0144686X24000631

ARTICLE

Transportation usage and perceptions among older adults in Mexico City: a qualitative study

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(Accepted 2 October 2024)

Abstract

Transportation plays a vital role in meeting the daily activity needs of individuals, including older adults. One major gap in the existing ageing and mobility literature is that most studies are situated in the Global North despite Global South cities facing comparatively faster ageing. This article's primary purpose is to examine the daily lived experiences of transportation use among older adults in Mexico City. Secondarily it explores contextual differences among individuals living in two neighbourhood types – those with high or low access to public transportation networks. We conducted semi-structured interviews with 22 older adults and isolated four central themes that encapsulate their experiences of transportation in Mexico City. The extensive and well-run structured-transit system in central Mexico City was the source of many positive experiences for older adults, especially regarding affordability, high network connectivity and overall sense of safety and comfort. This was true for most participants across neighbourhood types and socio-economic statuses. Conversely, in peripheral neighbourhoods dominated by less-structured transportation modes, negative experiences included complaints about vehicle drivers, crime and safety, comfort and convenience. This article's contributions are showing (1) consistency with existing Global South literature whereby older adults tend to use public transportation more widely and hold similar complaints related to poor experiences as older adult passengers; (2) that Mexico City exemplifies older adult transportation experiences that are dramatically different from car-dependent societies in the Global North; and (3) how older adults' experiences with public transportation can vary significantly based on residential location within the city.

Keywords: Mexico City; older adults; qualitative; transportation

Introduction

Transportation plays a vital role in meeting the daily activity needs of individuals. And for older adults, transportation and mobility are vital 'lifelines' for participating in society (United Nations Department of Economic and Social Affairs 2023). As the proportion of older adult population is growing rapidly, research has focused on older

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https://doi.org/10.1017/S0144686X24000631 Published online by Cambridge University Press

adults' unique transportation needs and behaviours. Though the term 'mobility' is complex, with many different meanings (Cresswell 2010; Kwan and Schwanen 2016; Urry 2007), the ageing and mobility research literature commonly refers to 'mobility' as the capacity of an individual to engage in out-of-home activities that are part of a normal daily routine (Metz 2000; Schwanen and Ziegler 2011; Stalvey et al. 1999; Webber et al. 2010). Central to this aspect of mobility is access to and use of transportation, including private automobile, public transportation (PT) and active transport (biking and walking). For example, one major strand of the literature examines the daily out-of-home mobility of older adults by analysing differences and changes in travel behaviours as measured by the number of daily trips, transport mode choice, trip purpose, times preferred to travel and/or trip distance (Cui et al. 2017). This approach is important for understanding cohort shifts in daily travel behaviours, determining declines in transportation access and identifying vulnerable populations, or the effectiveness of local transit systems and urban design in providing access for older adults.

Beyond fundamental access to transportation, scholars also seek to understand how older adults' transportation mobility intersects with and impacts other aspects of their lives, such as meeting basic needs, wellbeing, quality of life, psychological benefits, community involvement and feelings of independence, belonging and isolation (Banister and Bowling 2004; Boschmann 2020; Metz 2000; Rosenbloom 2001; Schwanen and Páez 2010; van den Berg et al. 2016). This strand of the ageing and mobility literature seeks to provide theoretical and empirical understandings of the unique and changing transportation needs of older adults (Rosenbloom 2009), based on disruptions in physical/mental capacities, changes owing to life stage or life events (Lowe et al. 2022) or unique characteristics of geographic context (Schwanen and Páez 2010). For example, many studies explore the processes of driving cessation (Kim 2011) or PT usage (Ravensbergen, Newbold et al. 2022; Ravensbergen, Van Liefferinge et al. 2022) in car-dependent societies, which ultimately seek to uncover key instances of older adult vulnerability in unmet needs, social isolation or loneliness (Luiu et al. 2017; Nordbakke and Schwanen 2015; van den Berg et al. 2016). Understanding the changes and evolution of transportation mobility in old age can provide policy recommendations related to transportation infrastructure, land use planning, flexible arrangements and alternative approaches to mobility (Lin and Cui 2021) or suggest urban design practices for age-friendly cities that address likely future demands of larger old-age urban populations (Steels 2015).

However, evolving changes and patterns of older adult mobility and subsequent policy or urban design recommendations are not uniform across cities and countries around the world. Each place has a unique set of local political and economic structures, social relations, demographic trends and transportation infrastructures within which older adults live their daily lives. With this in mind, one major limitation of the existing ageing and mobility literature is that most studies are situated in advanced economies of the Global North (Gorman et al. 2019; Porter et al. 2018). Yet cities in the Global South are facing comparatively faster ageing demographic transitions (United Nations Department of Economic and Social Affairs 2020). And older adults in low- and middle-income countries exhibit different mobility patterns, experience lower car-dependency and higher PT usage and are more likely to be employed later in life. Furthermore, the quality and reliability of transport systems can vary greatly

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with higher instances of informal and unregulated transport modes (Aceves-González et al. 2015; Gorman et al. 2019; Porter et al. 2018; Schwanen and Páez 2010; Szeto et al. 2017). With these and other differences in mind, it remains essential that scholars continue studying the unique daily transportation mobility issues of older adults in diverse locations throughout the world. A localised case study approach provides rich data for complex phenomena with contextual variations, provides counter-examples to dominant patterns and theories, and can assist with policy development or practical planning initiatives.

The primary purpose of this article, therefore, is to examine the daily lived experiences of transportation use among older adults in Mexico City. Our guiding research question is: What are the primary issues of PT experienced by older adults in Mexico City that impact their daily lives? As a case study of the unique contextual realities within Mexico City, this research contributes new knowledge by (1) highlighting distinct differences from Global North experiences of ageing and mobility issues; and (2) illustrating the contextual differences that occur among individuals living in two different neighbourhood types. To date, there is limited research conducted on older adult mobility in Mexico City.

