Transport and health equity, social inclusion and exclusion

Macleod, Kara; Kamruzzaman, Liton ; Musselwhite, Charles

Published in:
Journal of Transport & Health

DOI:
10.1016/j.jth.2022.101543

Publication date:
2022

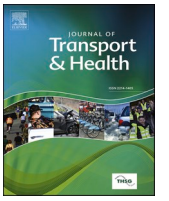
Citation for published version (APA):
Macleod, K., Kamruzzaman, L., & Musselwhite, C. (2022). Transport and health equity, social inclusion and exclusion. *Journal of Transport & Health*, *27*, Article 101543. https://doi.org/10.1016/j.jth.2022.101543

Journal of Transport & Health 27 (2022) 101543

Contents lists available at ScienceDirect

Journal of Transport & Health

journal homepage: www.elsevier.com/locate/jth



Editorial

Transport and health equity, social inclusion and exclusion

1. Introduction

As articulated in the very first issue of the *Journal of Transport & Health*, the journal is dedicated to understanding how transport affects health and inequalities with the intention to learn from a range of countries and experiences (Mindell, 2014). To specifically highlight current barriers and opportunities towards advancing health equity, we planned this special issue: "Health equity, social inclusion, and mobility". In 2020 the COVID-19 pandemic put health equity and mobility at the forefront as hypermobility played a role in the spread of COVID-19 and early lock-downs and reduced mobility helped slow the spread of disease in some locations (Musselwhite et al., 2020, 2021). Disparities in health equity, social inclusion and mobility identified in transport and health were further revealed during the pandemic.

2. Background

2.1. Why is mobility important?

Transport is an important social determinant of health, while also enabling access to school, work, and other important activities of daily life. Transport exclusion can manifest as physical barriers, rural or other geographical exclusion, longer travel times, higher travel costs, and decreased comfort and personal safety when using transport systems and public spaces (Hine and Mitchell, 2017). This is important because these barriers exist by sociodemographic characteristics and disability. These barriers can reduce access to activities that have political, economic, and social implications (Boniface et al., 2015; Frank et al., 2019; Hine and Mitchell, 2017; Lucas, 2012; Wachs and Kumagai, 1973).

We intentionally use the term 'mobility' to mean the "*potential for movement* and the ability to get from one place to another using one or more modes of transport to meet daily needs" (Eltis, 2019, unpaginated). Mobility can be helped through transport policy and planning, urban planning, specific interventions, and mobility management (Musselwhite et al., 2015; National Center for Mobility Management, 2018). Musselwhite and Scott (2019) call this mobility capital, comprising of infrastructure (built environment interventions, pavements, roads, bridges etc.), cultural (e.g., laws, strategies, government resources, such as policy and planning), social (e.g., support from other people, family and friends etc.) and individual (e.g., abilities and skills) capital. However, such capital is not equally distributed across the population and these approaches often involve having to balance particular mobility needs of different users using different modes and can prioritise one user's needs over another. Such approaches can therefore effect health equity and social inclusion and exclusion.

2.2. What do we mean by social inclusion and exclusion and how is this related to mobility?

Social exclusion can be defined as, "dynamic, multi-dimensional processes driven by unequal power relationships. These operate along and interact across four dimensions - cultural, economic, political and social" (Popay et al., 2008, pg.296). Specific to mobility and transport, it can represent the circumstances that make it difficult to access goods, services, and opportunities and to participate in society (Mackett, 2014). Social exclusion can occur by disability and sociodemographic characteristics (Mackett, 2014).

https://doi.org/10.1016/j.jth.2022.101543

Available online 25 November 2022

2.3. How is this related to health equity?

Health equity has been defined as addressing causes that are systematic and avoidable; and/or by addressing empowerment and needs (Braveman, 2014; Cole et al., 2019; Marmot et al., 2008). Socioeconomic status, mobility, and health inequities are linked as the organisation of transport systems and household factors are tied to history, politics, and socioeconomic conditions.

Table 1 summarizes some of the ways mobility patterns can differ by disability and sociodemographic characteristics. Constraints on mobility can include avoiding travel due to the demands of the travel not supporting people's physical limitations and concerns over personal safety, which can lead to differences in social determinants of health (e.g., access to employment) and participation in health-promoting activities (e.g., active transport, access to preventive care).

Health equity efforts to address disparities in mobility and the consequences of transport systems include policies, investments, and meaningful participation of affected populations to maximize the benefits and minimize the harms (Cole et al., 2019). An ongoing challenge is balancing population growth and dynamics, service needs, and liveability. In addition, policies, communities, and technologies continue to evolve. Emerging travel options, service withdrawal, gentrification and displacement, telecommuting, and policies may support or disrupt efforts to address mobility and health inequities (Musselwhite et al., 2021).

2.4. Special issue

Given the dynamics of population and social patterns and emerging challenges and opportunities, we hoped to better understand the mobility patterns and needs by age, gender, socioeconomic status, and/or culture; measuring disadvantage and opportunities for health; inequities that can inform policies and programs; and interventions and new approaches.

3. Results

Among the 19 articles included in this special issue (Table 2), six countries were represented (United States, n = 9; Australia, n = 3; China, n = 1; England, n = 1; New Zealand, n = 1; and Singapore, n = 1) and three articles were international. Articles were categorized as: mobility patterns and needs (3 articles); measuring disadvantage and opportunity (2 articles); disparity and inequity topic related to risks (2 articles); transport barriers (1 article) and; benefits (3 articles); interventions and new approaches (5 articles) and; research needs and future directions (3 articles). Nearly a third of articles (n = 6) used public data sources for key social and physical

Table 1
General mobility patterns.

