Driving Change:

Improving the Accessibility of Taxis and Private Hire Vehicles for Disabled People

Motability

Leonard Cheshire

Contents

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Executive Summary

The study examined barriers and facilitators for taxi and private hire vehicle (PHV) journeys among disabled people in Great Britain, including England, Scotland, and Wales. The study began with a scoping review on the existing literature on disability and taxis across different countries to identify gaps in knowledge, followed by an analysis on quantitative and qualitative data collected from an online survey, and a thematic analysis on qualitative data collected from focus group discussions with disabled people and semi-structured interviews with key informants.

The scoping review identified 27 pertinent sources on the taxi experience for disabled people. Whilst some research has analysed qualitative data on the experience of disabled people on public transport, fewer studies have specifically examined the experiences on taxis or PHVs.

The cross-sectional survey collected data from 2,080 participants, including their demographics, their taxi/PHV usage, and their experiences with taxis/PHVs. In addition to quantitative data on the perceived accessibility at each component of a taxi/PHV journey (e.g., booking, boarding, exiting), participants were also given the opportunity to provide qualitative information in the questions.

57 participants participated in focus group discussion (FGDs), and 12 key informant interviews (KIIs) were conducted online, resulting in 69 detailed interviews for analysis. Whereas the focus group participants comprised of people with lived experience across different disabilities, the key informants included councillors, licensing team members from local authorities, people from disabled people organisations, a taxi driver, and a taxi/PHV manufacturer.

Results from the scoping review, survey, and focus groups have revealed a general unavailability or inaccessibility of taxis and PHVs for disabled people due to various factors, like prohibitively expensive fares, living in rural areas, and drivers moving towards the private hire trade or ride-hailing services. Furthermore, driver behaviour was commonly raised as in need of improvements, with the lack of disability awareness training attributed as the reason for numerous negative experiences with taxis or PHVs. In turn, the negative experiences have led to stress, anxiety, frustration, and poor mental health for disabled people, with some hesitant to use taxis or leave their homes for activities.

Disabled people have expressed concerns for digital exclusion, with notable cases being the emergence of ride-hailing apps that may not provide accessible vehicles and lack of flexibility or accessibility in the booking and payment processes as digital methods are introduced.

There is a lack of coordination and communication between the national government, the local authorities, and the taxi trade, leading to lack of support in implementing new legislation or conflicts with other policies like the green agenda. The existing legislation was criticised due to gaps that allow drivers licensed at less stringent authorities to operate in areas with higher licensing standards, or untrained drivers sharing licenses with trained drivers. Furthermore, the existing monitoring system was also criticised for being over-reliant on disabled people making reports. Additionally, the report mechanism, whilst effective for some, was perceived as ineffective or may not be easily accessible for some disabled people.

Key recommendations

Incentives

1. Financial incentive schemes should be introduced for taxi/PHV companies to cover some of the upfront costs of purchasing sector-compliant (e.g., electric) Wheelchair Accessible Vehicles (WAVs) back to the trade and to ensure costs associated with dead mileage are not passed onto the consumer.
    - Incentive schemes should be targeted to areas of the UK where there is a significant unmet need for WAVs (e.g., rural areas).

Training

2. Disability awareness training should be mandatory across the UK for all new taxi/PHV staff (i.e. both operators and drivers) and existing staff should receive refresher training at regular intervals.
    - Training should be differentiated by disability type and cover the needs of customers with different disability types. Training should also cover taxi/PHV provider obligations under the Taxi and Private Hire Vehicles (Disabled Persons) 2022 Act.
    - Drivers should be provided with supporting resources that they can refer to when undertaking professional duties (e.g., good practice toolkit).
    - Disability awareness training programmes should be evaluated, and further research undertaken to identify particularly effective approaches.

Regulatory – Taxi and PHV Sector

3. The taxi/PHV sector should commit to developing a 'Disability Confident' Scheme, that enables disabled people to immediately identify which taxi/PHV firms are compliant with the Taxis and Private Hire Vehicles (Disabled Persons) Act (2022) whereby employers can display public facing badges, in response to meeting certain requirements. This may provide disabled people who have had negative experiences the confidence to return to the sector.
    - The scheme should include a "voluntary disability reporting requirement", placing the obligation on taxi/PHV providers to monitor and achieve a certain level of customer satisfaction among disabled customers, to remain a member of the scheme.
    - Rollout of the scheme should be accompanied by a campaign to galvanize disabled customers to provide business to scheme members and encourage taxi/PHV companies to sign-up.
4. Taxi/PHV companies should retain, wherever possible, multiple methods of booking (e.g., via an app, via talking to a human operator) and paying for taxi/PHVs (e.g., via card linked to an app, via cash), to increase accessibility for as different groups of all disabled customers.

Regulatory – Governments

5. Regulatory bodies, including the Department for Transport and local authorities, should conduct a policy review to ascertain and address policy gaps in the provision of accessible taxi/PHV transportation. Consideration should also be given to how to reduce disability discrimination via supportive policies in the ride-hailing sector.
6. National guidance setting out the dimensions and specifications of a standard wheelchair, should be harmonised to account for the varying dimensions of powered and manual wheelchairs, and routinely updated.

Introduction

Transport is necessary for any individual to fully participate in any society; it facilitates access to a myriad of opportunities and necessary services including education and employment, healthcare, and recreational activities like socialising with friends. However, one group most at risk of exclusion from any mode of transport are disabled people. In the UK, over 1 in 5 people (22%) are estimated to be living with a disability, representing 14.6 million people (Kirk-Wade, 2022). According to the National Transport Survey (Department for Transport, 2022a), disabled adults in England made 28% fewer trips in 2020 across any mode of transport compared to non-disabled adults, with those who had more severe impairments making the fewest trips overall. One reason for this disparity is likely due to the barriers that disabled people encounter along every component of the travel chain (e.g., booking transport, buying tickets, embarking & disembarking) across different transport options. This is supported by evidence from the National Transport Survey, in which a higher proportion of disabled English respondents reported that using public transport in their area was difficult compared to non-disabled respondents (Department for Transport, 2022a). Common barriers that disabled people experience include physical barriers in the environment that prevent getting on or off transport (Soorenian, 2013), difficulty meeting transport costs (Pyer & Tucker, 2017), and discrimination from transport operators or drivers (Rickly et al., 2021).

