

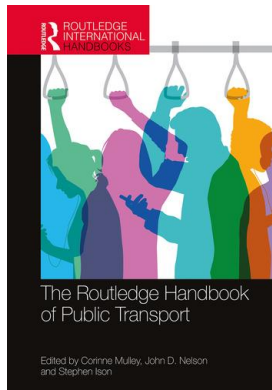
This article was downloaded by: 10.2.97.136

On: 30 Mar 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



The Routledge Handbook of Public Transport

Corinne Mulley, John D. Nelson, Stephen Ison

Public transport use in later life

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9780367816698-32>

Charles Musselwhite, Maria Attard

Published online on: 13 May 2021

How to cite :- Charles Musselwhite, Maria Attard. 13 May 2021, *Public transport use in later life* from: The Routledge Handbook of Public Transport Routledge

Accessed on: 30 Mar 2023

<https://test.routledgehandbooks.com/doi/10.4324/9780367816698-32>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://test.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

28

PUBLIC TRANSPORT USE IN LATER LIFE

Charles Musselwhite and Maria Attard

Introduction

The ability to travel and be mobile in later life is linked to a good quality of life (see Holley-Moore & Creighton, 2015). Furthermore, the importance of discretionary travel in later life has been highlighted as an important factor for the health and wellbeing of older people, particularly those who do not drive (Musselwhite, 2017). In view of the increase in travel and activities among this group, the role public transport plays in later life cannot be underestimated. More active lifestyles and car use throughout life have led to an increasing number of older drivers, in many western cultures (Mackett, 2018). But what about those older adults who cannot, or do not want to, drive?

This chapter deals with the use of public transport in later life. It describes the main determinants of travel among this age group, briefly discusses some of the barriers to travel and focuses on the equity issues of public transport use among older adults. It focuses primarily on urban areas, even though problems and challenges are also experienced in non-urban and rural areas. The chapter uses evidence from United Kingdom and Europe primarily but also draws on evidence from further afield to attempt to better understand how public transport supports independent travel in later life. The concerns over the COVID-19 pandemic are discussed in the context of rising challenges which public transport users, particularly older adults, are and will continue to, face in the future. The aim here is to provide a comprehensive overview of the opportunities, barriers and challenges of public transport use in later life.

Mobility in later life

Despite an overall reduction in out-of-home activity linked to age, there is an increase in and a need for discretionary travel among older adults in order for them to be part of society in a meaningful way. Older people travel mostly for shopping, leisure, medical care and religious activities. In the United Kingdom, Mackett (2018) identified shopping and social and leisure activities as the primary reasons for travel, and in the Netherlands, Boschmann and Brady (2013) found similar patterns of travel for the same age group. It is evident that as people age, leisure time and leisure travel increase. Average trip distances are shorter for older people but

recreational travel distances are longer than other trips (Schmöcker et al., 2005). However, it is worth remembering that this will not be the case for all individuals everywhere. In Bangkok, for example, Srichuae et al. (2016) found medical care as the most common out-of-home destination above and beyond leisure activity.

Despite the decrease in trips that occur in later life, walking remains the most important mode with older people, notably for leisure purposes and also often for the purpose of shopping (Musselwhite, 2017). Older people walk shorter distances, and they are also likely to own fewer cars per person. In the Netherlands, the decrease in the number of car trips (especially for compulsory activities) has been replaced by walking trips (Yang et al., 2013). Overall, however, walking, cycling and non-urban bus use have been in decline across all ages (Mackett, 2018). The decline in use of bus services has led to a reduction in the services offered, which in turn affects the availability of public transport as an option. This has significant consequences for older people when they have to give up driving and use other modes of transport, which they may not have used for many years (Musselwhite & Shergold, 2013).

Older people are more likely than any other age group to suffer mobility deprivation, in that they cannot access the places they want because they cannot physically get to them (Mackett, 2018). Some of the research has shown that giving up driving because of older age is related to a decrease in wellbeing and an increase in depression and other related health problems, including feelings of stress and isolation and also increased mortality (Fonda et al., 2010; Musselwhite & Haddad, 2018; Musselwhite & Shergold, 2013).

These macro-level changes in mobility due to ageing mask more complex behaviours, and, indeed, mobility of older people can be quite complex. Mifsud et al. (2017) adopted a multi-level conceptual ecological model to explain the determinants of travel behaviour which are affected by individual, sociocultural and environmental factors. The literature identifies age, gender, mobility tools, health, social issues, financial status, level of education and urban structure as main determinants of mobility in later life (see Mercado & Newbold, 2009). The focus on the use of public transport can also be seen through these factors. Schwanen et al. (2001) showed how transport mode choice in the Netherlands is determined by personal factors such as age, household composition and level of education, car ownership and the characteristics of the surrounding environment. Similarly, Kim and Ulfarsson (2004) found the same determinants for mode choice in Washington State. Furthermore, in this study, the proximity to public transport infrastructure was identified as a key factor increasing the use of public transport among older adults. This is also established by Beimborn et al. (2003). It is, however, contested in the study by Mifsud et al. (2017), which finds proximity to bus stop a non-significant determinant for public transport use in Malta, alongside other personal factors, including gender and level of education.