Population	Factors that can affect disparities in mobility and mobility patterns
Disability	• People with disabilities make 10–30% fewer trips, use public transport and rides more, use active modes less, and have different mobility patterns than those without disabilities (Hidayati et al., 2021; Park et al., 2022). • More information is needed on mode preferences among people with disabilities and what enables the use of those modes (Kett et al., 2020; Lee et al., 2017).
Older adults	• Physical limitations can affect mobility patterns (Ang et al., 2019; Hidayati et al., 2021; MacLeod et al., 2014). • Personal driving decreases with age (Ang et al., 2019; Ragland et al., 2004). • An estimated third of older adults have unmet travel needs and this tends to increase with age; in part, because of fewer alternatives to personal driving (Luiu et al., 2017). • There is a need to understand this by different subgroups and modal needs (Lee et al., 2017; Musselwhite and Haddad, 2018).
Children	• Mobility patterns are dependent on household, neighbourhood, and cultural characteristics (Waygood et al., 2017) • Parental decisions impact active travel to school (Aranda-Balboa et al., 2020). • Parental barriers include concerns about the built environment and traffic safety (Aranda-Balboa et al., 2020).
Gender	• Mobility patterns differ by gender; with women making more household-related trips and having concerns about personal safety (Blumenberg et al., 2018). • Women's mobility patterns are more complex with more constraints (Priya Uteng and Turner, 2019). • Driving cessation is more likely among older women compared to older men (Ang et al., 2019; Musselwhite and Shergold, 2013). • In some studies, older women are more likely than older men to have unmet travel needs (Luiu et al., 2017). • Total walking is similar by gender, although trip purposes for walking may differ (Pollard and Wagnild. 2017). • In cities with lower levels of cycling, there are disparities in cycling by gender (Goel et al., 2022) • Built environment is a determinant for active transport for both women and men; although, there may be differences in determinants by gender (Tcymbal et al., 2020). • Active transport inequities can be reduced by identifying and addressing needs (Lee et al., 2017).
SES and culture	• Racial segregation can affect mobility patterns (Hidayati et al., 2021). • Few studies examine race/ethnicity differences in age-related driving (Babulal et al., 2018) • Income is associated with determinants of mobility (e.g., land use, transport costs, risk associated with transport mode) (Hosking et al., 2022). People with lower income are more reliant on public transport (Musselwhite, 2022) • Physical improvements for active transport are associated with physical activity in children and adults; however, the distribution of infrastructure and equity is understudied and this can lead to inequitable distributions of the costs and benefits (Lee et al., 2017; Smith et al., 2017).

Table 2
Articles included in the special issue (N = 19).

Ref	Topic	Location/Context and Population	Key Public Data for Social and Physical Environment	How Public Data were Used	Analysis of Disparities and/or Outcomes
Mobility patterns and needs					
Scott TL, Tulloch K. Is community mobility contingent upon driving? Attitudes toward and intentions to use alternative modes of transport according to a mixed-aged sample. *Journal of Transport and Healt*h. 2021 Mar 1;20:100974.	Driving status Driving cessation Age	International (Predominately AUS) Age 18-85	N/A	N/A	Disparities: driver identity, planning for cessation by age
Han D, Lee Y, Yu J, Dejno C. How does driving status affect trip patterns among older adults in suburban and rural communities? *Journal of Transport & Health*. 2021 Jun 1;21:101052.	Driving status Suburban, rural Older age	Wisconsin, United States Age 65+ living in rural and suburban areas	N/A	N/A	Disparities: trip purpose, trip frequency by driving status
Carver A, Veitch J. Perceptions and patronage of public transport–are women different from men? *Journal of Transport & Health*. 2020 Dec 1;19:100955.	Public transport Gender	Melbourne, Australia	N/A	N/A	Disparities: perceptions by gender
Measuring disadvantage and opportunity					
Chen G, Wang CC, Jin P, Xia B, Xiao L, Chen S, Luo J. Evaluation of healthcare inequity for older adults: A spatio-temporal perspective. *Journal of Transport & Health*. 2020 Dec 1;19:100911.	Accessibility-health care Older adults	Wuhan, China Age 60+	OpenStreetMap	Road network	Disparities: travel time by day and area
Roy A, Kar B. A multicriteria decision analysis framework to measure equitable healthcare access during COVID-19. *Journal of transport & health*. 2022 Mar 1;24:101331.	Accessibility-health care COVID-19 Social vulnerability	Los Angeles metro, United States	CDC Social Vulnerability Index OpenStreetMap LA Department of Transportation US Census	Social vulnerability Road network Transport Car ownership	Disparities: accessibility by social vulnerability Intersection: accessibility and comorbidities Outcomes: COVID-19 cases and deaths
Disparities and Inequities					
Basu N, Haque MM, King M, Kamruzzaman M, Oviedo-Trespalacios O. The unequal gender effects of the suburban built environment on perceptions of security. *Journal of Transport and Health*. 2021 Dec 1;23:101243.	Built environment Pedestrians Personal safety Gender	Brisbane, Australia Age 18-87	N/A	N/A	Disparities: perceived security by gender
Braun LM, Le HT, Voulgaris CT, Nethery RC. Healthy for whom? Equity in the spatial distribution of cycling risks in Los Angeles, CA. *Journal of Transport & Health*. 2021 Dec 1;23:101227	Bicycling risks Race/ethnicity, SES	Los Angeles County, United States	• American Community Survey • OpenStreetMap • SCAG's Active Transportation • SafeTREC TIMS • WUSTL ACAG	Race, SES, no vehicle Road network Bicycle counts Bicycle crashes $PM_{2.5}$	Disparities: bicycling risks by race, SES, no vehicle Intersection: air quality and safety
Joyce NR, Pfeiffer MR, Zullo AR, Ahluwalia J, Curry AE. Individual and geographic variation in Driver's license suspensions: evidence of disparities by race, ethnicity and income. *Journal of Transport & Health*. 2020 Dec 1;19:100933	License suspension Race, ethnicity, income	New Jersey, United States Age 17+	• American Community Survey • EPA's Smart Location database	Population density, race, SES, no vehicle, commuting Accessibility	Disparities: suspension status by driver and neighbourhood characteristics

(*continued on next page*)

Table 2 (*continued*)