The need to ensure that transport systems are accessible to all is recognised as a priority in UK government strategies (e.g., the Inclusive Transport Strategy, 2018), as well as the transport strategies of the devolved nations (e.g., the Wales Transport Strategy, 2021). This includes taxis and Private Hire Vehicles [PHVs], which are unique among transport offerings in that they offer an on-demand and door-to-door service. As such, they provide a more flexible and (in theory) more accessible service than other options like buses and trains which have set department points, schedules and pre-established stops along major routes (Choi & Maisel, 2022). Accordingly, taxis and PHVs have long been recognised by transport industry stakeholders as a preferred mode of transport for disabled people and the only means of viable independent travel outside the home for some disabled people (International Road Transport Union, 2007). The necessity of a door-to-door service is perhaps why despite taking fewer journeys by any form of transport overall compared to non-disabled people in 2020, disabled people in England still reported taking twice as many taxi journeys (Department for Transport, 2022b). Moreover, both disabled and non-disabled people reported travelling a similar aggregate distance overall across all journeys (Department for Transport, 2022a). This signifies that disabled people's individual taxi journeys are on average shorter overall compared to non-disabled people. One plausible explanation is that disabled people are using taxis/PHVs as their primary mode of transport for day-to-day necessities, as there is no other suitable choice. Another explanation is cost: disabled people are taking shorter journeys due to the expensive fares, but taxis/PHVs offer more advantages than their alternatives.

However, despite a particular need for taxi and PHV services for disabled people, there remains supply side and policy-level challenges. Across England, 55% of all taxis were wheelchair accessible in 2021 with only 2% of PHVs being wheelchair accessible (Department for Transport, 2022b). Inconsistent regulation across the UK further exacerbates the complexities of creating accessible solutions. A third of local authorities do not require taxis to be wheelchair accessible and of those that do, 95% of the local authorities do not enforce wheelchair accessibility for PHVs. Compounding these issues is the lack of disability and inclusion training for drivers with 55% of local authorities requiring taxi to undertake disability sensitisation training and 53% of local authorities PHV drivers (Department for Transport, 2022b).

Despite these concerning statistics, there has been little research on disabled users' experiences of taxis and PHVs or the perspectives of service providers and policymakers on supply-side barriers and facilitators. This research is urgently needed to inform UK governments priorities for its transport ecosystem, namely that every citizen should have equal access to it. In shedding light on the little research being done on the subject, it is also informative to consider the wider context of disabled people's experiences of other modes of transport in the UK, and how these need to be made more accessible in the future.

In light of the above, this research had two aims:

i) Identify barriers and facilitators of accessible taxi and PHV journeys within the UK. [Research Aim 1]

ii) Identity priorities that disabled people have for accessible transport in the UK more broadly. [Research Aim 2]

Methodology

Research context

Current estimates suggest that approximately 22% of the population in the UK have a disability (Kirk-Wade, 2022), which is defined in the Equality Act 2010 as "a physical or mental impairment that has a substantial and long-term adverse effect on an individual's ability to carry out normal day-to-day activities". Both taxi and PHV companies are common across the UK and ride-hailing services (e.g., Bolt, Ola, Uber) are extremely popular in major cities and towns, with a user penetration rate of 25% and revenue growth of 31% in 2022.[1] According to a survey by the Department of the Transport, the majority of the general (i.e. non-disabled) population (58%) rarely use a taxi or PHV (at most twice a year). However, over a quarter (28%) use them at least once a month, with almost a tenth (9%) being weekly users.

Recently, the Taxis and Private Hire Vehicles (Disabled Persons) Act 2022 introduced in June 2022 imposed additional duties on taxi and PHV drivers, thereby granting additional rights and protections for disabled people to be transported and aided without being charged extra. Notably, drivers are required to carry the passengers' mobility aids and give mobility assistance as is reasonably required when they are boarding or exiting the vehicle. Drivers with exemptions from assistance duties due to medical needs must still carry disabled passengers and not charge them more than others. Drivers are also required to help visually impaired passengers identify or find their vehicles. With the new bill, local authorities are also required to publish a list of wheelchair accessible vehicles within the authority, whereas previously the clause for the publication of the list was presented as non-mandatory in the Equality Act 2010.

1. Estimates drawn from Statista. Retrieved from: https://www.statista.com/outlook/mmo/shared-mobility/shared-rides/ride-hailing-taxi/united-kingdom

Over the last several years, the UK Government has also taken wider action on improving the taxi/PHV service for disabled people. In 2018, the Task and Finish Group, brought together by the Department for Transport, proposed 34 recommendations, both legislative and non-legislative, for the UK Government in improving the licensing system and the regulation of the taxi trade (Department for Transport, 2018). In 2020, the Disabled Persons Transport Advisory Committee released a guidance document to propose a framework for legislative changes for providing more wheelchair accessible vehicles to meet the demands of disabled people (Disabled Persons Transport Advisory Committee, 2020).

In terms of policy & legislation, two-thirds (66%) of local authorities in England and Wales require all or a percentage of taxis to be wheelchair accessible as of 2020; this falls to just 5% of local authorities that require all or part of the PHVs to be wheelchair accessible (Department for Transport, 2022b).

Our geographical areas of focus were England, Scotland, and Wales. Northern Ireland was not considered because key pieces of legislation applicable to disabled people and taxi/PHV usage are not applicable there. For example, with limited exceptions the Equality Act 2010 does not apply in Northern Ireland, and consequently neither does the Equality Act's amendment by the Taxis and Private Hire Vehicles (Disabled Persons) Act 2022.

Research design and procedure

The research took place over 8 months from April to November 2022. It comprised four distinct components: formation of a steering group of disabled people as "experts by lived experience" to guide the project, a scoping review of extant research and applicable secondary data on taxi/PHVs in the disability context, a nationally representative cross-sectional survey of disabled people, and focus groups and interviews with disabled people and key informants respectively.

Steering Group

The Steering Group was formed at the outset of the project and met virtually at four points during the research. Steering Group members were invited from Leonard Cheshire's network of campaigners. There were four Steering Group members in total, that had a mixture of hearing, physical and visual disabilities. Steering Groups were run by a chair from Leonard Cheshire, who would begin with warm-up activities (e.g., introductions), and another member of the research team who would focus on presenting technical content. The first and second meetings focused on a review and discussion of the survey and focus group & interview tools respectively for the taxi/PHV element of the research. In the third meeting a discussion was held focusing on steering group members perceptions on transport in the UK in general and how it could be made more accessible. A final meeting focused on a review of the draft findings and draft research report. Findings and recommendations from the steering group were integrated into the research tools and research report subsequent to each meeting.[2]

2. A summary of the key actions and changes recommended by the steering group can be found in the Monitoring, Evaluation & Learning Framework associated with this project.

Scoping review

To perform the scoping review, English-language peer-reviewed journal articles were searched for in the following databases: Web of Science and PubMed. An additional manual search was conducted in *Disability & Society*. The review collected literature published between 2002 and 2022 (inclusive) and focused on disabled people's experience with transportation. Due to their similarities to taxis and PHVs (e.g., being on-demand, door-to-door, and available for advanced booking), the review also included app-based ride-hailing services as well as community transport services.[3] Search terms included disab* and handicap* with taxi, ridehail*, transport*, TNC, rideshare*, paratransit, and community transport. Additional grey literature[4] was collected via Google search and Google Scholar using the same search terms.