Public buses play an important part in connectivity for older people, especially those who have given up driving. Bus use is especially high among older people where there are concessionary or free fares, as in the United Kingdom. Not only does the bus keep people connected, bus use is also correlated with health and wellbeing, being a protective factor in obesity for older people (Webb et al., 2011).

Gender is another key determinant of mobility in later life, with women using public transport more than men (Siren & Hakamies-Blomqvist, 2004) either because they give up driving earlier or because they travelled more as passengers and used public transport throughout their life. Public transport remains a fundamental travel option for older people to remain mobile and reduce loneliness (Shrestha et al., 2016). Despite difficulties, there are circumstances, for example, low income or unsuitable alternatives, that restrict mobility to public transport modes (Beimborn et al., 2003), and whilst walking offers several benefits for older people's physical,

social and psychological wellbeing, there are several barriers which inhibit mobility and encourage older people to stay home (Musselwhite & Haddad, 2018; Mifsud et al., 2019).

Issues of equity in transport provision in later life

Martens (2006) identified transport equity as a means of delivering social justice and reducing social exclusion. Social exclusion among older adults using public transport is due to limitations on mode choice, with age, income and access to private transport being main factors leading older people to rely solely on public transport (see also Chapter 26). System reliability, environmental impact and accessibility often affect the opportunities and capabilities of older people to use these services (Bocarejo & Oviedo, 2012).

Within public transport systems, there are still a number of barriers that inhibit equitable provision of services among the different user groups. These groups are distinguished by age but also by gender, as it is well known that older women spend more time using public transport than men (Siren & Hakamies-Blomqvist, 2004).

Older people suffer from difficulties and insecurities when using some public transport services, such as inaccessible infrastructure (distant stops, poor walking environments, high steps at bus stops, inaccessible buses or trains) and poorly designed and maintained interiors that do not fully support people with restricted or limited mobility (Wardman, 2001) (see also Chapter 31). New 'intelligent' mobility services being promoted as 'disruptive' rely heavily on a population that handles technology (e.g. smartphones) with ease. Real-time booking facilities like those available for Uber and ViaVan, but also many others, require ownership and skills which many older people do not possess. Intelligent mobility is using new technologies and approaches, such as connected and autonomous transport systems and new data-driven personalised on-demand transport, supported with open data platforms, to move people and goods around more easily, more efficiently and in a more environmentally friendly way (see also Chapter 40 and Chapter 41). These new integrated technologies include connected and autonomous transport, new mobility services and open data platforms. In an ageing society, the needs of older people are rarely considered in the development of intelligent mobility (see van Hoof et al., 2018), with a focus on supporting interurban business and commuting (Parkhurst et al., 2014). Although older people are more likely to commute compared to previous generations, their use of the mobility network is varied, and they utilise a variety of modes throughout the day for a wide range of purposes (Musselwhite & Curl, 2018). Hence, these solutions are less likely to be of value to an ageing population, especially as they have not involved older people in the design of such systems (Musselwhite, 2018).

Public buses

There are still many barriers to using a bus that prevent or make it difficult for older people to use it. Having free journeys or reduced fares for older people increases the use of public transport, and as the density of bus stops increases, use amongst older people makes a difference as well. However, features in the surrounding environment may be equally important. Gilhooly et al. (2002) found the highest barrier to public transport use amongst older people was personal security in the evening and at night (79.8% of over-70s agreed), followed by public transport running late and having to wait. In addition, the journey is improved for older people if it is viewed as being "seamless" from door to door (Maynard, 2009). A report using accompanied journeys in London highlighted similar problems for older people, including crowds at the bus stop or on the bus, prams taking up the seats or area at the front of the bus, steps up to the bus

being too high (or driver stopping too far from the kerb) and fear of falling over when the bus moves off (TfL, 2009). For example, Broome et al. (2010) in an Australian study found that for older people, driver friendliness, ease of entry/exit and information usability were prioritised barriers and facilitators for older people. Age UK London quantified this by surveying bus driving behaviour in 550 journeys in inner London and 541 journeys in outer London in 2011. In 42% of cases, passengers were not given enough time to sit down before the bus was driven away from the stop. In 25% of the cases, the bus did not pull up tight to the kerb at the bus stop (Age UK, 2011).

Another barrier to use often overlooked is anxiety related to norms of use (Musselwhite, 2018; Mifsud et al., 2019). It maybe that on giving up driving, the older person has not used a bus in many years and is unsure how to use the service. They may be unaware of improvements in the system, such as real-time and en-route bus stop information. In addition, older people may be anxious about social norms, for example, the normal departure time (is it sooner than advertised?), what times of day are less busy, is there seat availability, are buses accessible, how much can be carried? (Musselwhite, 2018). Providing training and information for older people about how to use buses can help overcome these barriers. Travel training schemes may involve partnering new users with experienced users to learn from them, in so-called “buddy schemes” (Brown, 2010; Musselwhite, 2010; Stevens et al., 2013). Such schemes have proved successful for some novice users (see Ormerod et al., 2015; Stevens et al., 2013). Alternative approaches have also been suggested, such as more generic training in the use of public transport associated with a program of giving up driving, as suggested by Liddle et al. (2006) and Musselwhite (2010). Mifsud et al. (2019) go on to identify additional social norms, in particular those related to influence from family members, friends and health professionals, as major barriers to travel, particularly alone using buses.