Ref	Topic	Location/Context and Population	Key Public Data for Social and Physical Environment	How Public Data were Used	Analysis of Disparities and/or Outcomes
Badji S, Badland H, Rachele JN, Petrie D. Public transport availability and healthcare use for Australian adults aged 18–60 years, with and without disabilities. *Journal of Transport and Health.* 2021 Mar 1;20:101001.	Public transport Accessibility-health care	Australia Age 18–80 with and with disabilities	N/A	N/A	Disparities: health care use by disability Intersection: public transport availability and distance to health care
Bassett D, Hosking J, Ameratunga S, Woodward A. Variations in the health benefit valuations of active transport modes by age and ethnicity: A case study from New Zealand. *Journal of Transport & Health.* 2020 Dec 1;19:100953.	Active transport Health benefit valuation	New Zealand Age 15-74	N/A	N/A	Disparities: health benefits of walking and bicycling by age and ethnicity
Riley EN, Vsevolozhskaya OA, Zaykin DV, Shimshock SM, Lyons JS. Investigating the impact of caregiver transportation needs on Children's response to behavioral and mental health treatment: A longitudinal analysis. *Journal of Transport & Health.* 2021 Dec 1;23:101262	Caregiver transportation needs	Idaho, United States Age $\leq$ 20 in behavioral health treatment	N/A	N/A	Outcome: Child and Adolescent Needs and Strengths assessments (repeated assessment)
Interventions and new approaches					
Soto MJ, Vercammen KA, Dunn CG, Franckle RL, Bleich SN. Changes in equity of bikeshare access and use following implementation of income-eligible membership program and system expansion in Greater Boston. *Journal of Transport & Health.* 2021 Jun 1;21:101053.	Bikeshare Bike Equity Index Intervention	Boston, United States	• American Community Survey • BlueBikes	Sociodemographic indicators for Bike Equity Index Bike stations and trip	Outcome: Bikeshare use post-intervention
Lim PY, Kong P, Cornet H, Frenkler F. Facilitating independent commuting among individuals with autism–A design study in Singapore. *Journal of Transport & Health.* 2021 Jun 1;21:101022.	Public transport Virtual companion Autism	Singapore Age 10–20 with autism spectrum disorder	N/A	N/A	N/A
Ashour LA, Dannenberg AL, Shen Q, Fang X, Wang Y. Paratransit services for people with disabilities in the Seattle region during the COVID-19 pandemic: Lessons for recovery planning. *Journal of Transport & Health.* 2021 Sep 1;22:101115.	Paratransit COVID-19 Recovery planning	Seattle, United States	N/A	N/A	N/A
Losada-Rojas LL, Gkritza K. Individual and location-based characteristics associated with Autonomous Vehicle adoption in the Chicago metropolitan area: Implications for public health. *Journal of Transport & Health.* 2021 Sep 1;22:101232.	Autonomous vehicles (AV)	Chicago, United States	• American Community Survey (ACS) and National Household Travel Survey (NHTS) • EPA's Smart Location database • National Landcover database • Chicago Metro Agency for Planning[65]	ACS and NHTS for transport disadvantaged areas Built environment Land use Walkability, sidewalk, bike path	Disparities: AV mode choice by individual and neighbourhood characteristics

(*continued on next page*)

Table 2 (*continued*)

Ref	Topic	Location/Context and Population	Key Public Data for Social and Physical Environment	How Public Data were Used	Analysis of Disparities and/or Outcomes
Bell R, Mullins PD, Herd E, Parnell K, Stanley G. Co-creating solutions to local mobility and transport challenges for the enhancement of health and wellbeing in an area of socioeconomic disadvantage. *Journal of Transport & Health*. 2021 Jun 1;21:101046.	Socioeconomic barriers Empowerment	Oxford, England	N/A	N/A	N/A
Research needs and future directions					
Medeiros A, Buttazzoni A, Coen SE, Clark AF, Wilson K, Gilliland J. Review of gender, socioeconomic status, and ethnic background considerations reported in active school travel intervention studies. *Journal of Transport & Health*. 2021 Jun 1;21:101035.	Active travel to school Systematic review	International Age 5-19	N/A	N/A	Disparities: active travel mentions by gender, SES, ethnicity
Michael JP, Wells NM, Shahum L, Bidigare-Curtis HN, Greenberg SF, Xu T. Roadway safety, design & equity: a paradigm shift. *Journal of Transport & Health*. 2021 Dec 1;23:101260.	Traffic safety Vision Zero/Safe Systems Analytic review	United States	N/A	N/A	N/A
Shatu F, Kamruzzaman M. Planning for active transport in driverless cities: A conceptual framework and research agenda. *Journal of Transport & Health*. 2022 Jun 1;25:1013	Autonomous vehicles Scoping review	International	N/A	N/A	N/A

environment measures. In addition, some studies used public data sources for health care use and health (Badji et al., 2021; Losada-Rojas and Gkritza, 2021; Roy and Kar, 2022).

4. Discussion of articles

4.1. Mobility patterns and needs

An estimated third of older adults have unmet travel needs (Luiu et al., 2017) An understanding of mode needs by different subgroups can aid in addressing unmet travel needs (Lee et al., 2017; Musselwhite and Haddad, 2018). Two articles included in this special issue contribute to understanding the travel needs of adults by age. "Is community mobility contingent upon driving? Attitudes toward and intentions to use alternative modes of transport according to a mixed-aged sample" explores trip purpose, driver identity, and planning for driving cessation among an international sample. The authors use The Driver Identity Survey for typologies of driving identity. The authors categorized trips as "routine and practical" and "life enriching". In an Australian sample of older people, the authors found that trip patterns were similar by age, driver identity differed by age, and driving cessation planning did not differ by age (Scott and Tulloch, 2021). This suggests a need to plan for alternatives to personal driving among adults as they age. This supports previous research from the United Kingdom (Musselwhite and Shergold, 2013) and the United States (Ragland et al., 2019 and Vivoda et al., 2021) suggesting continued mobility should include promoting driving cessation planning early on in later life. They conclude that addressing services and the built environment can complementing planning efforts, especially meeting older people's affective and aesthetic needs (Scott and Tulloch, 2021; see also Musselwhite and Scott, 2019).

The implications of this are observed in "How does driving status affect trip patterns among older adults in suburban and rural communities?". This study draws from a US county transportation survey sampling frame to examine trip purpose and frequency by self-reported current driving status (Han et al., 2021). The authors categorized trips as "subsistence" (e.g., work, education), "maintenance" (e.g., medical, shopping) and "leisure" (e.g., socializing, volunteering). Compared to older adults who are drivers, non-drivers had different mobility needs and patterns. Non-drivers made more trips and had more unmet transport needs for specific

purposes (e.g., medical appointments but not for leisure) compared to non-drivers. Consistent with the literature (Luiu et al., 2017), a third of this sample of older adults age 65 or older were often prevented from doing activities that are needed or enjoyed because they are unable to drive (Han et al., 2021).

Mobility patterns and needs also differ by gender. "Perceptions and patronage of public transport - are women different from men?" surveys adults in Melbourne as part of a baseline assessment for a natural experiment. Participants reported their perceptions of public transport in terms of convenience, safety, comfort, travel time, and cost; and perceptions were similar between men and women with the exception of safety. Among the perceptions of public transport, indicators of convenience, travel time, cost were all associated (in the expected direction) with the frequency of commuting by public transport among women only (Carver and Veitch, 2020).

4.2. Measuring disadvantage and opportunities

Geographic accessibility, one type of health care accessibility, is often measured with travel distance and time. Many methods also incorporate the location of supply and demand with travel distance or time. While there have been advances in geographic accessibility methods, new approaches that consider personal, temporal and equity are needed to better understand accessibility to health care for different segments of the population (Neutens, 2015). Two articles included in this special issue share case studies that add to geographic accessibility methods.

"Evaluation of healthcare inequity for older adults: A spatio-temporal perspective" demonstrates calculating an elderly healthcare inequity (EHI) in Wuhan, China. The EHI can incorporate personal, neighbourhood, and transport characteristics and can be calculated different ways. The authors of this article incorporate real-time travel speed data to describe accessibility to hospitals by day of week and location (Chen et al., 2020). This has implications for time sensitive health emergencies.