The scoping review identified 27 pertinent sources. Of these, three were studies that have analysed transportation usage among non-disabled and disabled people, disabled people generally comprise only a small fraction of the sample size (Rose & Hensher, 2018; Cochran & Chatman, 2021; Ipsos MORI, 2021). Some research studies have collected and analysed qualitative data on the experience of disabled people using different forms of public transportation, including taxis/PHVs (Soorenian, 2013; Wilkinson-Meyers et al., 2014; Disability Wales, 2018; Velho, 2019; Lindsay, 2020; Rickly et al., 2021), with even fewer studies specifically on taxis and PHVs (Ipsos MORI, 2021).

Cross-sectional survey

An online survey was designed to understand disabled people's patterns of taxi and PHV usage across England, Scotland, & Wales and the barriers that they experience.

Questions collected demographic information (age, gender, disability type), information on taxi/PHV usage (e.g., *"How frequently, if at all, do you use a taxi, a private hire vehicle, or a ride-hailing app (e.g., Bolt, Uber, etc.)? Please choose the option that best matches your normal pattern of usage- At least once a day; At least once a week; At least once a month; At least every six months; At least once a year; Less than once a year."*) and their experiences (e.g., *"How often do you experience negative attitudes, stigma, or discrimination from taxi or PHV (Private Hire Vehicles) operators or drivers? Never; Hardly ever; Sometimes; Often; Always"*). Participants were also given the opportunity to provide additional qualitative information in response to the questions. Data was collected by an external survey company and underwent data cleaning, prior to being passed to Leonard Cheshire for analysis.

3. Community transport are specialised services providing transportation services for elderly and disabled people.
4. Grey literature comprises materials and research produced by organizations outside of the traditional commercial or academic publishing and distribution channels and not scientifically peer reviewed. Common grey literature publication types include reports issued by charities.

Data was collected from 2080 disabled respondents (*M* Age = 55.45, *SD* Age = 16.54) living in England, Scotland and Wales.[5] There were slightly more females (54%, N = 1114), than males and approximately 9 in 10 respondents (89%; N = 1856) identified with the "White English / Welsh / Scottish / Northern Irish / British" ethnicity category. A tenth of the sample (11%; N = 219) resided in Wales, 7% (N = 141) in Scotland and the remainder in different areas of England. About a third of the sample (35%, *N* = 731) resided in urban locations with a population of over 10,000, just under half in a smaller town (44%, *N* = 908) a fifth in a village (19%, *N* = 404) or isolated dwelling (1%, *N* = 37).

In terms of disability severity, just under a third of the sample reported their ability to carry out daily activities was limited "a lot" by their impairment (31%, *N* = 648). Most of the sample were limited "a little" (59%, *N* = 1225). Just under half of the sample reported having a mobility impairment[6] (46%, *N* = 945), which was the most common impairment type listed. A quarter reporting having sensory impairments (visual = 9%, *N* = 182; hearing = 14%, *N* = 292) and about a tenth reporting having a learning, understanding, concentrating or memory impairment (9%, *N* = 189). Those with mental health impairments comprised just over a third of the sample (37%, *N* = 760). Just over a third of the sample reported having a single impairment (37%, *N* = 773). The majority of the sample reported that they had an acquired disability (85%, *N* = 1762).

In terms of frequency of usage, over two-fifths of the sample said they used taxis/PHVs less than once a year (43%, *N* = 828).[7] Of the remainder, a fifth used taxis/PHVs at least once a year (8%, *N* = 147) or every six months (14%, *N* = 269). Just under a fifth said they used taxis/PHVS at least once a month (18%, *N* = 345), while 16% (*N* = 312) used taxis/PHVs at least once a week. Approximately, 2% of respondents said they used taxis/PHVs every day (*N* = 47).

Focus Group Discussions & Interviews

Focus group discussions [FGDs] targeted the experiences that disabled people had of taxis/PHVs, as well as associated processes like booking a taxi or making a complaint (e.g., *"How has the development and popularity of ride-hailing apps affected your attitude and usage of taxi and PHV services?"*). Discussions also explored participants' knowledge of alternative door to door transport options (e.g., community transport service run by local councils or volunteers) and their legal rights, in the particular in regard to the Taxis and Private Hire Vehicles (Disabled Persons) Act 2022.

5. In-text percentages are rounded to the nearest whole number.
6. Language used in this paragraph reflects the impairment types respondents were asked about in the survey and should not be taken as diagnostic of a broader category of impairment, e.g., physical disability
7. Percentages are given with the exclusion of missing or non-responses (e.g., "Don't know"). For unadjusted, unweighted statistical tables, please see the Technical Appendix. Analyses for this variable and subsequent variables reports percentages adjusted by age, gender and region to be nationally representative, based on the 2021 Family Resources Survey.

Participants were identified through Leonard Cheshire networks. Data collection initially took place in selected urban and rural areas of England (Bristol, South Gloucestershire), and Scotland (Edinburgh, Inverness & the Highlands) using these networks, but was subsequently expanded to other areas using social media to advertise the research.

All focus group discussions [FGDs] were held online with an average of 4-5 participants in each discussion. Prior to taking part, participants received an information sheet outlining what would happen in the FGD and audio-recorded consent was taken at the outset of the discussion.

Key Informant interviews focused on the perceived supply-side barriers for ensuring that taxi and PHV journeys are accessible to disabled people (e.g., *"In your opinion, what are the difficulties in enhancing the accessibility of taxi and PHV journeys for disabled people?"*) as well as understanding the processes that taxi and PHV providers take to address disabled people's needs (e.g., *"How would or do you address a complaint or report from a disabled person regarding an issue in accessible transportation, especially discriminatory behaviour?"*). Key informants were also asked about the impact of the Taxis and Private Hire Vehicles (Disabled Persons) Act 2022 on driver and provider compliance.

Key informants were identified through Leonard Cheshire networks as well as through desk-based research (e.g., to identify taxi/PHV licensing boards covering the selected urban and rural areas of England, Scotland, and Wales where focus group participants were initially targeted). Types of key informants interviewed included: Taxi/PHV driver (N = 1), Taxi/PHV manufacturer (N = 1), disabled people's organisations (N = 3), Councillors (N = 2), Taxi/PHV licensing team members (N = 3), and disability charities (N = 2). A full breakdown is presented in the findings section.