Another aspect is the relational nature of the bus, the use of the bus as a third space, to people-watch, a space for recreation and seeing the world pass by, rather than just a vehicle to get from A to B. The ability to interact with other passengers can be seen positively by older people (Mackett, 2018). Social support for using the bus, such as “Bus Buddy” schemes, can pair inexperienced or new bus users with an experienced user, which can help grow bus user confidence (Phillips & McGee, 2018). The social interaction between the individual and the driver is also vital and can make or break a journey if the driver is rude or discourteous (Musselwhite, 2018). A cheery or sympathetic driver attuned to older people’s needs, who, for example, says hello and asks how they are, allows the passenger to take time when boarding or may wait for the passenger to sit down before driving off is invaluable.

Dedicated public transport services

As an alternative to conventional public bus services, there can be provision of specialist transport services, often operating door to door for people who cannot access public or private transport, known as specialist transport service, community transport or demand-responsive transport (see also Chapter 17). Such services usually run on demand rather than following a scheduled timetable. They are often run through a licence by a local authority by a third sector or charitable organisation. Such services are often viewed as a lifeline for older people who would otherwise be housebound (ECT, 2016). There are direct improvements on people’s health through affording greater access to GP and hospital services, for example. The ability of older people to maintain their regular appointments through dedicated services ensures a quicker diagnosis of illness or signs of loneliness (ECT, 2016). Other similar community services exist in many different forms across countries. They are offered at a very local level to the

general public or specific groups, such as older adults or people with disabilities (Weckström et al., 2018).

While community transport is prevalent in the United Kingdom and Australia, paratransit provides for similar needs in the United States. Overall, however, community transport remains somewhat sparse (Mulley et al., 2012). There are also barriers to its use. Because services are dependent on third sector and/or charity provision, they can be somewhat fragmented across larger areas. They might be short lived, often existing around a particular one-off or small-scale funding offer and key individuals. Indeed, success of these services across systems has varied, with many failing or requiring subsidy beyond the first few years of operation to survive (Mohamed et al., 2019). People who may well benefit from such a service can sometimes feel the service is not for people like them; there is sometimes the perception that it is for people with disabilities rather than for everyone with accessibility issues (Musselwhite, 2018). Some have even flagged issues of personal safety. Frequently, there is a lack of information and as a result much misunderstanding of the service (Parkhurst et al., 2014; Ward et al., 2013). Journeys typically are based around providing transport to shops, services and doctors and hospitals, but there need to be more “discretionary” journeys provided to places of leisure and fun (Musselwhite, 2017).

Taxi and shared services

As an alternative to public transport, older people often turn to other forms of mobility where public transport is unavailable, inaccessible or too expensive; these include specialised transport services, taxis and other shared services. The use of taxis among older people is highly linked to income levels and transport used during the life course. Car ownership and the ability to afford a taxi are linked to higher levels of income. Driving cessation also leads many to resort to taxis even though these can be seen as extravagant by some, especially for discretionary trips (Davey, 2007). Taxi-like services, offered today by new shared mobility providers, have opened new opportunities for older people to extend their travel beyond the utilitarian at a more affordable price.

Motorcycle taxi services are found in high numbers to transport people around congested and busy city centres in low- to middle-income countries (LMICs). This can still be expensive and unaffordable to the majority of older people or be inaccessible, with older people unable to physically get on a motorcycle or back of a pick-up truck (Porter et al., 2018).

Income, concessionary fares and free bus programmes

The amount public transport is used and the use of buses, in particular, are linked to income levels among older people. Whilst high income levels are related to car ownership and high levels of mobility, lower income is related to public transport use and walking (Kim & Ulfarsson, 2004). Both Schmöcker et al. (2008) and Truong and Somenahalli (2011) showed how higher income negatively affected public transport use in London and Adelaide. Lucas et al. (2019) noted that lower-income groups of older people relied more on local neighbourhood activities which they could reach on foot.

Various authors have also looked at the advantages linked to concessionary fare and free bus programmes for older people. Truong and Somenahalli (2011) analysed the effects of a concessionary fare introduced in July 2009 on public transport use in Adelaide and, similarly to Mackett (2013) in the United Kingdom, found that bus use increased. People aged over 65 years of age, or those of any age with a disability, have been entitled to travel free of charge on any

off-peak local public bus service in England since 2007, thanks to the English National Concessionary Travel Scheme. Around 76% of all women and 79% of men take up the free bus pass in England, compared to 61% and 50% in 2005 – the year before free local travel. Humphrey and Scott (2012) suggest that ownership of a free bus pass is higher (around 80–82%) among those on lower income (less than £15,000). This group is also more likely to use the bus once a week than those on higher incomes, who use it less frequently.