"A multicriteria decision analysis framework to measure equitable healthcare access during COVID-19" demonstrates using Multi Criteria Decision Analysis (MCDA) to assess accessibility to hospitals in the Los Angeles metropolitan area. Travel time incorporated traffic collisions, speed limit, and street slope. The authors found that neighbourhoods with higher social vulnerability were associated with lower accessibility. These neighbourhoods also had more COVID-19 cases, comorbidities, and COVID-19 deaths (Roy and Kar, 2022).

4.3. Disparities and inequities

4.3.1. Risks

Many studies in Europe indicate that the physical activity benefits of active transport outweigh any risks (Mueller et al., 2015), it is important to understand the exposures and risks for pedestrians and bicyclists in other locations that can vary by space, time, and population subgroups (Frank et al., 2019). Two articles in this special issue examine the risks associated with active transport space and populations.

"The unequal gender effects of the suburban built environment on perceptions of security" found that the walking environment influences perceptions of security among pedestrians (Basu et al., 2021). Participants were shown a range of scenarios based on a range of diversity of land use, and the presence or absence of trees in an online experiment. Participants reported their perceptions of being assaulted, robbed or harassed in each scenario. The presence of trees make people feel more secure. Residential, commercial, and mixed land use provide a sense of security for pedestrians in comparison to vacant land, especially for women. Young men felt a higher level of security while walking through mixed land-use area. Women feel less secure at night, especially in suburban areas (Basu et al., 2021).

"Healthy for whom? Equity in the spatial distribution of cycling risks in Los Angeles, CA", studied the variation in air quality and bicycle crashes across space and across sociodemographic groups in Los Angeles County. Braun et al. (2021), found disparities in concentrations of $PM_{2.5}$ and bicycle injury and fatality risks; and at the intersection of both types of risks. In addition, the association between low vehicle ownership and high air pollution was observed and the authors noted that these neighbourhoods are exposed to burdens that they did not contribute to via personal vehicle travel. Braun, with a different set of colleagues, is working to quantify the benefits and risks of transit-oriented development in southern California (Frank et al., 2022).

4.3.2. Transport barriers

In the US, less attention has been paid to licensing as a transport barrier (Joyce et al., 2019) Unpaid fines and fees can lead to license suspensions. "Individual and Geographic Variation in Driver's License Suspensions: Evidence of Disparities by Race, Ethnicity and Income", compared drivers and their residential neighbourhood by suspension status (driving-related, non-driving-related and no). The authors found that a majority of New Jersey license suspensions were non-driving-related. In addition, non-driving-related suspended drivers lived in lower SES neighbourhoods and neighbourhoods with a higher proportion of black and Hispanic residents compared to drivers with a driving-related suspension or no suspension. These neighbourhoods also tended to have better walkability and accessibility to public transport and jobs (Joyce et al., 2020).

4.3.3. Benefits

Three articles included in this special issue demonstrate the ways transport are benefits and how inequities can impact health.

"Public transport availability and healthcare use for Australian adults aged 18–60 years, with and without disabilities" (Badji et al., 2021) adds to our understanding of the health impacts of public transport (Musselwhite, 2022) The authors found that public transport availability (number and type of stops) was positively associated with preventive health care as indicated by the number of general

practitioner visits compared with lower availability; and this association was greater for adults with disabilities. In addition, the association for people with disabilities is consistent by distance to general practitioners, while for people without disabilities this was not observed at short distances (Badji et al., 2021).

Variations in the health benefit valuations of active transport modes by age and ethnicity: A case study from New Zealand demonstrates a relative difference in the estimated health benefits due to walking and biking by age and ethnicity (Bassett et al., 2020). In a different analysis of the New Zealand population, disparities in the negative impacts were observed by ethnicity, adjusting for age (Randal et al., 2022).

"Investigating the impact of caregiver transportation needs on children's response to behavioral and mental health treatment: A longitudinal analysis" (Riley et al., 2021) reports on a US sample of children from a large, public behavioral and mental healthcare system to assess whether the resolution of transportation needs among caregivers predicted change in child psychosocial functioning as determined by the Child and Adolescent Needs and Strengths assessment. By the end of the study period, caregivers with transportation needs that were resolved demonstrated similar child outcomes to those whose caregivers never had transportation needs. Riley et al. (2021), note how resolving social needs may help to serve families and resolve other psychosocial needs.

4.4. Interventions and new approaches

There are a number of opportunities to improve transport services for different groups that can improve mobility and health. The five articles included in this section show ways different transport services – bikeshare, public transport, paratransit, autonomous vehicles, and self-determined options - can be adapted to improve health equity.

Bikeshare has increased in recent years and access, convenience, and cost has supported the use of bikeshare (Fishman, 2016). "Changes in equity of bikeshare access and use following implementation of income-eligible membership program and system expansion in Greater Boston" (Soto et al., 2021) evaluates a bikeshare program for people with low-income. The program included discounted membership and expanded availability of bikeshare stations. The program was associated with increased access and use; however, the increased access was smallest in high need neighbourhoods. In addition, the proportion of bikeshare trips starting or ending in high need neighbourhoods decreased. In a separate study, the authors conduct a cross-sectional survey of users and non-users and with different income groups. Some of the leading barriers included concerns about safety, no helmet, proximity of stations, difficulty renting and returning bikes. Some of the enabling factors included convenience and the economic, environmental, and health benefits (Franckle et al., 2020).

"Facilitating independent commuting among individuals with autism – A design study in Singapore" shares how a "virtual companion" developed for older adults was expanded to reduce barriers for youth with Autism Spectrum Disorder while traveling by public transport (Lim et al., 2021). Singapore public transport links information through user smart-cards and real-time information, allowing help requests to be shared with parents or other caregivers via text message. The authors also recommend adding information terminals and other features to buses and trains. The "virtual companion" can be tailored to specific vulnerable population needs and can provide trip reminders and updates (Lim et al., 2021).

In the U.S., the Americans with Disabilities Act requires public transit agencies to supplement their fixed-route services with paratransit, an origin-destination approach (National and Transportation Center, 2022). In other countries paratransit may be referred to as "flexible transport systems" (Mulley and Nelson, 2016). Technology and cost considerations can make paratransit a sustainable option for older adults and people with disabilities and other riders (Mulley and Nelson, 2016; Yaffe, 2016). However, paratransit ridership declined during the COVID-19 pandemic (Wang et al., 2022). Authors from the urban design and planning; and environmental and occupational health conducted interviews to learn innovative ways transit agencies can maintain post-pandemic equitable paratransit services while also considering challenges and threats. Ashour et al. (2021) in their paper, "Paratransit services for people with disabilities in the Seattle region during the COVID-19 pandemic: Lessons for recovery planning" offer recommendations that include pandemic response guidelines and resources for other foreseeable events, adapting services during events (e.g., food delivery organized by food banks, transporting front-line workers, transporting to vaccination sites) and the continuation and expansion of diverse services (e.g., coordinated services with pharmacies). The importance and monitoring and forecasting ridership based on trip purpose, demographics, and geography and scenario planning for equitable services is also noted. Finally, the authors also suggest that partnerships with Transportation Network Companies and delivery companies can complement essential services offered through paratransit.