Findings

Research gaps identified by the scoping review

The scoping review was conducted at the outset of the research project. Addressing Research Aim 1, the main findings of the scoping review are triangulated with the survey and qualitative research findings. However, the scoping review also elucidated gaps in knowledge that influenced the development of the other research components, particularly the focus group discussions and key informants.

Lived Experiences

The research on disabled people's experiences with taxis and PHVs are commonly conducted as a part of a research on their lived experiences or transports in general (Bakker & van Hal, 2006; Schmöcker et al., 2008; Friedner & Osborne, 2015; Bezyak, 2017; Pyer & Tucker, 2017; McCausland et al., 2020; Park et al., 2022). Although some literature has focused on barriers that disabled people face in transportations, they are typically broader in scope, rather than studying specifically experiences with taxis and PHVs (Samuel et al., 2018).

Despite its seemingly integral role, fewer studies closely examine the experience of taxi and PHV journeys for disabled people, with only some research done on a national level (Disability Wales, 2018, Ipsos MORI, 2021). Studies with larger sample sizes tend to be analysis over quantitative data, analysing use patterns with other variables like geographic data, level of community participation (Henly & Brucker, 2019), and sociodemographic factors (Wheeler, 2009; Márquez, 2019).

Consequences of perceived barriers

With disabled people reporting instances of access issues, service refusal, and discrimination from taxi and PHV drivers or operators, their attitudes towards these barriers may also influence how they travel. Given that disabled people have reported anxiety or other detrimental emotional effects when planning and executing their travel plans on taxis (Sitter & Mitchell, 2020; Ipsos MORI, 2021), and that decisions for modes of transportation are affected by the perception of these vehicles (Simek et al., 2018; Brewer & Kameswaran, 2019), the effects of their attitudes and perceptions should be further explored. While there has been a study of attitudinal effects in Colombia (Márquez, 2019), due to the differences in culture across countries, their findings may be not be generalised to the population of other countries.

Barriers and facilitators of accessible taxi and PHV journeys within the UK

This research identified 15 key thematic findings, outlined in Table 1.

Table 1, Summary table of themes

Number	Theme
1	Overall Unavailability of Accessible Taxis/PHVs
2	Disability stigma and negative attitudes from taxi/PHV drivers
3	Lack of taxi/PHV company awareness about disability needs
4	Direct discrimination and unequal treatment
5	Stress, anxiety, frustration, and poor mental health
6	Lack of accessibility of reporting mechanisms
7	Lack of effectiveness of reporting mechanisms
8	Digital exclusion due to technology with low accessibility
9	Legislative gaps and loopholes
10	Lack of coordination with the green agenda and the built environment
11	Additional costs
12	Taxis provide door-to-door transport and facilitates independence
13	Drivers as helpful and accommodating
14	Long-term relationships with a taxi/PHV company
15	Importance of Disability Awareness Training

Theme #1: Overall Unavailability of Accessible Taxis/PHVs

The scoping review conducted for this research identified that in the United Kingdom, disabled people have reported an overall unavailability of wheelchair accessible vehicles when they want to use taxis or PHVs (Soorenian, 2013; Disability Wales, 2018; Welsh Government, 2018). Similar cases have been reported for taxis, ride-hailing vehicles, and paratransits in other countries like the United States and New Zealand (Bezyak et al., 2017; San Francisco Municipal Transport Agency, 2019; Wilkinson-Meyers et al., 2014; Hassanpour et al., 2021). At the legislative level in the UK, this could be attributed to wheelchair accessible vehicles not being mandatory in every licensing authority, resulting in a lower number of wheelchair accessible vehicles in the area, and thus a reduced likelihood of acquiring these vehicles when booking for one. As of March 2022, 193 of 303 (64%) local authorities in England and Wales require all or part of the taxi fleet to be wheelchair accessible (Department of Transport, 2022c). The annually published *Scottish Transport Statistics* does not report the numbers in Scotland. At the implementation level, there have been instances of drivers ignoring wheelchair users when they're hailing for a taxi or drivers cancelling appointments upon seeing an assistive dog or guide dog at arrival (Disability Wales, 2018; Rickly et al., 2021).

Findings from the survey also indicate that disabled people have difficulty accessing accessible taxis/PHVs when they need them. Only a third of respondents stated that they could always access taxis/PHVs when they needed them (33%, *N* = 625). Moreover, about 1 in 10 respondents said they could never access taxi/PHVs when they needed them (11%, *N* = 196) and about the same number said they could "hardly ever" access taxi/PHVs (10%, *N* = 193).

Participants in the focus group discussion also noted a general lower provision of taxis/PHVs, and some reported that there are not enough wheelchair accessible vehicles [WAVs] in their local area. As such, disabled participants reported taxis are not available on-demand for them like they are for non-disabled people, despite disabled people having greater need. In rural areas, taxis/PHVs are particularly scarce, especially if the taxi/PHV companies have contracts for school runs. The limited hours accessible taxis/PHVs are available also impact when disabled people can travel, including restricting travel to or from work during the day as well as going out at night. Moreover, if the return trip is not guaranteed, some participants may not travel at all.

> *"I think a better measure would be to ensure that there are a minimum number of accessible vehicles in a local area, and that they're not all booked out for schools, because some people do need to go out in the morning or in the afternoon. At the moment, it's impossible."*
>
> - Focus group participant with mobility impairment.

Participants in rural areas reported that the general lower number of taxis have restricted where and when they can travel. Taxi firms or drivers in nearby cities are unwilling to travel out of the city to expend 'dead mileage' to pick up a fare, regardless of whether it would be for a local run within the town or a run into the city. There are also no taxi ranks which limit how taxis can be accessed.

"I had that incident yesterday where I made a booking with a driver to come and pick me up for a medical appointment and the driver said to me, 'Well, I'll let you know by 3:00 whether or not I can come in.' I hadn't heard from him. So, I thought, 'Well, that's fine.' The booking was in place and, to be fair, the driver did come and get me. But I could tell he wasn't 100% happy about having to come from the airport, which is 15 miles away from here, to come and do that run. There were a few comments about lost revenue and then lost income as a result of that. And so, I think to me anyway, the biggest problem in this regard is simply the lack of vehicles and attracting people back into the trade."

- Focus group participant with vision impairment.

The Covid-19 pandemic has also impacted the taxi operation services. Participants noted that taxi drivers have moved on to other jobs due to reduced demand and income during the lockdown, and the number has yet to recover fully after lockdown was lifted. The reduced number of taxis have led to lower availability of wheelchair-accessible taxis, both due to the lack of drivers leaving the trade and some moving to the ride-hailing apps which gave them greater flexibility in time and vehicle choice.

"I had a wonderful taxi driver I was contracted with pre-pandemic after reaching the absolute end of my tether that took me to and from work and any work-related events and always went the extra mile. He is incredible and we had a wonderful working relationship. Unfortunately, the pandemic forced him to find other work working for a large delivery company and the contract then ended."