The most commonly reported activity older people cite as their destination on buses across all these surveys is shopping, followed by social and leisure, day trips and visiting friends, then medical, meaning people are socially connected and hence experience reduced isolation (Mackett, 2013). Mackett (2013) also notes how such bus journeys support the volunteering and caring work older people undertake, which would otherwise not take place. Webb et al. (2011) examined three waves of English Longitudinal Study of Ageing data (2004, 2006 and 2008) and found a link between eligibility for a free bus pass and increased use of buses. They also found those who used the bus more often had a reduced chance of becoming obese, suggesting that using the bus is associated with physical activity such as walking to and from bus stops and allowing people to engage with more activity. Dargay et al. (2010) modelled bus use against what would have happened if no free bus pass had been introduced. They found journeys made are more numerous and also often longer in duration and distance (Dargay et al., 2010). The findings suggest the number of bus stages (groups of bus stops) travelled by older people increased by 45.4% in rural areas and 26.5% in urban areas.

Railways

In the United Kingdom, there has been unprecedented growth in rail travel over the past 20 years. The number of passengers on UK railways has grown significantly, both absolutely and in terms of percentage of overall distance travelled. In the United Kingdom, rail travel has increased almost 60% between 1995/97 and 2017 (DfT, 2019). Against a backdrop in an increase in the number of older people in the United Kingdom and an increase in the amount of travel per person for this age group, the number of older people using the railway has not increased at the same rate. In the last ten years, there has been a 23% increase in rail travel distance per person across all ages, and while for the over-70s, overall mobility has grown by 11%, rail travel per person for this age group has fallen by 10% (DfT, 2019). This warrants further investigation; why are older people less likely to use the railway for their journeys, and how can stations and rolling stock be made more age friendly? Interestingly, long-distance bus or coach travel could overcome some of the issues older people have when using railways, including having a designated seat and not having to transfer buses or stow luggage, which is the responsibility of the driver. However, there is little to no research on long-distance bus or coach use in later life.

Very little prevailing literature exists on the subject of older rail travellers. Sundling et al. (2014) found for older people with high functional ability, the main barriers to travelling by train were travel costs and low punctuality, and for those with low functional ability, health was the main barrier. Musselwhite (2018) used Passenger Focus 2015 survey figures, which survey passenger transport satisfaction use for government and the industry in the United Kingdom and stratified them by age. The study showed that older people seem to have higher satisfaction with their train travel, including being positive about price and the overall journey experience. This may be because older people are making more recreational journeys than the average train user – leisure users are more satisfied than those using it for work and commuters across all ages (Ormerod et al., 2015). In addition, older people prioritise getting a seat on a train more

highly than younger passengers do, and from 60 years onwards, it becomes more important than the cost of the ticket. This may in part be that older people are able to make more of cheaper off-peak and advanced tickets, as well as railcards reducing fares. Older rail passengers are more likely than rail passengers in general to want to be kept informed about the journey and any delays and, compared to younger and middle age rail passengers, less likely to be concerned about the availability of free Wi-Fi. Overall, for older passengers, there is more concern with the state and cleanliness of the carriage and of the toilet facilities, and they prioritise these over the length of journey and frequency of services, possibly showing their more intermittent and leisure use.

Station design is also important for older people. Stations ideally should have indoor waiting areas and toilets wherever possible, and accessibility is a mandatory issue, with lifts preferred on all stations that require access by stairs (Musselwhite, 2018). Older people can feel more vulnerable on trains and in stations, and visibility is key to this (Gilhooly et al., 2002); older people feel more vulnerable are less likely to use the station where there is a lack of staff, lack of other passengers, lack of lighting and dark enclosed waiting areas (Cozens et al., 2004). This can be placated somewhat through better design. An excellent project was carried out on the valley lines in Wales which resulted in better designed stations. In particular, Dingle Road station (South Wales, UK) was redesigned from a station that contained two old, enclosed shelters to one that contained a see-through shelter, which improved feelings of safety for all age groups (Cozens et al., 2004). Similarly, the presence of staff at railway stations and on board can help create a feeling of security among older people (Musselwhite, 2018). Older people, more than other groups, value the importance of staff to help them at rail stations and on train services. They are more likely to trust information if it is given from authority figures, for example, railway staff, and like the staff to be friendly and approachable (Musselwhite, 2018). They use staff for timetable information, especially if trains get delayed or things go wrong, whereas other groups are more likely now to use mobile information, communication technologies, and apps (Gilhooly et al., 2002; Musselwhite, 2011). They use staff for backing up information they see on screens or hear over the announcements, which they trust less than younger groups. They also often want staff available should they need help carrying cases.

The provision of information is vital, both on trains and at stations, especially for less frequent users and for when things do not go according to plan. Lamont et al. (2013) investigated the extra planning that dyslexic travellers needed for planning a journey by rail and how the intervention of staff could help remove concern and anxiety over the journey. Similar may be found for older people, who may have poorer eyesight; have issues with cognitive overload, memory, concentration and learning and could become overwhelmed by poorly designed signage.