As a qualitative study we use semi-structured interviews and a phenomenological framework to isolate central themes that encapsulate older adults' experiences of transportation in Mexico City. On one hand, the study is broad in that it covers numerous themes based on the experiences of interview participants, but simultaneously is focused on the specific contextual qualities of a single city and how they impact older adults. Before presenting the study methods and findings, our review of the literature focuses on three key topics: experiences and perceptions of mobility among older adults, the unique characteristics of transportation among older adults in cities and countries of the Global South, and existing research in Mexico City related to this study.

Literature review

Experiences and perceptions of mobility

In this article we do not focus on metrics of daily travel behaviours of older adults in Mexico City (compare with Villena Sanchez et al. 2022). Rather, we explore how those older adults perceive their daily experiences using transportation. Perceptions-related research focuses on the subjective experiences of transportation use – 'the meaning that individuals attribute to mobility and their experiences when venturing out' (Mollenkopf et al. 2011, p. 793) – and provides important and realistic markers of how transportation impacts life satisfaction, wellbeing and the ability to meet (changing) daily needs (Banister and Bowling 2004; Coughlin 2001). When considering the study of mobility and transportation perceptions among older adults, three dominant themes in the literature (Goins et al. 2015) highlight the centrality of transportation to daily life. First, mobility is part of a sense of self and feeling whole; it signifies freedom and independence for older adults and is perceived as being vital to health (Schwanen and Ziegler 2011; Ziegler and Schwanen 2011). Second, assisted mobility is fundamental to living and brings older adults renewed interest and supported social interactions (Murray and Musselwhite 2019). Third, adaptability is key

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to moving forward, which considers how older adults deal with declines in mobility over time (Banister and Bowling 2004). These types of study are important as they can highlight any unmet needs of older adults that are exacerbated by transportation mobility challenges (Hjorthol 2013; Luiu et al. 2017). Furthermore, research needs to better understand how the built environment of residential neighbourhoods impacts these individual experiences of transportation mobility (Chudyk et al. 2015; Yang et al. 2018).

From within this literature what remains underexplored in the Mexico City context is how variations in the characteristics of the built environment (residential neighbourhoods, transportation systems, job opportunities) impact older adults' quality of life, what unmet needs are evident and how satisfied older adults are, overall, in their daily out-of-home routines. Within this body of literature, information on personal transportation experiences and perceptions is not typically available from large-scale census surveys or travel diary datasets that focus on enumerating travel patterns and behaviours, such as daily trip details, trip purpose, transport mode and demographics. Therefore, to collect data on experiences and perceptions of individual mobility, these types of study rely on primary data, usually in the form of interviews or focus groups with open-ended questions that elicit richly detailed information.

Geographic context and local transportation

Geographic perspectives demonstrate that some societal patterns and processes of ageing are place-specific (Davies and James 2011). Similarly, experiences of transportation and its impacts on daily life and wellbeing can vary drastically by geographic context (Kwan and Schwanen 2016), including how lived experiences such as intergenerational households or old age employment impact daily transportation needs (Gorman et al. 2019; Porter et al. 2018). As such, there are calls for studies that explore the transportation needs of older adults to help reveal contextually specific insights (Kwan and Schwanen 2016; Schwanen and Páez 2010).

In particular, the literature shows that the daily mobility concerns among older adults in the Global South can be dramatically different from those in other contexts (Villena Sanchez and Boschmann 2022). For instance, whereas car-dependency may be less of an issue in the Global South, access to PT is a key concern. In many instances, there is a lack of PT services that are frequent and reliable, which can lead to overcrowding issues (Aceves-González et al. 2015, 2016). There is also a lack of transit options for disabled older adults that are affordable and convenient (Cloos et al. 2010; Ren et al. 2018; Szeto et al. 2017). And the lack of proper pedestrian infrastructure restricts older adults' ability to walk safely when accessing transit stations and stops (Munshi et al. 2018).

Within PT systems, older adults express concerns of comfort and convenience. Some PT vehicles suffer from poor design with unconformable seats, few designated seats for older adults and/or tall steps that make boarding buses difficult (Aceves-González et al. 2016). Many transit stops do not have appropriate sheltering and some transit systems are physically and cognitively difficult to use and require multiple or long transfers (Ahmad et al. 2019; Chui et al. 2019; Ipingbemi 2010; Odufuwa 2006; Woolrych et al. 2020).

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Similarly, there is wide concern for physical safety when using PT. Studies in Mexico, Pakistan and Nigeria found that older adults frequently report impatient bus drivers who suddenly accelerate and decelerate, making it dangerous for older passengers to get on and off buses safely (Aceves-González et al. 2015; Ahmad et al. 2019; Munshi et al. 2018; Odufuwa 2006; Szeto et al. 2017; Woolrych et al. 2020). Studies also report older females' fear of harassment and crime when using PT by themselves (Ávila et al. 2016; Dunckel-Graglia 2013, 2016; Ipingbemi 2010; Porter et al. 2018; Rivadeneyra et al. 2015; Vilalta 2011).

And finally there are psychological and health concerns related to PT usage. If older adults do not have adequate access to PT they may experience feelings of isolation and social exclusion (Al-Rashid et al. 2021; Garcia-Valdez et al. 2019). Older adults report feelings of discrimination, invisibility and vulnerability when drivers do not stop for them or when other passengers push them or do not respect reserved seats (Woolrych et al. 2020).

As this narrow literature illustrates, the transportation issues that older adults face in Global South locations are different from those in car-dependent advanced economies – where adults commonly continue transport independence through automobility well into later stages of life. However, these transportation issues are underexplored within Mexico City, and we seek to understand if the issues raised in this literature are consistent with or different from the Mexico City experience.

Relevant research from Mexico City

Mexico City is one of the fastest ageing cities in Latin America (Negrete Salas 2003). Yet there are few studies specifically about older adult mobility in Mexico City. One study (Navarrete-Reyes et al. 2017) examined perceptions of transportation deficiency among older adults attending a specific tertiary care hospital in Mexico City. Their survey ($n = 228$) found that 46 per cent of the participants reported experiencing some form of transportation deficiency. Being a passenger in a car was the most frequently reported transportation mode used, followed by walking. Only 17.1 per cent of the participants reported driving during the previous week and 38.2 per cent used PT. Additionally, they reported key obstacles related to the use of public transit, including the absence of waiting seats, inadequately placed visual signs or illegible signs, absence of access ramps, and buses moving or braking too quickly when passengers aren't fully seated.