Autonomous Vehicles (AVs) could have profound effects on mobility, safety, and the built environment, potentially affecting public health. In Sohrabi et al. (2021), they identify that AVs' health and equity impacts in the literature is mainly speculative rather than quantitative and offer a new framework for health and health equity impacts. The main benefits to health arising from use of AVs are likely to be around a reduction in motor vehicle crashes and reduce traffic induced air pollution, but there is little quantitative evidence for this currently. In the paper, "Individual and location-based characteristics associated with Autonomous Vehicle adoption in the Chicago metropolitan area: Implications for public health", Losada-Rojas and Gkritza (2021) found younger adults are more likely to adopt AVs and early adopters are those with little opportunity for active travel, suggesting people might be forced into using AVs by having poor infrastructure to support their needs, There is concern that planning around AVs might additionally prioritise the needs of AVs over those of pedestrians and cyclists and that it is crucial to build in space for pedestrian and cycling as AVs are implemented (Botello et al., 2019). In Shatu and Kamruzzaman (2022), they further examine the pathways that may increase or decrease active travel with the adoption of AVs. They identified that while reducing demands of driving and introducing opportunities to use travel time, increased pedestrian and cycling rules and urban sprawl might decrease active travel, costs of using AVs and reduced risk of collision with pedestrians and cyclists might increase active travel. Also, some of the reduction in active travel could be mitigated by

good policy and planning and good infrastructure provision. They suggest it is younger, male and high mileage drivers that are most likely to reduce their active travel.

"Co-creating solutions to local mobility and transport challenges for the enhancement of health and wellbeing in an area of socioeconomic disadvantage" describes the co-creation process to identify mobility challenges and to develop practical mobility solutions in the most socioeconomically deprived area in Oxford, England. Bell et al. (2021), describe co-creation as an example of a design process that is participatory. The mobility challenges identified and prioritized were the cost of public transport, traffic congestion, and the lack of cross-connectivity between direct public transport routes and affordable supermarkets, train stations, workplaces, health services and other neighbourhoods. These mobility challenges led to in-person transport app training, a transport to supermarkets shuttle service, and an information campaign about concessionary bus passes.

4.5. Research needs and future directions

There different types of reviews were included – systematic, analytic, and scoping – that point to research needs and future directions.

There has been in interest in active travel to school, in part, to help counter the obesity epidemic (Buttazzoni et al., 2018). A literature review was conducted in Medeiros et al. (2021), Review of gender, socioeconomic status, and ethnic background considerations reported in active school travel intervention studies, summarising active school travel interventions, peer-reviewed and

Table 3
Key takeaways.

Accessibility and the environment	• Travel times vary by mode, day of week, time of day, and by traffic conditions. Real-time traffic data can be used to understand geographic accessibility to health care for time sensitive events and travel burdens for vulnerable populations (Chen et al., 2020). • Geographic accessibility to health care and social and health characteristics were associated with COVID-19 cases and outcomes (Roy and Kar, 2022).
Public transport	• Addressing convenience, travel time, and cost can support commuting by public transport for women (Carver and Veitch, 2020). Public transport may support preventive health care among adults with and without disabilities. Despite this, distance to health care is a barrier that may persist for people with disabilities (Badji et al., 2021). • Technology can be used to aid riders with different needs (Lim et al., 2021).
Active transport	• The benefits and risks are not equitable and the complete benefits and risks of active transport by geography and by subgroups should be considered (Bassett et al., 2020; Braun et al., 2021). • Residential, commercial, and mixed land use provide a sense of security for pedestrians in comparison to vacant land, especially for women (Basu et al., 2021). • Women feel less secure at night, especially in suburban areas (Basu et al., 2021). • Active transport interventions need to address additional barriers by SES and race/ethnicity (Soto et al., 2021). • There is a need for assessing active travel to school interventions by gender, SES, and ethnicity and intersectionality (Medeiros et al., 2021).
Paratransit	• Planning, partnering, and monitoring can help address ongoing and emerging needs (Ashour et al., 2021). • Adapting and expanding services (e.g., food delivery, transporting front-line workers, coordinated services with pharmacies) are novel ways paratransit can be used to address health needs (Ashour et al., 2021).
Personal driving	• Planning for driving cessation is needed to maintain important activities for older adults (Scott and Tulloch, 2021). • Health is a determinant of driving status among older adults in rural areas and older adults who do not drive made more "maintenance trips and had more unmet travel needs (Han et al., 2021).
Autonomous vehicles(AV)	• Health is negatively affected if people move to AVs from active travel (Losada-Rojas and Gkritza, 2021). • Males and younger adults, and those doing high miles are more likely to adopt AVs and early adopters are those with little opportunity for active travel, suggesting people might be forced into using AVs (Losada-Rojas and Gkritza, 2021; Shatu and Kamruzzaman,2022). • Reducing the demands of driving and introducing opportunities to use travel time, increased pedestrian and cycling rules and urban sprawl that occur as a result of AVs might decrease active travel (Shatu and Kamruzzaman, 2022). • Costs of using AVs and reduced risk of collision with pedestrians and cyclists might increase active travel. Some of the reduction in active travel could be mitigated by good policy and planning and good infrastructure provision (Shatu and Kamruzzaman,2022).
Additional topics with policy and program relevance	• Resolving transport needs may have positive impact on child outcomes (Riley et al., 2021). • Co-creation as an approach for transport and health equity (Bell et al., 2021). • Preventing non-driving-related license suspensions as an approach for transport and health equity (Joyce et al., 2020). • Vision Zero or Safe Systems as an approach for transport and health equity (Michael et al., 2021).

published between 2010 and 2019. In the 69 international articles they found that gender, SES, and ethnicity, if reported, were generally considered as variables that were controlled for in summaries of samples. The authors recommend that active school travel interventions should include sub-group analyses and equity frameworks to evaluate whether these interventions are having equitable effects (Medeiros et al., 2021). Disability and intersectional aspects should also be considered (Medeiros et al., 2021; Ross and Buliung, 2018).