Around 30% of those aged over 70 have a mobility issue (DfT, 2019; Mackett, 2018). Older people with mobility issues are potentially more likely to have issues boarding and alighting trains, especially traversing a step up or down from the train or a gap between the train and the platform, and have more issues in crowded space and on a moving train. This is exacerbated when carrying luggage, as figures suggest around 28% of older people have issues with carrying items (Mackett, 2018).

In on-train audits carried out with older people on a major network in the United Kingdom, Musselwhite (2019) found older people were overrepresented in passenger accidents, including boarding; slips, trips and falls on trains and slips, trips and falls at the station frontage, car park and concourse. Conclusions suggested better signage, lighting and places to sit and rest were needed for older people throughout the station, with more level boarding between platform and train needed as standard.

COVID-19 and the future of public transport

During the COVID-19 pandemic, starting in 2020, the impact on transport and health is highly evident (Musselwhite et al., 2020). There were plenty of discussions taking place at the time of writing this chapter regarding the impact of COVID-19 and public transport use. Tirachini and Cats (2020) show very clearly the decline in public transport use in many cities around the world as a reaction to the COVID-19 pandemic. The link between virus infection and public transport use is not always clear cut, but some studies suggest a link; for example, Troko et al. (2011) found those who got acute respiratory infections (ARIs) in winter were more likely to be using bus or tram use in the five days before symptom onset. Epidemiologists believe COVID-19 passes through the air in tiny droplets, which are easier to pass on in enclosed spaces and can live for hours or even days on hard surfaces. The greatest risk for infectious diseases in public transport is that people sit or stand in proximity in a closed environment (Edelson & Phypers, 2011). These vehicles can become a significant source of microorganisms when passengers do not close their mouths when coughing and sneezing. Handrails, ticket machines, smart-card machines, doors, handles, windows, panels, floors, elevators and seats are areas that can host infectious micro-organisms. To stop the spread of the disease, during the COVID-19 outbreak, epidemiologists are encouraging social distancing, meaning people should keep around 6 feet apart or more from others, a measure at odds with the use of public transport (Musselwhite et al., 2020). Further to the restrictions on travel and the explicit discouragement of use by public authorities in a number of countries, including the United Kingdom (DfT, 2020) and the United States (Centres for Disease Control and Prevention, 2020), public transport has also been seen as a riskier means of transport for COVID-19 contagion (Tirachini & Cats, 2020). Budd and Ison (2020) report on a survey in the United Kingdom carried out in May 2020 which revealed a high percentage of people still unwilling to use public transport and only 18% using public transport after the lifting of restrictions.

Following studies in epidemiology, one of the common measures provided by the authorities is internal cleaning and sanitation of public transport vehicles, used daily by thousands of people. They are disinfecting handrails, ticket machines, doors, handles, windows, panels, elevators and seats more frequently. They are also fumigating buses frequently both inside and outside, alongside main interchanges and bus stops. Another measure taken by some authorities is installing hand-sanitizing units inside public transport facilities. It is unclear whether these measures protect to the desired level. Also, it is questionable whether frequent cleaning and sanitation by staff is sustainable over time, as it demands much human resources and its logistics might be complicated.

Although it was found that the use of crowded public transport vehicles can be associated with the acquisition of infectious diseases, it can be argued that these findings do not support the effectiveness of suspending mass urban transport systems as a pandemic countermeasure aimed at reducing or slowing population spread. It is evident that whatever the relevance of public transport to individual-level risk, household exposure most likely poses a greater threat (Cooley et al., 2011).

All this is even more relevant for older people, considered most vulnerable in society in terms of contagion and severity of health outcome. The future of public transport is currently being debated in the context of new rules and restrictions imposed by various health authorities around the world. Whilst lockdown measures have decimated public transport use in many cities, leading to financial difficulties among operators and some closure of services, the restrictions in the post-pandemic months make public transport use difficult. Social distancing

rules, requirements to wear masks, the switching off of air-conditioning units and the sanitation required on buses are just a few examples of the challenges which lie ahead for public transport operators and users. And even after implementing new layouts, providing contactless door sensors, installing hand sanitizer dispensers and other measures to reduce contagion, the effectiveness of these and how they are perceived by the public remain largely unknown (Budd & Ison, 2020).

So far the use of public transport has declined in most countries that had high levels of COVID-19 and were placed in lockdown by governments. Other than Japan, which saw at most 20% reduction at first, most countries saw at least a decline of 50% or more and, although this is recovering, rates of use still vary around a 20% (e.g. Hong Kong) to 60% (e.g. United Kingdom) reduction in use (Tirachini & Cats, 2020).

The socioeconomic effect of the pandemic will be significant on public transport in a post-COVID-19 world. Patterns of inequality between those who cannot avoid using public transport and those who can are emerging. There is still too little research on how older people have been affected. It is certain that returning to normal use of public transport in the post-pandemic months will be difficult, and new procedures and maybe services will be required to support high-risk groups such as older people.