A recent report by the Instituto de Políticas para el Transporte y el Desarrollo (ITDP 2023) used the 2020 Household Origin-Destination Survey (HODS; INEGI 2020) to analyse the preferred transportation modes among older adults in Mexico City. The most common modes are walking and use of PT. The report also identifies important transportation barriers for older adults, including poor access to transit stations, overcrowding and difficulty getting on and off buses. Using the same dataset, our previous analysis (Villena Sanchez et al. 2022) uncovered key transport-related inequalities as poorer older adults travel for longer periods compared to their wealthier peers. In terms of travel behaviours, we found that 40.5 per cent of older adults reported using PT, 32 per cent walked, 26.5 per cent drove and only 1.2 per cent cycled. We also found that when older adults have access to good PT infrastructure, they use it, regardless

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of car ownership status. In terms of gendered differences among older adults, older females are less likely to use structured PT, walking and biking in comparison to older males.

Other studies have highlighted how the spatial patterns of Mexico City's transportation systems, residential locations and economic activities create inequities that impact residents, including older adults. The privatisation of Mexico City's transportation services created systems that are inequitable and inefficient for many of the residents (Wirth 1997). In the city's monocentric form, the majority of economic activities and jobs, upper-class residences and the best access to PT are all concentrated in the city centre. Poorer individuals are concentrated on the urban periphery where housing is cheaper, jobs are scarcer and PT service is more unreliable and expensive. As such, lower-income residents on the urban periphery have less access to reliable and affordable transportation and often spend more time commuting to places (Bautista-Hernández 2020, Bautista-Hernández 2021; Flores Espinosa 2018; Guerra 2017; Mejia-Dorantes 2018; Suarez et al. 2016).

When compared to the United States, there are some differences in the daily livelihoods of older adults in Mexico City. In Mexico City, only 30.5 per cent are retired from working, 13.1 per cent report living alone and 46.0 per cent own a private automobile. In the United States, these measures for older adults are 78 per cent, 31 per cent and 87 per cent, respectively (Villena Sanchez et al. 2022). Such differences in employment, household structure and car ownership illustrate some unique contextual realities for older adults that have potential impacts on daily transportation needs. It also provides our motivation to contribute to the call for more ageing and mobility research in Global South locations (Gorman et al. 2019; Porter et al. 2018).

Study area, methods and data collection

This article builds on these existing bodies of literature to examine the daily lived experiences of transportation use among older adults in Mexico City. Mexico City proper contains more than 9 million inhabitants (INEGI 2017). The city also encompasses considerable income differences, with 20 per cent of the population considered high income, while 59 per cent are middle income and 21 per cent are low income (ITDP 2014). These income differences inform our sampling design in drawing from two distinct neighbourhood types, as detailed later. Approximately 16 per cent of the residents in Mexico City are aged 60 and older, which is expected to increase to 21 per cent by 2030 (Angel et al. 2016).

In 2002 the Mexican federal government published a federal law entitled Ley de los Derechos de los Adultos Mayores (Law for Older Adults' Rights) that outlines the basic rights of every older adult in the country and defines an older adult as a person aged 60 or older. Similarly, other federal agencies, including the Instituto Nacional de Estadística y Geografia (INEGI; National Institute of Statistics and Geography) and the Instituto Nacional de las Personas Adultas Mayores (INAPAM; National Institute for Older Persons), also define an older adult as someone aged 60 or older. Moreover, certain urban transport systems are completely subsidised (free travel) for older adults aged 60 and above. Given these laws, policies and enumerative practices in Mexico, this study examines older adults as individuals who are aged 60 and above.

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Figure 1. Examples of structured PT modes – from upper left to right, subway, 'metrobus', trolley and 'RTP'. Photo credit: first author, July 2021.



Figure 2. Examples of less-structured PT modes – 'combis' (left) and 'peseros' (right). Photo credit: first author, July 2021.

In terms of PT infrastructure, the 2020 HODS characterises 11 different types of PT mode in the city (INEGI 2020). We reclassified the most popular modes into two different groups: structured PT modes and less-structured PT modes. *Structured PT modes* include the subway, bus rapid transit (BRT) or 'metrobus', trolleys, light rail and certain subsidised bus routes commonly known as 'RTP' (Figure 1). These modes are characterised by widespread connectivity, designated stops and scheduled timetables, and are subsidised by the city government and free for adults aged 60 and older. *Less-structured PT modes* include 'combis' (minivans) and 'peseros' (local buses) (Figure 2); they are not necessarily 'informal' given the legacies of quasi-regulation (Wirth 1997). These modes are more prevalent in the periphery of the city, do not have formalised routes or stops, have vehicles that are generally older and less comfortable, and, as relates to concessions, do not offer subsidies for older adults. For example, 'pesero' concessions are given to individuals who own one or more units. These owners give out their concessions to drivers who, in exchange, pay them a percentage of their income or a flat fee. This type of agreement exacerbates the competition for passengers among drivers, increases accidents, diminishes the professionalisation of drivers, does not regulate the maintenance and upgrading of vehicles, and contributes to pollution and traffic (Mejia-Dorantes 2018; Wirth 1997).

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To examine transportation use and perceptions among older adults in Mexico City, we use a phenomenological qualitative framework. Our use of qualitative methods is informed by a long tradition of employing these techniques in the literature. In particular, we are motivated by Mollenkopf et al. (2011), who argue that understanding perceptions of transportation mobility, captured through qualitative research, is perhaps a better predictor of health and wellbeing among older adults than traditional metric-based analyses of travel behaviours.