Michael et al. (2021) from injury research and policy; design and environmental analysis, and the Vision Zero Network, shared an analytic review, "Road Safety, Design and Equity" with a call to action. As the authors explain, the traditional approach to road safety in the U.S. and other countries includes training and high visibility enforcement. However, road design and enforcement are inequitable. Vision Zero or Safe Systems, first started in Sweden and then The Netherlands, addresses a complete system that aims to work in harmony. The paradigm shift reframes the problem and focus from individual behaviours to design strategies that, for example, encourage safe speeds (e.g., narrow lanes, speed humps, roundabouts) and self-regulation rather than relying on the enforcement of speed limits. The authors note that, for the U.S., this requires commitment to and investment in marginalized communities and engagement from transport, health, and law enforcement professionals.

In addition to the AV findings already discussed, Shatu and Kamruzzaman (2022) called out the need to consider the planning context (e.g., small sized cities) as it relates to health equity and recommended developing a policy typology of the impacts on active transport and the need for a research agenda for that considers the planning context.

5. Summary

This special issue included 19 articles that highlighted considerations for different populations and mobilities. An important point we wanted to address was meeting the mobility needs of different populations. In particular, the authors included in this special issue highlighted different needs by sociodemographic characteristics and disability and needs for convenience, safety, and cost. Summaries by environment and mode are shown in Table 3.

A few key takeaways include how open data can be used for time sensitive and emergency health care accessibility Chen et al. (2020); Roy and Kar (2022); how public transport can be more inclusive for people with disabilities and the associations with preventive care (Badji et al., 2021; Lim et al., 2021); inequities in active transport and how they can be informed by risks (Braun et al., 2021), benefits (Bassett et al., 2020), interventions, and evaluation (Soto et al., 2021; Medeiros et al., 2021); novel approaches for disadvantaged communities and paratransit (Ashour et al., 2021; Bell et al., 2021); and paradigm and policy shifts for traffic safety equity (Joyce et al., 2020; Michael et al., 2021).

While it was not a focus of this special issue to review unmet mobility needs this came out as a key theme throughout the published papers. Unmet mobility needs can be defined as trips that one wanted to take but were not able to complete (Luiu et al., 2017; Musselwhite and Haddad, 2018). For example, some authors assessed the frequency of missed trips (Han et al., 2021), the difference in the number of preventive care visits (Badji et al., 2021), or the level of difficulty or complexity in participation due to transportation (Riley et al., 2021). Specific segments of the population have mobility patterns that are more complex and with more constraints (Priya Uteng and Turner, 2019). Identifying what is needed for specific roles and types of participation (e.g., receipt of health and social services) (Riley et al., 2021; Ashour et al., 2021) can continue to identify appropriate partners, programs, and policies to address mobility needs. Incorporating mobility needs into screeners across different settings (e.g., health care, transport) may help with transport and social inclusion. Among the broader transport literature, perceived mobility necessities and activity constraints have been incorporated into mode choice models (Thorhauge et al., 2020).

While this is just a one look at transport and health equity in select regions, we hope this special issue complements the growing efforts to address social inclusion and health equity and we invite you to read the articles in more detail. Further research in certain areas is still very much needed, for example studies using longitudinal methods, or developing, assessing and evaluating interventions, research within specific contexts with specific geographies, such as rural locations or mega-cities and research looking at acceptability, perceptions and attitudes from individuals and with a community focus are needed.

Acknowledgements

We are grateful to the Elsevier staff and other Journal of Transport & Health editors for their collaboration; the authors for sharing their work; the reviewers for their expertise and dedication to the peer-review process; and the funders and sponsors who make this knowledge sharing possible.

References

Ang, B.H., Oxley, J.A., Chen, W.S., Yap, K.K., Song, K.P., Lee, S.W.H., 2019. To reduce or to cease: a systematic review and meta-analysis of quantitative studies on self-regulation of driving. J. Saf. Res. 70, 243–251. https://doi.org/10.1016/j.jsr.2019.07.004. Epub 2019 Jul 19. PMID: 31848001.

Aranda-Balboa, M.J., Huertas-Delgado, F.J., Herrador-Colmenero, M., Cardon, G., Chillón, P., 2020. Parental barriers to active transport to school: a systematic review. Int. J. Publ. Health 65 (1), 87–98.

Ashour, L.A., Dannenberg, A.L., Shen, Q., Fang, X., Wang, Y., 2021. Paratransit services for people with disabilities in the Seattle region during the COVID-19 pandemic: Lessons for recovery planning. J. Transport Health 22, 101115.

Babulal, G.M., Williams, M.M., Stout, S.H., Roe, C.M., 2018. Driving outcomes among older adults: a systematic review on racial and ethnic differences over 20 years. *Geriatrics* (Basel) 3 (1), 12. https://doi.org/10.3390/geriatrics3010012. Epub 2018 Mar 20. PMID: 29657944; PMCID: PMC5896559.

Badji, S., Badland, H., Rachele, J.N., Petrie, D., 2021. Public transport availability and healthcare use for Australian adults aged 18–60 years, with and without disabilities. J. Transport Health 20, 101001.