Conclusion

With an increasingly mobile older generation, one that is increasingly wedded to the car, and as cars become increasingly automated, it remains to be seen what role public transport will play in the lives of older people in future societies. Public transport in the present day has a role as a great social leveller, especially where it is free or cheap to use, meaning those who cannot afford a car can remain mobile. Public transport keeps older people active, connected to things they want to do while reducing loneliness and isolation, and it can be seen to be a protective factor helping maintain health in later life, reducing obesity and potentially reducing heart disease and associated illness. The emergence of COVID-19 has resulted in a huge reduction in use of public transport, along with associated anxiety, even among older people who have been regular users. Recovery of public transport as mobility for older people will require huge public trust and confidence, along with reinstating services and provision. Hence, there is a real need for public policy to help maintain public transport for an ageing population.

Many interventions aimed at improving public transport are at a utilitarian level, helping accessibility of older people, but the psychosocial aspects of public transport, including status, roles and norms, cannot be underestimated and should not be forgotten. Modern technologies such as intelligent mobility approaches, for example, could be used to improve mobility for older people yet rarely consider the needs of older people. Hence, there is a need to design these technologies with the needs of older people in mind, perhaps better still through co-design approaches with older people.

There are evidently gaps in research addressing long-distance bus and coach use with older people and more research needed on older people's use of railways, especially around why train travel use has not increased for older people as it has for other age groups. Research must take into account the wider social and psychological issues associated with public transport use and not simply identify accessibility barriers, and it should place public transport use within the wider social context of older people's lives. Transport research is always highly contextualised and influenced hugely by geography and culture, and research examines generalisability of

findings for other areas with care. So, finally, there is a plea for research on public transport and ageing in countries outside the United Kingdom and Europe, looking especially to research in the Global South.

References

- Age UK. (2011). *Past campaigns – On the buses*. Retrieved August 4, 2020, from www.ageuk.org.uk/london/projects-campaigns/our-campaigns/info/on-the-buses/
- Beimborn, E. A., Greenwald, M. J., & Jin, X. (2003). Transit accessibility and connectivity impacts on transit choice and captivity. *Transportation Research Record: Journal of the Transportation Research Board*, 1835, 1–9.
- Bocarejo, S. J. P., & Oviedo, H., D. R. (2012). Transport accessibility and social inequities: A tool for identification of mobility needs and evaluation of transport investments. *Journal of Transport Geography*, 24, 142–154.
- Boschmann, E. E., & Brady, S. A. (2013). Travel behaviors, sustainable mobility, and transit-oriented developments: A travel counts analysis of older adults in the Denver, Colorado metropolitan area. *Journal of Transport Geography*, 33, 1–11.
- Broome, K., Nalder, E., Worrall, L., & Boldy, D. (2010). Age-friendly buses? A comparison of reported barriers and facilitators to bus use for younger and older adults. *Australasian Journal of Ageing*, 29(1), 33–38.
- Brown, R. (2010). *Maintaining community mobility in Portsmouth after retirement from driving: How do people find out about and gain confidence in using alternative forms of transport?* [MSc thesis, Accessibility and Inclusive Design, University of Salford].
- Budd, L., & Ison, S. (2020). Responsible transport: A post-COVID agenda for transport policy and practice. *Transportation Research Interdisciplinary Perspectives*, 6, 100151.
- Centres for Disease Control and Prevention. (2020). *Travel during the COVID-19 pandemic*. Retrieved August 4, 2020, from www.cdc.gov/coronavirus/2019-ncov/travelers/travel-in-the-us.html
- Cooley, P., Brown, S., Cajka, J., Chasteen, B., Ganapathi, L., Grefenstette, J., . . . Wagener, D. K. (2011). The role of subway travel in an influenza epidemic: A New York City simulation. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 88(5), 982–995.
- Cozens, P., Neale, R., Hillier, D., & Whittaker, J. (2004). Tackling crime and fear of crime while waiting at Britain's railway stations. *Journal of Public Transportation*, 7(3), 23–41.
- Dargay, J., Ronghui, L., & Toner, J. (2010). *Concessionary bus fares in England: The impact on bus travel by the over-60s*. Paper presentation. European Transport Conference.
- Davey, J. A. (2007). Older people and transport: Coping without a car. *Ageing & Society*, 27(1), 49–65.
- DfT (Department for Transport). (2019). *National travel survey*. Retrieved July 20, 2020, from www.gov.uk/government/collections/national-travel-survey-statistics
- DfT (Department for Transport). (2020). *Guidance coronavirus (COVID-19): Safer travel guidance for passengers*. Retrieved August 4, 2020, from www.gov.uk/guidance/coronavirus-covid-19-safer-travel-guidance-for-passengers
- ECT (Ealing Community Transport). (2016). *Why community transport matters?* ECT Transport Report. ECT.
- Edelson, P. J., & Phipers, M. (2011). TB transmission on public transportation: A review of published studies and recommendations for contact tracing, *Travel Medicine and Infectious Disease*, 9(1), 27–31.
- Fonda, S. J., Wallace, R. B., & Herzog, A. R. (2010). Changes in driving patterns and worsening depressive symptoms among older adults. *The Journal of Gerontology, Series B: Psychological Sciences and Social Sciences*, 56(6), 343–351.
- Gilhooly, M., Hamilton, K., O'Neill, M., Gow, J., Webster, N., Pike, F., & Binbridge, C. (2002). *Transport and ageing: Extending quality of life for older people via public and private transport* (ESRC Award Reference Number L480 25 40 25). Retrieved July 27, 2020, from <https://bura.brunel.ac.uk/bitstream/2438/1312/1/PDF%20ESRC%20Transport%20Final%20Report.pdf>
- Holley-Moore, G., & Creighton, H. (2015). *The future of transport in an ageing society*. Age UK.
- Humphrey and Scott. (2012). *Older people's use of concessionary travel*. NatCen, Age.
- Kim, S., & Ulfarsson, G. (2004). Travel mode choice of the elderly: Effects of personal, household, neighbourhood, and trip characteristics. *Transportation Research Record: Journal of the Transportation Research Board*, 1894, 117–126.