The phenomenological approach focuses on describing what participants have in common as they experience a phenomenon (*i.e.* older adult transportation experiences), and the researcher seeks to describe the essence of that lived experience through key themes (Creswell and Poth 2018). Purposive sampling was used to select individuals who are especially knowledgeable (*i.e.* older adults) about our phenomenon of interest (Creswell and Poth 2018; Palinkas et al. 2015) and who live within the selected neighbourhoods, discussed later.

Owing to travel restrictions during the Covid pandemic period, the first author recruited participants through local contacts in Mexico City who placed flyers in the study areas to promote this study. Subsequently, through snowballing, participants referred other older adults who met the criteria. Recruitment and interviews continued until saturation in the data was reached and no new substantive information emerged. All interviews were conducted by telephone.

Daily experiences with transportation can vary greatly depending on the local context within a large city such as Mexico City. Thus, interview participants were recruited from two types of neighbourhood. *High accessibility neighbourhoods* (HANs) contain both a high density of older adult residents and statistically high concentrations (accessibility) of public transit stops, whereas *low accessibility neighbourhoods* (LANs) contain both a high density of older adult residents and statistically low concentrations (accessibility) of public transit stops (Villena-Sanchez et al. 2022). Figure 3 illustrates the Mexico City study area and outlines the HANs and the LANs. The location of these selected neighbourhoods generally corresponds with residential economic patterns: LANs are on the periphery in lower socio-economic areas and HANs are more central in higher socio-economic areas.

The first author facilitated and recorded 22 semi-structured interviews in Spanish with older adults aged 60 and above (Table 1). Thirteen participants lived in LANs and nine in HANs. Thirteen participants were female and nine male. All interviews lasted between 30 and 50 minutes and took place from July to September 2020. Participants were compensated for their time with a gift card. During each interview, the first author asked general questions about older adults' everyday mobility experiences before and during the pandemic, the modes of transportation they preferred to use, the mobility challenges they faced, their positive PT perceptions and their recommendations for improving their everyday trips. The semi-structured interview script was developed based on findings from preliminary fieldwork among focus groups and interviews conducted by the primary author in June and July 2018. Locations of the preliminary fieldwork are marked in Figure 3. Photographs collected by the first author are included to illustrate the different modes of transportation and to complement some of the participant responses.

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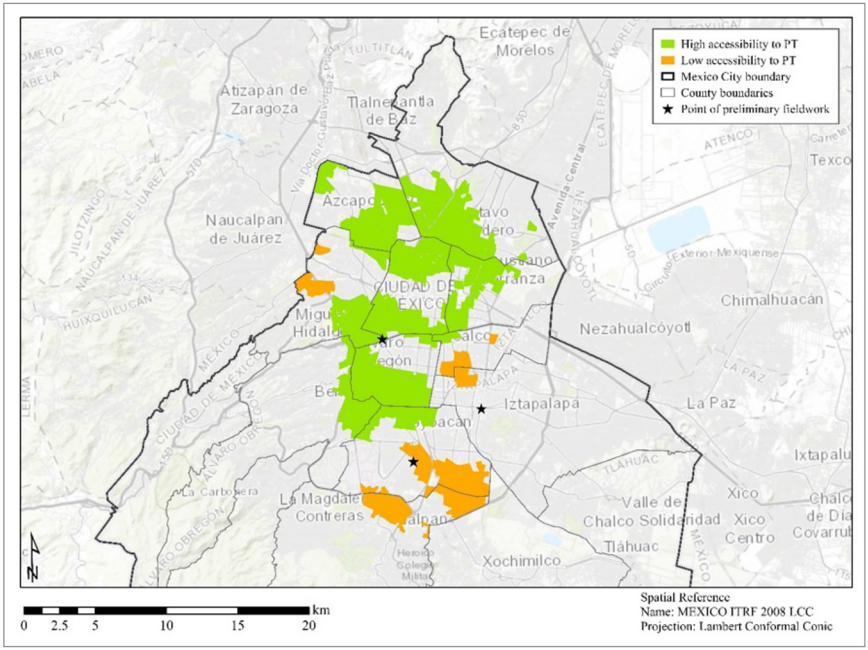


Figure 3. Mexico City study area – high-density older adult neighbourhoods with high or low public transportation accessibility.

All data collection was conducted by the first author, who identifies as a Mexican woman with in-depth personal knowledge of Mexico City, having lived there for 24 years before this research. She approached this research acknowledging her pre-existing biases regarding PT and was a recurrent user of the transit systems. She drew upon cultural norms when engaging in conversations with older adults. Participants were treated with respect, patience and empathy to convey trust and understanding. These practices were necessary not only to obtain meaningful responses but also to respect these resources of local knowledge.

The initial proposal for human subjects research was reviewed and approved by our university's Institutional Review Board, where we outlined ethical practices in interview data collection and protocols for assuring participant confidentiality and securing data. In the results section, pseudonyms are used when referring to specific participants.

To analyse the interview data, the first author transcribed all interviews and checked for errors. The NVivo computer-assisted qualitative data analysis software was then used to generate initial codes for transcript analysis; all transcripts were checked for duplication and similar codes were grouped. Using the phenomenological process called *horizontalisation* (Creswell and Poth 2018), the transcripts were highlighted for significant statements, sentences, and quotes that provided an understanding of the experienced phenomenon. These significant statements were grouped to create themes or clusters of meaning. The themes were then used to write structural descriptions of participants' transportation experiences and the specific context that influenced those

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Table 1. Interview participants

Num	Pseudonym	Age	Gender	Neighbourhood type
1	Pepe	90	Male	LAN
2	Diego	65	Male	LAN
3	Melisa	77	Female	LAN
4	Sandro	78	Male	LAN
5	Gabriela	63	Female	LAN
6	Jorge Angel	62	Male	LAN
7	Esmeralda	61	Female	LAN
8	Gloria	78	Female	LAN
9	Mirna	69	Female	LAN
10	León	68	Male	LAN
11	Valentina	64	Female	LAN
12	Macario	67	Male	LAN
13	Andres	83	Male	LAN
14	Salma	77	Female	HAN
15	Mara	81	Female	HAN
16	Yulia	73	Female	HAN
17	Guillermo	62	Male	HAN
18	Rosalia	62	Female	HAN
19	Elisa	66	Female	HAN
20	Marinela	77	Female	HAN
21	Mayra	84	Female	HAN
22	Samuel	68	Male	HAN

Notes: LAN = low accessibility neighbourhood.
HAN = high accessibility neighbourhood.

experiences. These results were validated with the assistance of two external researchers who speak Spanish and who are familiar with the Mexico City context. Finally, detailed descriptions were utilised to present the found themes in an organised outline and written narrative that captures the essence of the phenomenon.