Bassett, D., Hosking, J., Ameratunga, S., Woodward, A., 2020. Variations in the health benefit valuations of active transport modes by age and ethnicity: a case study from New Zealand. J. Transport Health 19, 100953.
Basu, N., Haque, M.M., King, M., Kamruzzaman, M., Oviedo-Trespalacios, O., 2021. The unequal gender effects of the suburban built environment on perceptions of security. J. Transport Health 23, 101243.
Bell, R., Mullins, P.D., Herd, E., Parnell, K., Stanley, G., 2021. Co-creating solutions to local mobility and transport challenges for the enhancement of health and wellbeing in an area of socioeconomic disadvantage. J. Transport Health 21, 101046.
Blumenberg, E., Brozen, M., Loukaitou-Sideris, A., 2018. How Women Travel: : A Survey of the Literature. Available from: http://libraryarchives.metro.net/DB_Attachments/2019-0294/HWT_AppendixA_FINAL.pdf.
Boniface, S., Scantlebury, R., Watkins, S.J., Mindell, J.S., 2015. Health Implications of transport: evidence of effects of transport on social interactions. J. Transport Health 2 (3), 441-446.
Botello, B., Buehler, R., Hankey, S., Mondschein, A., Jiang, Z., 2019. Planning for walking and cycling in an autonomous-vehicle future. Transp. Res. Interdiscip. Perspect. 1, 100012.
Braun, L.M., Le, H.T., Voulgaris, C.T., Nethery, R.C., 2021. Healthy for whom? Equity in the spatial distribution of cycling risks in Los Angeles, CA. J. Transport Health 23, 101227.
Braveman P. What are health disparities and health equity? We need to be clear. *Public Health Rep*. 2014 Jan-Feb;129 Suppl 2:5-8.
Buttazzoni, A.N., Van Kesteren, E.S., Shah, T.I., Gilliland, J.A., 2018. Active school travel intervention methodologies in North America: a systematic review. Am. J. Prev. Med. 55 (1), 115–124.
Carver, A., Veitch, J., 2020. Perceptions and patronage of public transport–are women different from men? J. Transport Health 19, 100955.
Chen, G., Wang, C.C., Jin, P., Xia, B., Xiao, L., Chen, S., Luo, J., 2020. Evaluation of healthcare inequity for older adults: a spatio-temporal perspective. J. Transport Health 19, 100911.
Cole, B.L., MacLeod, K.E., Spriggs, R., 2019. Health impact assessment of transportation projects and policies: living up to aims of advancing population health and health equity? Annu. Rev. Publ. Health 40, 305–318.
Eltis The Urban Mobility Observatory, 2019. Mobility. Available from: https://www.eltis.org/glossary/mobility (last accessed November, 2022).
Fishman, E., 2016. Bikeshare: a review of recent literature. Transport Rev. 36 (1), 92–113.
Franckle, R.L., Dunn, C.G., Vercammen, K.A., Dai, J., Soto, M.J., Bleich, S.N., 2020. Facilitators and barriers to bikeshare use among users and non-users in a socioeconomically diverse urban population. Preventive medicine reports 20, 101185.
Frank, L.D., Iroz-Elardo, N., MacLeod, K.E., Hong, A., 2019. Pathways from built environment to health: a conceptual framework linking behavior and exposure-based impacts. J. Transport Health 12, 319–335.
Frank, L.D., Fox, E.H., Ulmer, J.M., Chapman, J.E., Braun, L.M., 2022. Quantifying the health benefits of transit-oriented development: creation and application of the san diego public health assessment model (SD-PHAM). Transport Pol. 115, 14–26.
Goel, R., Goodman, A., Aldred, R., Nakamura, R., Tatah, L., Garcia, L.M., Zapata-Diomedi, B., de Sa, T.H., Tiwari, G., de Nazelle, A., Tainio, M., 2022. Cycling behaviour in 17 countries across 6 continents: levels of cycling, who cycles, for what purpose, and how far? Transport Rev. 42 (1), 58–81.
Han, D., Lee, Y., Yu, J., Dejno, C., 2021. How does driving status affect trip patterns among older adults in suburban and rural communities? J. Transport Health 21, 101052.
Hidayati, I., Tan, W., Yamu, C., 2021. Conceptualizing mobility inequality: mobility and accessibility for the marginalized. J. Plann. Lit. 36 (4), 492–507.
Hine J, Mitchell F. Transport Disadvantage and Social Exclusion. Exclusionary Mechanisms in Transport in Urban Scotland. 2017. New York, New York: Routledge.
Hosking, J., Braubach, M., Buss, D., Khayesi, M., Pavarino Filho, V., de Sá, T.H., 2022. Towards a global framework for transport, health and health equity. Environ. Int., 107472
Joyce, N.R., Zullo, A.R., Ahluwalia, J.S., Pfeiffer, M.R., Curry, A.E., 2019. Driver's license suspension policies as a barrier to health care. Am. J. Publ. Health 109 (12), 1692–1693. https://doi.org/10.2105/AJPH.2019.305383. PMID: 31693414; PMCID: PMC6836782.
Joyce, N.R., Pfeiffer, M.R., Zullo, A.R., Ahluwalia, J., Curry, A.E., 2020. Individual and geographic variation in Driver's license suspensions: evidence of disparities by race, ethnicity and income. J. Transport Health 19, 100933.
Kett, M., Cole, E., Turner, J., 2020. Disability, mobility and transport in low-and middle-income countries: a thematic review. Sustainability 12 (2), 589.
Lee, R.J., Sener, I.N., Jones, S.N., 2017. Understanding the role of equity in active transportation planning in the United States. Transport Rev. 37 (2), 211–226.
Lim, P.Y., Kong, P., Cornet, H., Frenkler, F., 2021. Facilitating independent commuting among individuals with autism–A design study in Singapore. J. Transport Health 21, 101022.
Losada-Rojas, L.L., Gkritza, K., 2021. Individual and location-based characteristics associated with Autonomous Vehicle adoption in the Chicago metropolitan area: implications for public health. J. Transport Health 22, 101232.
Lucas, K., 2012. Transport and social exclusion: where are we now? Transport Pol. 20, 105–113.
Luiu, C., Tight, M., Burrow, M., 2017. The unmet travel needs of the older population: a review of the literature. Transport Rev. 37 (4), 488–506.
Mackett, R.L., 2014. The health implications of inequalities in travel. J. Transport Health 1 (3), 202–209.
MacLeod, K.E., Satariano, W.A., Ragland, D.R., 2014. The impact of health problems on driving status among older adults. J. Transport Health 1 (2), 86–94.
Marmot, M., Friel, S., Bell, R., Houweling, T.A., Taylor, S., Commission on Social Determinants of Health, 2008. Closing the gap in a generation: health equity through action on the social determinants of health. Lancet 372 (9650), 1661–1669.
Medeiros, A., Buttazzoni, A., Coen, S.E., Clark, A.F., Wilson, K., Gilliland, J., 2021. Review of gender, socioeconomic status, and ethnic background considerations reported in active school travel intervention studies. J. Transport Health 21, 101035.
Michael, J.P., Wells, N.M., Shahum, L., Bidigare-Curtis, H.N., Greenberg, S.F., Xu, T., 2021. Roadway safety, design & equity: a paradigm shift. J. Transport Health 23, 101260.
Mindell, J.S., 2014. Welcome to the journal of transport and health. J. Transport Health 1 (1), 1.
Mueller, N., Rojas-Rueda, D., Cole-Hunter, T., De Nazelle, A., Dons, E., Gerike, R., Goetschi, T., Panis, L.I., Kahlmeier, S., Nieuwenhuijsen, M., 2015. Health impact assessment of active transportation: a systematic review. Prev. Med. 76, 103–114.
Mulley, C., Nelson, J.D., 2016. Shaping the new future of paratransit: an agenda for research and practice. Transport. Res. Rec. 2542 (1), 17–24.
Musselwhite, C., 2022. A research agenda on transport and health and public buses: more research on the buses please. J. Transport Health, 101355.
Musselwhite, C.B.A., Haddad, H., 2018. Older people's travel and mobility needs. A reflection of a hierarchical model 10 years on. Qual. Ageing 19 (2), 87–105.
Musselwhite, C., Scott, T., 2019. Developing a model of mobility capital for an ageing population. Int. J. Environ. Res. Publ. Health 16 (18), 3327.
Musselwhite, C.B.A., Shergold, I., 2013. Examining the process of driving cessation in later life. Eur. J. Ageing 10 (2), 89–100.
Musselwhite, C., Holland, C., Walker, I., 2015. The role of transport and mobility in the health of older people. J. Transport Health 2 (1), 1–4.
Musselwhite, C., Avineri, E., Susilo, Y., 2020. Editorial JTH 16 -The Coronavirus Disease COVID-19 and implications for transport and health. J. Transport Health 16, 100853. https://doi.org/10.1016/j.jth.2020.100853. Epub 2020 Apr 4. PMID: 32337154; PMCID: PMC7174824.
Musselwhite, C., Avineri, E., Susilo, Y., 2021. Restrictions on mobility due to the coronavirus Covid19: threats and opportunities for transport and health. J. Transport Health 20, 101042.
National, Aging, Transportation Center, Disability, 2022. ADA and Paratransit. Available from: https://www.nadtc.org/about/transportation-aging-disability/ada-and-paratransit/.
National Center for Mobility Management, 2018. What is mobility management? Available from: https://nationalcenterformobilitymanagement.org/for-mobility-managers/.
Neutens, T., 2015. Accessibility, equity and health care: review and research directions for transport geographers. J. Transport Geogr. 43, 14–27.
Park, K., Esfahani, H.N., Novack, V.L., Sheen, J., Hadayeghi, H., Song, Z., Christensen, K., 2022. Impacts of disability on daily travel behaviour: a systematic review. Transport Rev. 1–26.