- Lamont, D., Kenyon, S., & Lyons, G. (2013). Dyslexia and mobility-related social exclusion: The role of travel information provision. *Journal of Transport Geography*, 26, 147–157.
- Liddle, J., McKenna, K., & Bartlett, H. (2006). Improving outcomes for older retired drivers: The UQDRIVE program *Australian Occupational Therapy Journal*, 53, 303–306.
- Lucas, K., Stokes, G., Bastiaanssen, J., & Burkinshaw, J. (2019). *Inequalities in mobility and access in the UK transport system*. Evidence Review Foresight Government Office for Science.
- Mackett, R. (2013). The impact of concessionary bus travel on the wellbeing of older and disabled people. *Transportation Research Record: Journal of the Transportation Research Board*, 2352, 114–119.
- Mackett, R. (2018). Older people's travel and its relationship to their health and wellbeing. In C. Musselwhite (Ed.), *Transport, travel and later life, Transport and Sustainability* (Vol. 10, pp. 15–36). Emerald Publishing Limited.
- Martens, K. (2006). Basing transport planning on principles of social justice. *Berkeley Planning Journal*, 19, 1–17.
- Maynard, A. (2009). Can measuring the benefits of accessible transport enable a seamless journey? *Journal of Transport and Land Use*, 2(2), 21–30.
- Mercado, R. G., & Newbold, K. B. (2009). Car driving and public transit use in Canadian metropolitan areas: Focus on elderly and role of health and social network factors (No. 243). McMaster University.
- Mifsud, D., Attard, M., & Ison, S. (2017). To drive or to use the bus? An exploratory study of older people in Malta. *Journal of Transport Geography*, 64, 23–32.
- Mifsud, D., Attard, M., & Ison, S. (2019). An exploratory study of the psychological determinants of mobility of older people in Malta. *Research in Transportation Business and Management*, 30, 100373.
- Mohamed, M. J., Rye, T., & Fonzone, A. (2019). Operational and policy implications of ride sourcing services: A case of Uber in London, UK. *Case Studies on Transport Policy*, 7, 823–836.
- Mulley, C., Nelson, J., Teal, R., Wright, S., & Daniels, R. (2012). Barriers to implementing flexible transport services: An international comparison of the experiences in Australia, Europe and USA. *Research in Transportation Business & Management*, 3, 3–11.
- Musselwhite, C. B. A. (2010). The role of education and training in helping older people to travel after the cessation of driving. *International Journal of Education and Ageing*, 1(2), 197–212.
- Musselwhite, C. B. A. (2011). The importance of driving for older people and how the pain of driving cessation can be reduced. *Journal of Dementia and Mental Health*, 15(3), 22–26.
- Musselwhite, C. B. A. (2017). Exploring the importance of discretionary mobility in later life. *Working with Older People*, 21(1), 49–58.
- Musselwhite, C. B. A. (2018). Community connections and independence in later life. In E. Peel, C. Holland, & M. Murray (Eds.), *Psychologies of ageing: Theory, research and practice* (pp. 221–252). Palgrave Macmillan.
- Musselwhite, C. B. A. (2019). *Towards an age friendly railway*. Swansea University, UK. Unpublished report.
- Musselwhite, C. B. A., Avineri, E., & Susilo, Y. (2020). The coronavirus disease COVID-19 and implications for transport and health. *Journal of Transport and Health*, 16, 100853.
- Musselwhite, C. B. A., & Curl, A. (2018). Geographical perspectives on transport and ageing. In A. Curl & C. B. A. Musselwhite (Eds.), *Geographies of transport and ageing* (pp. 3–24). Palgrave Macmillan.
- Musselwhite, C. B. A., & Haddad, H. (2018). The travel needs of older people and what happens when people give up driving. In C. Musselwhite (Ed.), *Transport, travel and later life, transport and sustainability* (Vol. 10, pp. 93–115). Emerald Publishing Limited.
- Musselwhite, C. B. A., & Shergold, I. (2013). Examining the process of driving cessation in later life. *European Journal of Ageing*, 10(2), 89–100.
- Ormerod, M., Newton, R., Philips, J., Musselwhite, C., McGee, S., & Russell, R. (2015). *How can transport provision and associated built environment infrastructure be enhanced and developed to support the mobility needs of individuals as they age?* Future of an Ageing Population: Evidence Review Foresight Government Office for Science.
- Parkhurst, G., Galvin, K., Musselwhite, C., Phillips, J., Shergold, I., & Todres, L. (2014). Beyond transport: Understanding the role of mobilities in connecting rural elders in civic society. In C. Hennessey, R. Means, & V. Burholt (Eds.), *Countryside connections: Older people, community and place in rural Britain* (pp. 125–157). Policy Press.
- Phillips, J., & McGee, S. (2018). Future ageing populations and policy. In A. Curl & C. B. A. Musselwhite (Eds.), *Geographies of transport and ageing* (pp. 227–250). Palgrave Macmillan.
- Porter, G., Tewodros, A., & Gorman, M. (2018). Mobility, transport and older people's well-being in sub-Saharan Africa: Review and prospect. In A. Curl & C. B. A. Musselwhite (Eds.), *Geographies of transport and ageing* (pp. 75–100). Palgrave Macmillan.