Results

The semi-structured interviews uncovered the unique contextual realities of daily lived experiences of transportation use among older adults in Mexico City. As the phenomenological approach seeks to describe what participants have in common as they experience a phenomenon, we structure the results around four dominant themes: commuting to work is a key transportation need; there are unique challenges in using PT as an older adult; some of Mexico City's transit systems are quite useful in meeting daily needs as they are affordable and well-connected; and the pandemic further exposed socio-economic inequalities in transportation. Within each theme, there is

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a range of experiences that illuminate important nuances based on neighbourhood type (HAN near the urban core vs LAN on the urban periphery), type of transportation (structured modes vs less-structured modes) and individual economic status. In this section, each theme is named and described in detail with numerous examples. These are broad and sometimes varied and complex; however, they reflect intricate and intertwined experiences of how transportation impacts the daily lives of older adults.

Work commutes are essential

The most common response to the question of where persons go and why (pre-pandemic) was 'to work'. Unlike older adults in advanced economies of the world who are largely retired, a dominant theme from the interviews in Mexico City was the essential role of transportation in daily work commutes. Three participants worked in formal jobs, seven reported not working and 12 reported working or having worked in informal jobs and living in a LAN. For example, a few older women mentioned selling candy outside schools, jewellery in small markets or stationery products from their homes. One older male said that he was a carpenter and worked on small projects from his home. Another male mentioned recycling waste in a landfill. Those with informal jobs generally do not own cars and must commute long distances on PT. For example, Mirna (69, LAN) mentioned the following regarding her trips to buy jewellery products: 'I used the bus Route 100 and from there to go to "La Merced", because that is where I went to buy earrings to sell. Besides that, I didn't go out much because I can't do long trips anymore.'

Additionally, job informality and low-paying jobs bring distress to older adults who need to keep providing for their families and use transit to get to their jobs. León (68, LAN), who works in a landfill on the outskirts of the city, explained his situation:

> Many times when I arrive late to work my boss asks me, 'Why until now?', and I respond, 'Well, the combi didn't pass', but he responds, 'That's not an excuse, wake up earlier!', and I tell him, 'But I do; my commute takes from an hour to an hour and a half', and many times I get up earlier, because I already know how problematic [it] is to take public transportation.

In contrast, older adults living in a HAN reported working formal jobs or being retired, and generally had higher levels of education. These adults mentioned having better job opportunities, less financial stress and more time for recreation. However, regardless of those socio-economic differences, they also reported using PT regularly to reach different destinations. For example, Elisa (66, HAN), when asked about her commute to work, said:

> Daily, from Monday to Friday, I went to work and went back home using public transport. Depending on the time I left, I would take the subway or walk a lot to catch a bus. When I got off work early, I used to go to a shopping centre to do some shopping or to the market; it was always like this.

Additionally, the most common response to the question 'Do you own a driver's licence?' was 'No, I don't' or 'No, I have never driven before'. Interestingly, we found

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key differences between the neighbourhood types. In the LANs, older adults were more likely to say that they did not drive because they had never owned a car in their lives. But older adults in the HANs responded that even when they do have a driver's licence and own a car, they choose not to drive on a daily basis for a variety of reasons, including health concerns, not wanting to deal with traffic, the cost of gas or feeling more comfortable using PT. For example, Samuel (68, HAN) mentioned: 'I used to leave my house four times a week to go to work. I took a "combi" and [the] subway because they are cheaper and faster than my car. I used to drive to work only twice a week.' Only Guillermo (62, HAN) mentioned driving to work regularly before the pandemic: 'From Monday to Friday, I went to work, and I used my private car to go to work. I live very close to my work, I am about 3 km away, but I use my vehicle.'

In summary, most participants are working older adults. But their work commutes show some key differences. Lower-income residents in LANs use PT as a necessity – it is their only option. On the other hand, HAN residents are more likely to own a vehicle but express a preference for using PT for their work commutes.

Negative transportation experiences

Despite the high usage of or preference for PT, a dominant point of discussion across most interviews was the negative experiences in using PT. These clustered around complaints about vehicle drivers, crime and safety, comfort and convenience.

The most common complaint of older adults who regularly use less-structured PT options such as 'combis' or 'peseros' related to impatient, ill-mannered and reckless drivers. As Gabriela (63, LAN) described:

> There are many ['pesero'] drivers who are very reckless. It seems like, instead of driving people, they are driving donkeys! (laughs) And young people, the truth is, they hold on well, but if drivers catch me distracted and accelerate, there I go on top of other people!

These complaints make participants feel frustration, anger and vulnerability, as they believe that their age and their limited physical mobility make them easy targets of discrimination by insensitive drivers. Gloria (78, LAN) commented: 'They [pesero drivers] have yelled at me when I try to get off – "Ma'am, I don't have all the time in the world!" – they make me nervous, and I become more clumsy. I want to get off fast; that's when accidents happen.' Figure 4 illustrates an instance where a 'pesero' driver did not fully stop and wait for passengers to safely get on or off. There is also a lack of reliability in the 'combi' and 'pesero' modes, which do not follow specific schedules or have specific stops assigned. As León (68, LAN) said: 'I don't want to express badly of them ["combi" drivers], but they work whenever they want, they stop for passengers whenever they want, even when people are waiting for them. If they provided more frequent and punctual service: How nice would that be!'