Pollard, T.M., Wagnild, J.M., 2017. Gender differences in walking (for leisure, transport and in total) across adult life: a systematic review. BMC Publ. Health 17 (1), 1-1.
Popay, J., Escorel, S., Hernández, M., Johnston, H., Mathieson, J., Rispel, L., 2008. Understanding and tackling social exclusion: final report to the WHO commission on social determinants of health from the social exclusion knowledge Network. World Health Organization.
Priya Uteng, T., Turner, J., 2019. Addressing the linkages between gender and transport in low-and middle-income countries. Sustainability 11 (17), 4555.
Ragland, D.R., Satariano, W.A., MacLeod, K.E., 2004. Reasons given by older people for limitation or avoidance of driving. Gerontol. 44 (2), 237–244.
Ragland, D.R., MacLeod, K.E., McMillan, T., Doggett, S., Felschundneff, G., 2019. Assessing and addressing the mobility needs of an aging population. UC Office of the President: University of California Institute of Transportation Studies. Retrieved from. https://escholarship.org/uc/item/8p7283gg.
Randal, E., Shaw, C., McLeod, M., Keall, M., Woodward, A., Mizdrak, A., 2022. The impact of transport on population health and health equity for Māori in Aotearoa New Zealand: a prospective burden of disease study. Int. J. Environ. Res. Publ. Health 19 (4), 2032.
Riley, E.N., Vsevolozhskaya, O.A., Zaykin, D.V., Shimshock, S.M., Lyons, J.S., 2021. Investigating the impact of caregiver transportation needs on Children's response to behavioral and mental health treatment: a longitudinal analysis. J. Transport Health 23, 101262.
Ross, T., Buliung, R., 2018. A systematic review of disability's treatment in the active school travel and children's independent mobility literatures. Transport Rev. 38 (3), 349–371.
Roy, A., Kar, B., 2022. A multicriteria decision analysis framework to measure equitable healthcare access during COVID-19. J. Transport Health 24, 101331.
Scott, T.L., Tulloch, K., 2021. Is community mobility contingent upon driving? Attitudes toward and intentions to use alternative modes of transport according to a mixed-aged sample. J. Transport Health 20, 100974.
Shatu, F., Kamruzzaman, M., 2022. Planning for active transport in driverless cities: a conceptual framework and research agenda. J. Transport Health 25, 101364.
Smith, M., Hosking, J., Woodward, A., Witten, K., MacMillan, A., Field, A., Baas, P., Mackie, H., 2017. Systematic literature review of built environment effects on physical activity and active transport–an update and new findings on health equity. Int. J. Behav. Nutr. Phys. Activ. 14 (1), 1–27.
Sohrabi, S., Dadashova, B., Khreis, H., Sener, I.N., Zmud, J., 2021. Quantifying the health and health equity impacts of autonomous vehicles: a conceptual framework and literature review. J. Transport Health 22, 101120.
Soto, M.J., Vercammen, K.A., Dunn, C.G., Franckle, R.L., Bleich, S.N., 2021. Changes in equity of bikeshare access and use following implementation of income-eligible membership program and system expansion in Greater Boston. J. Transport Health 21, 101053.
Tcymbal, A., Demetriou, Y., Kelso, A., Wolbring, L., Wunsch, K., Wäsche, H., Woll, A., Reimers, A.K., 2020. Effects of the built environment on physical activity: a systematic review of longitudinal studies taking sex/gender into account. Environ. Health Prev. Med. 25 (1), 1–25.
Thorhauge, M., Kassahun, H.T., Cherchi, E., Haustein, S., 2020. Mobility needs, activity patterns and activity flexibility: how subjective and objective constraints influence mode choice. Transport. Res. Pol. Pract. 139, 255–272.
Vivoda, J.M., Cao, J., Koumoutzis, A., Harmon, A.C., Babulal, G.M., 2021. Planning for driving retirement: the effect of driving perceptions, driving events, and assessment of driving alternatives. Transport. Res. F Traffic Psychol. Behav. 76, 193–201.
Wachs, M., Kumagai, G., 1973. Physical accessibility as a social indicator. Soc. Econ. Plann. Sci. 7 (Issue 5), 437–456.
Wang, Y., Shen, Q., Abu Ashour, L., Dannenberg, A.L., 2022. Ensuring equitable transportation for the disadvantaged: an examination of paratransit usage by persons with disabilities during the COVID-19 pandemic. Transport. Res. Pol. Pract. 159.
Waygood, E.O., Friman, M., Olsson, L.E., Taniguchi, A., 2017. Transport and child well-being: an integrative review. Travel Behaviour and Society 9, 32–49.
Yaffe, S., 2016. Paratransit Cost-Allocation Model Adjustments to Promote Agency Ridesharing and Vehicle Timesharing", Paratransit: Shaping the Flexible Transport Future (Transport and Sustainability, vol. 8. Emerald Group Publishing Limited, Bingley, pp. 127–152.

Kara E. MacLeod, Associate Editor*
USA

Liton Kamruzzaman, Guest Editor
Australia

Charles Musselwhite, Editor-in-Chief
Aberystwyth University, Wales, UK
E-mail address: Chm93@aber.ac.uk.

* Corresponding author.
E-mail address: kara.e.m@gmail.com (K.E. MacLeod).