- Focus group participant with mobility impairment (due to cerebral palsy) and mental health conditions.

Furthermore, drivers have been moving to drive for private hire vehicles or ride-hailing companies, both industries where requirements for wheelchair accessibility are uncommon. Participants noted app-based drivers are free to use saloon vehicles, which would not necessarily be wheelchair accessible. Ride-hailing companies also do not impose knowledge tests or disability awareness training on contractors and carry less stringent requirements including vehicle models not being wheelchair accessible. Subsequently, the number of licensed taxis or private hires has shrunk over the years, further reducing the available number of vehicles—both in terms of general provision of taxis/PHVs and wheelchair accessible vehicles specifically.

"We do get people saying now, 'Well, I'm not bothering with all the angst of buying a vehicle at 60 odd thousand [pounds] when I could go out and buy a hybrid [for a] total for 20 or so [thousand pounds]. I don't need to make as much money because my expenses are far less.' So that's a battle. You look at London. London has lost so many taxi drivers, you know, now there's probably fewer than it's ever been, and you've got 100,000 Uber all running around."

- Key Informant (taxi driver).

Using our survey data, we also looked at which factors predicted the frequency with which respondents could access taxis/PHVs when they needed them, via a linear multiple regression (see Appendix).[8] Whether participants lived in an urban area (i.e. < 10, 000) was a significant positive predictor of how frequently could access taxis/PHVs when they needed them, as was overall frequency of use of taxis/PHVs. That is, respondents who lived in the urban area (vs. rural area) and who were high (vs. low) frequency users of taxis/PHVs reported more frequently being able to access them when they needed them.[9] On the other hand, having a high (vs. low) severity of disability was a significant, strong negative predictor of taxi/PHV access. Moreover, having a disability that was of medium (vs. low) severity was also a significant negative predictor. That is, the higher the severity of disability of respondents, the less frequently they could access taxi/PHV services when they needed them. Finally, the amount of weekly disposable income respondents had was a significant positive predictor of access to taxis/PHVs meaning that those with less disposable income could access taxis/PHVs less frequently. Whether participants lived in a town (vs. rural area) did not predict access, and neither did any other demographic characteristic (age, gender, ethnicity).[10]

Taken together, the analysis suggests that even disabled people in the UK whose impairments limit them "a little", experience disparities in access to taxi/PHVs services when they need them, along with those who have the most severe impairments. The analysis further suggests that cost is a significant barrier to accessing taxi/PHV services when needed. Moreover, supporting the observation of our FGD participants, compared to disabled people living in urban areas, respondents who live in rural areas or towns can access less frequently when they need them. Finally, non-frequent users of taxis (i.e., less than once a month) report greater access difficulties to taxi/PHVs when they need them, which is suggestive of unmet need among this population.

8. Both weighted and unweighted regressions were run for all models presented in this report. As no significant differences were observed across weighted and unweighted models, analyses presented in the technical appendix are unweighted.
9. We defined high frequency users as those who use taxis/PHVs at least once a month, comprising about 35% of our sample. While it may seem counterintuitive to look at frequency of use as a predictor of access to taxis/PHVs, consider that frequency of use is likely also a proxy for need. As such, it would be entirely plausible for high frequency users to report more instances of not being able to access taxis/PHVs when needed, because as a whole this group are coming into contact with taxi/PHV services more frequently. That the model indicates the opposite suggests that one contributing factor to non-frequent use of taxis/PHVs is difficulty accessing them. Future research should assess unmet need for taxi/PHV services directly.
10. The model contrasted participants who identified as White against all other non-White ethnic groups aggregated together. Hence, it is not possible to conclude that no ethnic disparities in taxi/PHV access exist from this analysis, as it did not examine access for specific ethnic groups.

Theme #2: Disability stigma and negative attitudes from taxi/PHV drivers

This theme was closely related to lack of taxi/PHV company awareness about disability needs. During taxi journeys, disabled people were prone to the same negative experiences as non-disabled people, though their disabilities and conditions may come up as the subject of the drivers' intrusive questions or comments.

> *"And then sometimes they just start ask really intrusive questions as well. They'll start with, 'Oh what's wrong with you then?' and 'Why are you like this?' And not only are you paying them for this service, you [have] then got to have this really awful conversation where they're just sometimes really intrusive and you're like, 'Well, why is this any of your business?' Would you ask this to somebody else if possible? No, you wouldn't."*
>
> - Focus group participant with mobility impairment (connective tissue disorder).

In other cases, drivers have agreed to carry the participants, but displayed negative attitudes during the ride, such as complaining about having to carry a disabled passenger.

> *"...when I queried one of the drivers, he told me that he wouldn't take wheelchair jobs if he wasn't getting paid extra, which I was quite shocked that he actually said that to my face. Another cab driver also said [something] similar to me, that he doesn't think that he should have to get out and put a ramp down, because it's extra work for him without being paid for it, which I argued, wouldn't you help someone with luggage? But apparently, I'm the problem."*
>
> - Focus group participant with mobility impairment.

Negative attitudes also pertain to driver patience, as participants brought up how drivers were impatient when they are boarding or exiting the vehicle. These instances have been reported by both wheelchair users and participants with non-visible impairments that affect their movement.

> *"...I remember getting in a car and they said, 'Oh, come on,' you know, sort of, 'You took your time' and I went, 'I'm sorry.' [...] I just was silent because I thought to myself, I can't really continue to even go into the conversation with the person, because all he was doing was moan, moan, moan."*
>
> - Focus group participant with mobility impairment (fibromyalgia and arthritis) and mental health conditions.

Participants with non-visible impairments have also reported instances of negative attitudes, where drivers were unwilling to assist with carrying items or parking closer to the pick-up or drop-off locations.

> *"When I say I need a little bit of time to get in and out the car because I've got issues with my back. [They say] 'Oh, right. Yeah, we've all got a bad back.' It's like, 'OK, fine.' And I'll let it go more often than I challenge it now, because [it] just isn't worth it. And I also don't want to discuss my medical issues with people that I don't even know, because you end up saying, 'Well, actually, I've got this...' Thinking, 'What am I? Why am I justifying myself? Why?'"*
>
> - Focus group participant with mobility impairment (fibromyalgia).