Another common complaint centres on experiences of crime or feeling unsafe. Pickpocketing is more commonly experienced in 'peseros', 'combis', buses and the subway. Older adults who regularly use less-structured PT modes, particularly during rush hour, reported being robbed on multiple occasions as pickpocketers take advantage of overcrowded spaces. Interestingly, some participants mentioned developing strategies

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Figure 4. Passenger getting on a 'pesero' while the vehicle is in motion. Photo credit: first author, July 2021.

to avoid being easy targets. For example, Elisa (66, HAN), who uses buses and the subway regularly, mentioned: 'I always hold on to my bag very well. I never take out my cell phone in the subway; even if I hear someone is calling me I don't take it out because I don't want to expose myself.' Older adults from both LANs and HANs reported being victims of pickpocketers; however, some adults living in HANs who do not need to travel during peak hours or use PT as frequently did not suffer from these crimes as frequently as working older adults from LANs.

Concerning safety, a few older females commented on feeling harassed when the subway was overcrowded. As explained by Mirna (69, LAN): 'The gentlemen are very abusive. When the subway is very full I don't know how to move; I feel like I am being harassed. That is always very uncomfortable for me.' And as exemplified by Mayra (84, HAN): 'In the subway, oh God, one gets on and you feel like a garlic clove all squeezed up!'

Issues of comfort and convenience are a third common negative experience. Walking long distances when making a transfer in the subway can be too difficult. Mara (81, HAN) mentioned: 'I wish that the "Raza" [subway] transfer was not so long to walk. They even call it the "time tunnel!"' In fact, owing to this long transfer, she reported taking a taxi directly to a subway station without a long transfer as a strategy to avoid walking long distances to get to her destination.

There is a lack of comfort in 'peseros' and 'combis' as the seats are small, old and not frequently cleaned. As argued by Jorge Angel (62, LAN): '[In the older "peseros"] there are many people and few seats and the seats are very small, and it is uncomfortable for two people to sit in two seats because they are very small. It is uncomfortable.' Similarly, many experience difficulties in climbing 'pesero' steps as some are quite high. Mayra (84, HAN) commented: 'There are some "peseros" that are very tall, they have a very tall step, and I can't climb them.'

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Most of the negative experiences were consistent across the mode types (structured and less structured) and the different neighbourhoods. These included: experiences of crime or feeling unsafe, lack of comfort or accommodations specific to older adults, and general lack of respecting the unique needs of older adults. However, participants living in LANs and more reliant on less-structured transport modes had numerous complaints about the vehicle operators' treatment of older adults.

Positive opinions about public transportation

The interviews also revealed numerous positive opinions and experiences with PT. The most common positive aspect mentioned was affordability. In particular, having the subway completely subsidised for adults aged 60 and older gives them access to the longest transit network in the city. As expressed by Gloria (78, LAN): 'I am happy with the service provided by the subway; the price is very affordable, and now that I am an older adult I can travel for free, and before the price was very reasonable.' Even the less-structured PT modes such as 'peseros' were generally considered affordable, especially when compared with transport prices in Mexico State, where buses charge more than double the fares in Mexico City. All participants had very positive comments to make about the government card, colloquially known as the INAPAM card or 'tarjeta del INAPAM', that authorises them to travel for free, among other service discounts (Lacavex Berumen et al. 2017).

A second positive opinion was the extensive connectivity of PT modes, such as the subway and BRT. When asked her opinion about the new BRT or 'metrobus' routes, Salma (77, HAN) said: 'The metrobus is very good – it has come to alleviate a lot of us, and it takes us to very deep corners of the city.' It is important to note that older adults living in HANs have the opportunity to use these modes without needing to use less-structured PT modes first, as older adults in LANs do. The connectivity relates to how participants appreciate the ability to get to places quickly via the subway. For example, Macario (67, LAN) said: '[The subway] sometimes takes a while to get to the station, but as soon as it arrives it moves as fast as the devil!'

Another popular mode among older adults is the trolley. Electric trolley service was first introduced in the city in 1900; by 1950 there were 514 trolleys in service (Wirth 1997), yet many routes were closed in the following decades. Most older adults grew up using this mode. Guillermo (62, HAN) and Mirna (69, LAN) expressed positive memories of the trolleys and lamented their decline. But today there is investment in new trolley routes, vehicles (Figure 5) and transit stops infrastructure (Figure 6). This is seen positively as trolleys are free for older adults, they are comfortable, and drivers are skilled and patient.

Third, the structured modes offer more conveniences and a sense of safety for older adults. For example, having escalators in certain subway stations was greatly valued as it makes trips less tiring. In relation to this, Pepe (90, LAN) said: '[Before retiring] when I used the subway, I used the escalators a lot to avoid walking. I really like those.' Additionally, the subway and the BRT systems were considered safer in comparison to other modes. As León (68, LAN) mentioned: 'The metrobus and metro are safe because they have security cameras. Also, I have seen that two or three policemen get on a train and get off in the next two stations and then others get on.' A few older females

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Figure 5. Recently introduced trolleys. Photo credit: first author, July, 2021.

mentioned that they appreciate the subway areas that are exclusive for women because they feel safer travelling among other women and without men. Yet Gabriela (63, LAN) commented about the exclusive trains for women in the subway: 'It's the same, not because the train has all women and is quieter. I think girls and women can be more aggressive.'

Fourth, though cycling remains a limited mode for older adults, one participant mentioned excitement about recent improvements in biking infrastructure and recurrent cycling weekend events organised by the city. These weekend events, called 'Cyclist Rides' ('Paseo Ciclista'), are part of the 'Move on Bikes' ('Muévete en Bici') city programme created in 2007. During these events, 55 km of streets are temporarily closed to vehicles and used by pedestrians, runners, rollerbladers and cyclists (Medina et al. 2019). Guillermo (62, HAN) commented: 'On Sundays, I go to the "Paseo Ciclista". At least one or two weeks a month I go and ride my bike with my family. We leave at 9 and return between 1 or 2 in the afternoon.' Figure 7 shows examples of city efforts to improve biking infrastructure, such as building designated bike lanes and providing affordable bike-sharing services. However, no older adults living in LANs mentioned or seemed interested in biking.