- Schmöcker, J. D., Quddus, M. A., Noland, R. B., & Bell, M. G. H. (2005). Estimating trip generation of elderly and disabled people: Analysis of London data. *Transportation Research Record: Journal of the Transportation Research Board, 1924*, 9–18.
- Schmöcker, J. D., Quddus, M. A., Noland, R. B., & Bell, M. G. H. (2008). Mode choice of older and disabled people: A case study of shopping trips in London. *Journal of Transport Geography, 16*, 257–267.
- Schwanen, T., Dijst, M., & Dieleman, F. M. (2001). Leisure trips of senior citizens: Determinants of modal choice. *Tijdschrift Voor Economische en Sociale Geografie, 92*(3), 347–360.
- Shrestha, B. P., Millonig, A., Hounsell, N. B., & McDonald, M. (2016). Review of public transport needs of older people in European context. *Population Ageing, 1*–19.
- Siren, A., & Hakamies-Blomqvist, L. (2004). Private car as the grand equaliser? Demographic factors and mobility in Finnish men and women aged 65+. *Transportation Research Part F: Traffic Psychology and Behaviour, 7*, 107–118.
- Srichuae, S., Nitivattananon, V., & Pereram, R. (2016). Aging society in Bangkok and the factors affecting mobility of elderly in urban public spaces and transportation facilities. *IATSS Research, 40*(1), 26–34.
- Stevens, N., Battellino, H., & Pedler, K. (2013, October). Evaluating travel training in northern Sydney: Methodological and practical issues. In *Australasian transport research forum (ATRF), 36th, 2013*. ATRF.
- Sundling, C., Berglund, B., Nilsson, M. E., Emardson, R., & Pendrill, L. R. (2014). Overall accessibility to traveling by rail for the elderly with and without functional limitations: The whole-trip perspective. *International Journal of Environmental Research and Public Health, 11*(12), 12938–12968.
- TfL (Transport for London). (2009, June). *Older people's experience of travelling in London*. *Transport for London*. www.tfl.gov.uk/cdn/static/cms/documents/older-peoples-transport-experiences-report.pdf.
- Tirachini, A., & Cats, O. (2020). COVID-19 and public transportation: Current assessment, prospects, and research needs. *Journal of Public Transportation, 22*(1), 1–34.
- Truong, L. T., & Somenahalli, S. (2011, September). Exploring mobility of older people: A case study of Adelaide. In *Australasian transport research forum (ATRF), 34th*. ATRF.
- Troko, J., Myles, P., Gibson, J., Hashim, A., Enstone, J., Kingdon, S., . . . Nguyen Van-Tam, J. (2011). Is public transport a risk factor for acute respiratory infection? *BMC Infectious Diseases, 11*, 16.
- Van Hoof, J., Kazak, J. K., Perek-Białas, J. M., & Peek, S. T. M. (2018). The challenges of urban ageing: Making cities age-friendly in Europe. *International Journal of Environmental Research and Public Health, 15*, 2473.
- Ward, M., Somerville, P., & Bosworth, G. (2013). 'Now without my car I don't know what I'd do': The transportation needs of older people in rural Lincolnshire. *Local Economy, 28*(6), 553–566.
- Wardman, M. (2001). A review of British evidence on time and service quality valuations. *Transportation Research Part E: Logistics and Transportation Review, 37*(2–3), 107–128.
- Webb, E., Netuveli, G., & Millett, C. (2011). Free bus passes, use of public transport and obesity among older people in England. *Journal of Epidemiology and Community Health, 66*(2), 176–180.
- Weckström, C., Mladenović, M. N., Ullah, W., Nelson, J. D., Givoni, M., & Bussman, S. (2018). User perspectives on emerging mobility services: Ex post analysis of Kutsuplus pilot. *Research in Transportation Business and Management, 27*, 84–97.
- Yang, D., Timmermans, H., & Grigolon, A. (2013). Exploring heterogeneity in travel time expenditure of aging populations in the Netherlands results of a CHAID analysis. *Journal of Transport Geography, 33*, 170–179.