The experiences highlighted by FGD participants also agree with existing evidence. Specifically, in addition to being subjected to discrimination and negative attitudes from drivers (Bezyak et al., 2017; Cochran & Chatman, 2021; Disability Wales, 2018; Welsh Government, 2018), disabled people have reported being ignored or denied service by drivers (Simek et al., 2018; Rickly et al., 2021), with drivers' acts of exclusion and disabled people's passive attitudes leading to a cycle of exclusion (Ana Calle et al., 2022). Evidence from our survey also highlighted that disability stigma and discrimination was a significant issue for disabled taxi/PHV users. Of the sample as a whole, about 1 in 7 had had experienced being refused service from a taxi/PHV vehicle due to their disability at least once (17%, N = 348). Almost half of the sample said that they had experienced negative attitudes, stigma or discrimination from taxi/PHV drivers (48%, N = 921). For 8% (N = 148) this happened "often" or "always".

To understand what predicted the frequency with which respondents experienced stigma and discrimination from taxis/drivers, we conducted a linear multiple regression (see Appendix). Being younger, male or a non-White (vs. White) ethnicity was associated with more frequent experiences of stigma and discrimination among respondents. Moreover, having a high (vs. low) severity of disability was a significant, strong negative predictor of frequency with which stigma and discrimination was experienced from taxi/PHV drivers. Additionally, having a disability that was of medium (vs. low) severity was also a significant negative predictor. That is, the higher the severity of disability of respondents, the more frequently they reported experiencing stigma and discrimination from taxi/PHV drivers. Frequency of taxi/PHV usage was also a significant predictor, with high frequency taxi/PHV users (vs. non-frequent users) reporting more frequently experiencing stigma and discrimination due to taxi/PHV drivers.

Theme #3: Lack of taxi/PHV company awareness about disability needs

Many participants reported instances of drivers lacking disability awareness. For example, wheelchair users have reported they were sent a non-wheelchair-accessible vehicle while participants with visual impairments were not appropriately notified of the vehicle's arrival or being asked to locate the vehicle by themselves. People with mobility impairment have been asked to go to the vehicle instead of having the vehicle picking them up where they were. Some participants attributed driver behaviours to operators not notifying drivers of their needs.

> *"…. In the old two-way radio days, if you were a bit of a radio nut like me, you could get yourself a scanner, and then eavesdrop on them and you could tell whether the instructions were passed or not. If they weren't, you knew where the buck stopped. But in these days, you can't do that, so you don't know if the instructions haven't been passed on, or if the driver doesn't bother to read them. He can't do that back in the two-way-radio days."*
>
> - Focus group participant with vision impairment.

Some participants had drivers that did not know how to use the accessible equipment properly. Wheelchair users particularly cited cases where their wheelchairs were not properly strapped in or not strapped in at all, leading to the wheelchair shifting in the vehicle when making turns or abrupt stops. Some participants have brought up instances of being improperly strapped in has led to their heads hitting parts of the vehicles. Subsequently, some participants cited safety as a concern when taking taxis.

> *"...it does put you off the organizations and you don't want to use them again and then you feel like how you don't wanna use them again... then you have to. And it's just like reluctantly using them. And then you end up in a taxi and all this stress on being strapped down properly. It's just a repeated process of just ****."*
>
> - Focus group participant with mobility impairment (spinal cord injury).

Gaps in driver disability awareness have been identified in existing research also, for instance drivers not knowing how to operate the ramp to help wheelchair users board the vehicle or not using restraints to secure the wheelchair, out of either negligence or unfamiliarity with the equipment (Welsh Government, 2018; Vector Transport Consultancy, 2020). As such, due to lack of driver awareness of this type, disabled people have expressed concerns for safety or needs not being addressed (Simek et al., 2018; Steiner et al., 2021; Ana Calle et al., 2022). Evidence from our survey also identified safety as a concern for a substantial minority of respondents. Specifically, 18% (N = 339) of survey participants said that they felt unsafe due to the conduct of the taxi/PHV driver "a lot" or "sometimes". Participants were also asked to give reasons why they felt unsafe. The most prevalent reasons participants gave for feeling unsafe was because the driver was speeding (N = 111 instances) or other types of bad driving (N = 71 instances):

> *"When they were speeding and they ran a red light"[2].*
>
> - Survey participant.

Both of these factors may aggravate instances where passengers such as wheelchair users feel unsafe due to driver negligence or unfamiliarity with equipment.

To understand what predicted the frequency with which respondents felt unsafe due to the conduct of taxi/PHV drivers, we conducted a linear multiple regression (see Appendix). Being younger was associated with respondents reporting they felt unsafe more often. Moreover, having a high (vs. low) severity of disability was a significant, strong negative predictor of frequency with which respondents felt unsafe due to the conduct of taxi/PHV drivers. Additionally, having a disability that was of medium (vs. low) severity was also a significant negative predictor. That is, the higher the severity of disability of respondents, the more frequently they reported feeling unsafe due to the conduct of taxi/PHV drivers. Frequency of taxi/PHV usage was also a significant predictor, with high frequency taxi/PHV users (vs. non-frequent users) reporting more frequently feeling unsafe due to the conduct of taxi/PHV drivers.

Theme #4: Direct discrimination and unequal treatment

Some focus group participants reported that drivers outright refused to take them. Participants linked these refusals to their disabilities, which would be unlawful according to the Equality Act 2010. Reasons for the refusals included that drivers did not want to help wheelchair users into the vehicle, or the drivers did not want an assistive dog or guide dog to board the vehicle. According to the participants, drivers came up with excuses to not take them.

> *"... I've had two occasions previously where [the driver] turned up [and said], 'Oh. I don't take guide dogs.' So I have to say, 'For what reason is that?' [They replied,] 'I'm allergic.' [I said,] 'OK, fine. Can you show me your doctor's certificate?' [The driver replied,] 'I don't have one.'"*
>
> - Focus group participant with vision and hearing impairments.

Other reasons could be the driver of a wheelchair accessible vehicle unwilling to take a booking or fare on-demand, because they were located far away from the pickup location. Traveling to the pickup location without a passenger would incur 'dead mileage', which the drivers perceive as unprofitable. This behaviour was brought up frequently by participants who live in rural areas, where there are fewer taxis available. Our survey data also highlighted refusals as an issue (see page 29).

Participants also reported cases of being overcharged, where drivers either attempt to state a higher price when a disabled person boards the vehicle or start the meter during waiting times. For participants that rely on taxis, there was also hesitancy to confront taxi/PHV drivers or the firms.

> *"But then there's only one company that had wheelchair-access in the town and they kind of knew that, so they would charge me more than my friends were paying, and they do things like put the meter on when I was getting in and out. And then put like extras on the meter and I would challenge it, but it's a bit harder when they are the only company you can use, you don't want to annoy them."*
>
> - Focus group participant with mobility impairment.