The positive opinions about PT largely centred on the structured transport modes, which are widely used by all participants regardless of their neighbourhood type. The structured modes offer good connectivity and are convenient and safer, while the expansion of the trolley system is benefiting many. Affordability of transportation is a positive experience that encompasses both the structured and the less-structured transport modes.

Pandemic-related challenges

Given the timing of these participant interviews, the pandemic impacts on transportation became a dominant theme, as older adults experienced numerous

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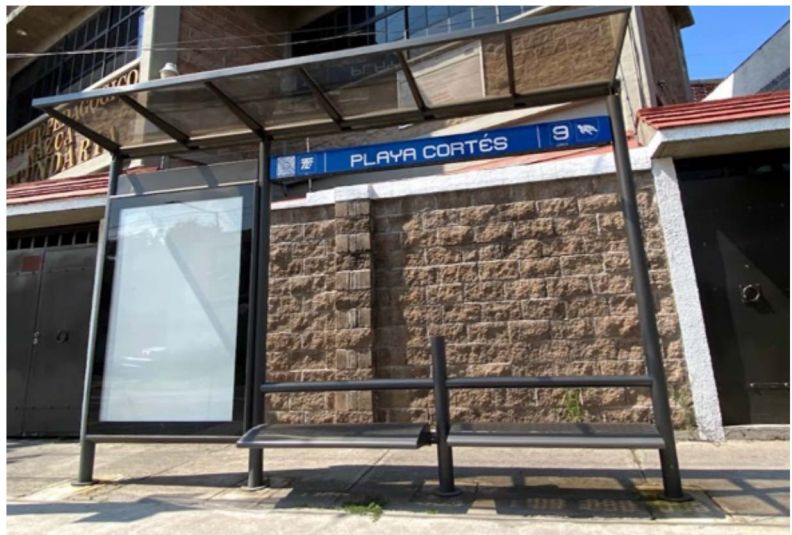


Figure 6. Example of a recently constructed trolley stop. Photo credit: first author, July 2021.



Figure 7. Biking infrastructure in a high accessibility neighbourhood. Photo credit: first author, July, 2021.

transportation-related disruptions. As expected, participants reported travelling less once the pandemic started and experiencing major disruptions in their normal and often essential routines. With regards to employment, some older adults working in informal sectors mentioned losing their jobs or not being able to do their informal jobs even when they needed the income. Others needed to continue working even if it meant taking great health risks, as they had to continue providing for their families. Work dependency during the pandemic caused financial distress, particularly for older adults in LANs. For example, Jorge Angel (62, LAN), who works as a mechanic, shared:

> I believe that 90 per cent of the population in Mexico City has the need to go outside to work. If not, how do we buy food? At this moment I am not working due to the pandemic, so I told one of my children to bring me food this week, and to the other the week after. But if they lost their job too, how would I ask them for help?

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Older adults working in formal sectors had the opportunity to continue working remotely and expressed feelings of isolation instead of financial distress. Elisa (66, HAN), who works remotely for the Department of Education, said: 'The lockdown is distressing. I am used to going out to do my things and right now it is not possible. Sometimes I feel stressed out, so I grab my dog, go to the park and come back feeling calmer.'

The participants also experienced pandemic-related changes in the PT systems. For example, some working older adults reported having to wait longer periods for the subway or a bus to arrive and also observed very low ridership levels. Esmeralda (61, LAN), who works for the government, said: 'The subway is practically empty now, and train cars are almost empty or carry very few people.'

Health concerns prompted many to change their preferred transportation mode for safer options. The ability to choose a safer option was not available for everyone, and it was more frequently mentioned by older adults from HANs. For example, Samuel (68, HAN), who is an engineer, commented: 'I keep going to work but right now I'm just driving my car. Right now I am not taking the subway because the subway is more risky. Right now I drive my car to work, nothing else.' In contrast, Jorge Angel (62, LAN) shared:

> Public transport is a source of infection, a hot spot for infections, but I have to use it, unfortunately. How nice would it be if all Mexicans of driving age could afford a car, right? We would say 'I'm not using "pesero", I'm driving my car', then getting infected would not be a worry. But it is not possible for me. I do not have enough money to buy a car.

Participants also reported only making essential trips, such as going to the doctor or buying groceries, and usually accompanied by a family member. For example, Valentina (64, LAN) said: 'Right now I just go to the groceries to buy my food, nothing more. One specific day I choose to go to [the grocery store] "Aurrera" to buy milk, beans, no more than two or three days a week.' As previously stated, most participants live with family members, in multi-generational households, or with friends; only three reported living alone. Therefore, many mentioned delegating some essential trips to family members, neighbours or even delivery services. Regarding this, Macario (67, LAN) mentioned: 'We ask a young neighbour to do us the favour of bringing us meat, vegetables, everything to cook so we don't need to go outside often.' Such support networks were greatly valued by the interview participants.

The pandemic revealed specific socio-economic divides in transportation inequalities. For wealthier older adults living in HANs, many owned cars and could switch from PT or were able to work remotely in the formal sector. Lower-income residents living in LANs were still dependent on PT to reach in-person workplaces, had fears of the health risks of riding PT and experienced challenges with altered and reduced frequency of transit.

Discussion and conclusion

This study used semi-structured interviews with 22 older adults in Mexico City to collect subjective information on their experiences and perceptions of PT. Older adults

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in Mexico City are largely dependent on local PT systems for achieving their daily out-of-home activities, including commuting to work. Broadly speaking, the findings indicate a range of both positive and negative experiences. The extensive and well-run structured-transit system in central Mexico City was the source of many positive experiences, especially regarding affordability, high network connectivity and overall sense of safety and comfort. This was true for most participants across the neighbourhood types and socio-economic statuses. Conversely, in peripheral neighbourhoods dominated by less-structured transportation modes, negative experiences included complaints about vehicle drivers, crime and safety, comfort and convenience. The key findings are examined more closely here.