In relation, our scoping review highlighted a lack of evidence on both the effectiveness of enforcement strategies as well as gaps in monitoring systems. Whilst there are laws and regulations being implemented to provide wheelchair accessible taxis for disabled people and there is an abundance of evidence and statistics on the use of taxis and PHVs, there is no monitoring system to assess the effectiveness of the implementation, with reports of instances of drivers ignoring or denying services for disabled people (Disability Wales, 2018; Welsh Government, 2018; Rickly et al., 2021). There are also different methods of enforcement, like a system for disabled people to report or make complaints towards drivers or operators that do not comply to the law, or an incentive scheme to incentivise service providers. However, there is no evidence on the effectiveness of enforcement methods.

Theme #5: Stress, anxiety, frustration and poor mental health

Participants reported experiences of stigma, lack of awareness and discrimination from previous taxi/PHV journeys have negatively affected their mental health. Participants felt stressed, anxious, or demoralised with travelling, thus leading to hesitation to using taxis or even leaving their homes.

> *"Now that I got a PA, I'm very reliant on her now. I don't try a new taxi [firm] much, because it does put you off when you get in. We've been saying previously with the huff and puffing and the 'I don't really wanna be doing this today' that kind of attitude. And I have anxiety as well. So it does put me off going out as it is, but I like going out and I wanna go out like an like an individual."*
>
> - Focus group participant with mobility impairment (cerebral palsy) and autism.

Participants expressed that the various negative, or even traumatic, experiences with taxis have left them feeling they are not treated equally and that drivers tend to prefer taking non-disabled people. Whilst some participants felt angry, others felt frustrated or sad. For some participants, the negative emotions and upset caused by previous journeys has meant they have given up on using taxis.

> *"I am very wary of all [taxis, PHVs, and ride-hailing apps,] and don't tend to use any and am hyper aware of my safety due to my past experiences. The answer is I choose none of them at all and my independence and social life has definitely greatly suffered. Once you find a good driver or company hold onto them tight as they are like gold dust!"*
>
> - Focus group participant with mobility impairment (cerebral palsy) and mental health conditions.

For one participant, his stressful experience with drivers affected his choices with not only transport, but also discouraged him from getting another guide dog:

> *"...I get this constant nag and it gets to me. It got such an extreme that I've now stopped using taxis and private hire with my dog. I won't... I won't do it, because it used to stress me out. It used to get me really anxious. I could be waiting for a taxi to come to my house with my dog and I feel the anxiety building [...] So for my own health, I just stopped doing both together. It's regrettable and it's got to the extreme now where my guide dog is getting close to retiring, I'm not gonna get another guide dog, because I can get my normal life back without a guide dog, without people being discriminatory. It's got that bad over the years, it's just worn me down after 20 odd years. I've had guide dogs for about 24 years, and it's just wore me down. I've had enough of fighting."*
>
> - Focus group participant with vision impairment.

Most companies have reporting mechanisms by which travellers can flag negative experiences for follow-up action. However, some participants cited that the reporting process involves reliving negative experiences, which leaves them mentally drained. Other participants noted that the reporting process is time-consuming, necessitating writing emails, making phone calls, as well as attending meetings or hearings. Subsequently, some participants expressed being put off by the reporting process and avoiding taking taxis altogether, especially given the extent that complaint-worthy incidents occur:

> *"So I've given up complaining. It's just such a hassle. Whenever I've complained about a taxi before I have to phone up and report it to licensing [team]. They then will send somebody out to sit with me and take my statements with writing. That can take two or three hours, as they go through it all. Then they go back to the office, and they will decide whether it needs to go the Licensing Committee. If it does, then you're invited to the hearings that they do, which is once a week, I think, or it might be once a month. They invite you to county hall, and I think the longest I was there... was to be there for 9:30 for 10:00 start. I think we finished at 3:00 in the afternoon. So, I remember my husband coming along once out of goodness, so he had to take time off work to have his statement done there. He had to take time off work to come to the county hall. He booked it a late start in the morning, then he had to say, 'Sorry. I need the morning off.' Then it turned into the whole day off. So next time there's complaints, he wouldn't stay. He said, 'I haven't got time.' It takes such a hassle that I just gave up doing it..."*
>
> - Focus group participant with mobility impairment (multiple sclerosis).

Additionally, some participants also reported they were afraid of confronting drivers or complaining to firms directly in fear of being refused service by the driver and being "blacklisted" by the firms.

> *"There was only one private hire company near me, and they were the ones that charged extra. I didn't ever feel like I could complain about that because they were my only option. So, I was trapped. I was trapped paying the extra money, and I was trapped to use them, because there were no other options for me."*
>
> - Focus group participant with mobility impairment.

Evidence from the scoping review also highlighted negative emotional consequences from difficulties with taxi/PHV access. Disabled people have reported negative experiences such as last-minute cancellations or having missed the vehicle after exceeding the waiting time – leading to delays or missed appointments. These incidents have caused anxiety or other feelings that are detrimental to energy levels and emotional health (Sitter & Mitchell, 2020; Ipsos MORI, 2021). While similar transport-induced distress and unease have also been reported when taking buses, underground trains, or even flights (Velho, 2019; Simek et al., 2018), since disabled people generally take taxis or PHVs to attend time-sensitive activities, like medical appointments or social/recreational activities (Ipsos MORI, 2021), these negative emotional effects may be exacerbated when using taxis or PHVs.

Theme #6: Lack of accessibility of reporting mechanisms

Furthermore, there are accessibility barriers for disabled people in the reporting system itself. Whilst some participants reported that they are unaware of the complaint process, other participants felt that the reporting process is not accessible. The complaint process requires disabled people to report the driver details, but participants said that, whilst in the middle of a confrontation with a driver, they may not think to record the driver's name and the car's license plate, or their condition makes it difficult to do so (e.g., people with mobility impairments may not be able to quickly take out their phones to record details). Furthermore, people with visual impairments may not even see a taxi refusing carriage and driving away, let alone the vehicle's details. Some participants also noted that the local authority website is not easy to navigate, or there were no ways to make known to the authority their access requirements.

> *"...it's not easy to find the taxi licensing complaint form. You have to go through a certain... It's not straight there. You've got to go through a little, little folder to find it, so that wouldn't be very easy. The place was even worse because it was call-back thing, 'Can we call you?' I'm deaf. I can't use the phone, I said. But there's no way [on the website] to say that I want to alternative text. I want an alternative and reply by e-mail. They have to ring me. I have to get my wife to answer the phone. Then [local authority representative] was like, 'Oh, we can't talk to your wife. It has to be consent from you.' I can't hear you on the phone. How am I supposed to give my consent, you know?"*
>
> - Focus group participant with vision and hearing impairments.