First, one key difference for ageing and mobility research in contexts such as Mexico City is the dominant use of PT among older adults. This contrasts with the research conducted in car-dependent locations (Cui et al. 2017) where older adults struggle to transition to public transit use after driving cessation (Ravensbergen, Newbold et al. 2022). In Mexico City, PT is a way of life throughout the lifecourse. Furthermore, most participants are working older adults. Such employment in old age is more common in low- and middle-income countries and requires more dependence on and use of transportation (Gorman et al. 2019; Porter et al. 2018). But whereas lower-income residents in LANs use PT as their only option, HAN residents express a preference for using PT for their work commutes despite owning an automobile. Mexico City's high level of informal employment among older adults (Angel et al. 2016) and low level of car ownership are common qualities in other studies in the Global South (Villena Sanchez and Boschmann 2022). The unique transportation needs of *working* older adults are an important area for continued research.

Second, positive opinions about PT largely centred on the structured transport modes, which are widely used by all participants regardless of their neighbourhood type. Many participants highlighted the affordability of PT (given the subsidies of structured modes), the great accessibility to a highly connected transit system that made it easy to get to needed places and that certain modes were seen as safe and convenient. This finding, however, contains nuances according to neighbourhood type. Older adults living in LANs generally have a low or medium-low socio-economic income, work in informal sectors, report feeling distressed owing to their challenging financial situation and are forced to use less-structured PT modes more frequently. They spend more money on transportation and do not drive or own a vehicle. They more often reported problems or complaints with less-structured modes. In contrast, older adults from HANs belong to higher socio-economic levels and reported working in formal sectors or being retired. While most use PT, they have the privilege to choose when to use it because they have access to a car or can afford more expensive services such as taxis. They also have higher access to the subsidised structured PT modes such as the subway, BRT and trolleys. These spatial patterns of inequalities in PT experiences are consistent with the general structure of Mexico City's transportation systems, residential locations and economic activities between the urban centre and the periphery (Bautista-Hernández 2020, 2021; Guerra 2017; Wirth 1997).

Third, negative experiences were consistent across the mode types (structured and less structured) and the different neighbourhoods; they focused on crime or feeling unsafe, lack of accommodations specific to older adults and general disregard for the

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unique needs of older adult passengers. However, participants living in LANs had numerous complaints about the vehicle operators' treatment of older adults on less-structured transport modes. This is consistent with existing Global South research on older adults' negative experience with impatient or aggressive vehicle drivers (Aceves-González et al. 2015; Ahmad et al. 2019; Munshi et al. 2018; Odufuwa 2006; Woolrych et al. 2020), crime and pickpocketing (Ávila et al. 2016; Ipingbemi 2010; Vilalta 2011), safety concerns among women in PT (Dunckel-Graglia 2013, 2016; Mejia-Dorantes 2018; Rivadeneyra et al. 2015), uncomfortable bus designs (Aceves-González et al. 2015, 2016) and the need for age-friendly transit station infrastructure with less walking and places to sit (Chui et al. 2019; Ipingbemi 2010; Odufuwa 2006). Together these negative experiences are key sources not only for ongoing research but also for local policy initiatives to quickly address the concerns of older adults.

Fourth, the pandemic revealed specific socio-economic divides in transportation inequalities. Wealthier older adults living in HANs had options: they could use privately owned cars or work remotely. But lower-income residents living in LANs still needed to reach workplaces, experienced reduced frequency of transit and feared the health risks of riding PT. Though this study was not originally intended to examine pandemic-related transportation impacts, it does have some findings consistent with existing literatures. In particular, these participants reduced their daily out-of-home trips during the pandemic (Boschmann 2024; Dadashzadeh et al. 2022); expressed fears of health concerns in using PT (Ravensbergen and Newbold 2020) and wished for safer options; and relied on multi-generational household structures to delegate out essential trips (Dadashzadeh et al. 2022).

In terms of limitations, though we found saturation in our collected data, upon reflection we wished for the opportunity to speak with more older adults. This would have allowed for more instances from each neighbourhood type, and perhaps an opportunity to explore other lines of difference. Furthermore, it is unfortunate that the pandemic shifted the interviews to telephone conversations. In-person interviews within the neighbourhood contexts of the participants could have greatly enriched the conversations and findings.

In conclusion, as a case study of Mexico City, this article makes specific contributions to the ageing and mobility literature. We find consistency with existing Global South literature whereby older adults tend to use PT more widely and hold similar complaints related to poor experiences as older adult passengers. Our findings from Mexico City exemplify older adult transportation experiences as being dramatically different from those of car-dependent societies in the Global North. By contrasting different neighbourhood types, we highlight how older adults' experiences with PT can vary significantly based on residential location within the city. These inequalities and neighbourhood disparities should be the focus of both future research and immediate local policy recommendations. We emphasise the importance of understanding how the local built environment impacts the daily transportation mobility of older adults (Chudyk et al. 2015; Yang et al. 2018). We contend that 'one-size-fits-all' approaches (Villena Sanchez and Boschmann 2022) to ameliorating older adult mobility problems are not sufficient, given these contextual variations. As a key takeaway, the structured PT systems of central Mexico City offer a good example of transit that is generally well-perceived by local older adults. It offers blueprints for expanding these successful services into the urban periphery and is informative for other cities as well.

https://doi.org/10.1017/S0144686X24000631 Published online by Cambridge University Press

Financial support. The primary author received field research support from the Herold Fund, Department of Geography and the Environment, University of Denver.

Competing interests. The authors declare none.

Ethical standards. This project received Institutional Review Board approval (project #1570555-2) for human subjects research from the Office of Research Integrity and Education at the University of Denver.

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Cite this article: Villena-Sánchez J and Boschmann EE (2025) Transportation usage and perceptions among older adults in Mexico City: a qualitative study. *Ageing & Society* **45**(10), 1947–1969. https://doi.org/10.1017/S0144686X24000631

https://doi.org/10.1017/S0144686X24000631 Published online by Cambridge University Press