One participant presented a different perspective on the reporting mechanism, stating that existing methods relies heavily on the complaints from disabled people and hence are a burden; they instead proposed that local authorities should be more proactive to monitor and evaluate the quality of services, thereby minimising the occurrence of accessibility issues. Some participants mentioned methods like mystery shopping tests, where disabled people are paid to trial services and identify the problems. The reporting process should also be more streamlined, so as to lift the burden from disabled people, especially in the process of acquiring driver information. For instance, companies should have record of drivers that accepted the booking, and local authorities would have the drivers' licensing information.

> *"I think at the moment there's too much of a burden on disabled people to collect all of the information whereas actually [...] the local authority should be able to get [a lot of the information] relatively easily. [...] There should be the local authority who has a registration of all of the drivers and the registration plates and should be able to identify them through the time of the booking and the location and all of that data."*
>
> - Key informant (disabled people's organisation) with mobility impairment.

Theme #7: Lack of effectiveness of reporting mechanisms

There were mixed responses on the effectiveness of the reporting mechanisms used by local authorities. Participants praised the local authority for responding to their complaints, like responding promptly or reporting actions have been taken. However, participants also reported they made a complaint on taxis to the local authority, but they did not reply.

> *"My local authority taxi Licensing Officer is a toothless tiger, who has not sanctioned drivers despite evidence of discrimination."*
>
> - Focus group participant with mobility and speech impairment.

One participant attributed the low effectiveness to drivers and companies not taking the law seriously.

> *"I think this is more of a government issue really and a whole general system issue. I think, overall, Disability Discrimination [Act] and the Equality Act tend to be seen as more of a joke than something that actually needs to be taken seriously."*
>
> - Focus group participant with vision impairment.

Some participants also noted that the lack of transparency from some taxi firms regarding their complaints process lowered their confidence in whether they should file a complaint.

> *"...if I think that someone really could have done better, and there's been a bit incompetence, then I will complain for all the good it does, because I think that at least 95% of the time, you might just as well do a Shirley Valentine and talk to the wall, because, you know, I think nothing gets done. It doesn't really get listened to."*
>
> - Focus group participant with vision impairment.

This criticism has also been extended to the local authorities, as one key informant noted the same lack of transparency with local authorities, as well as weak penalties. They suggested that penalties for drivers with repeated offences should not be limited to fines, but a tangible risk to losing the license.

> *"...there's nothing more disempowering [or] disheartening when you do all this work to try and raise a complaint, and then nothing's actually done about it, or you don't know what's done about it. So, we'd like to see local authorities being really clear about what these roots of complaints are and where it ends up and what the end result is."*
>
> - Key informant (disabled people's organisation) with mobility impairment.

However, other participants also reported that, when they have made a complaint to taxi/PHV companies, the companies replied and addressed the complaint, offering a satisfactory solution after some cajoling.

> *"They start, like trying to come up with an excuse, like he's tired, or he's had a busy day or something like that. And I'm like, 'Yeah, well. That's not on me. You need more training than blah blah blah' and sometimes it can take quite a while, but I hammer it home, but it needs to be disciplined and they usually are. [...] Yeah, they'll be told that this isn't an acceptable behaviour. And then sometimes after that, they'll be like, 'He's been cautioned, and he's being given training' but I think it's because I don't let up."*
>
> - Focus group participant with mobility impairment (cerebral palsy).

Some participants, especially people with learning disabilities, have also said that they don't know how to file a report or make a complaint to taxis. For example, they are unsure of whether they should go to the taxi firms or the local authorities. For older people or people with learning disability, their limited ability to navigate the internet served as another barrier, linking to the concept of digital exclusion (below).

> *"I know you could make a report, but I don't know how to do it. You don't know what number; you don't know who to contact [in] the taxi firms. Some of us don't know to how to use the internet."*
>
> - Focus group participant with learning disability

Theme #8: Digital exclusion due to technology with low accessibility

In the scoping review, the benefits of ride-hailing have been seen as dependent on the accessibility and availability of other functions or features like a calling centre, wheelchair accessible vehicles, as well as flexible booking and payment methods (Steiner et al., 2021). For disabled people, the absence of these components is just as much of a major gatekeeper.

With the emergence of ride-hailing apps and the introduction of an app-based booking system, some taxi companies have adopted a similar system, though lack of accessibility was a common criticism on technological advancements. Some participants cited some benefits to ride-hailing apps, like real-time tracking of the vehicle, cashless payment, and the feature to directly contact the driver via the app.

> *"I will, where possible, use ride-hailing apps, so primarily that's Uber and also Lyft. I like them for the accessibility that it offers, especially the opportunity to be in more direct contact with the driver, and I do find that it is significantly more affordable. From a work point of view, it does make the expenses and the billing an awful lot easier given that [payment process] hassle [is] done electronically."*
>
> - Focus group participant with vision impairment.

During discussions on taxis, however, some participants disliked the online or app-based booking methods, and instead preferred the ability to directly communicate with operator when making bookings or awaiting their vehicles, as it gives reassurance that their access requirements are being communicated. Participants with learning disabilities expressed the same preferences, as they found it more difficult to talk to an automated answering system.

> *"It's confusing for communication. They got your address as well, but you have to say it or speak it into the phone, [telling them] where we want to be dropped off. We prefer having a person talking to you. [There is a] 50-50 chance of the machine getting it wrong. It's confusing for people with learning disabilities to [talk to an electronic booking system]."*
>
> - Focus group participant with learning disability.

More importantly, participants expressed a desire for information being accessible, like booking confirmations, the vehicle arrival time, upfront price, driver contact information, and real-time vehicle tracking like with ride-hailing apps. Participants also noted the ability to rate drivers could be adapted into an "accessibility rating", so they can anticipate a driver's disability awareness at the start of a journey or give tangible feedback to drivers after a journey.

"But the ability to track how far that car away is really good. That kind of takes some of that anxiety out and just like you know you wouldn't stand outside in the cold, if you can see on a map that it's nowhere near where you are."

- Focus group participant with neurodivergence.

Despite there being some praise for cashless payment methods, generally participants reported mixed preferences regarding payment methods. Some noted there are barriers to withdrawing cash when taking taxis, especially with the shift to card payments during the pandemic, while others preferred electronic payment for its accessibility, though one participant expressed doubt about the method being abused by drivers that overcharge by inputting higher prices than the actual fare in their card machines.

"I always make sure I've got cash, but it can be a bit of a pain sometimes cause I've gotta make sure I've got the cash. Obviously withdrawing the cash can be a bit difficult sometimes depending on if there's a talking cash machine, then fine, but I've gotta get to the cash machine. If it doesn't talk, then I've gotta rely on someone help me. Or sometimes. If I'm in a shop, I'll buy something and get cash back, but with online shopping these days, I don't really go in shops for much anymore to get cash back, but yeah, in terms of... and it's for disabled people in general, it's probably easier to be to pay by card, if they struggle to deal with money, potentially."

- Focus group participant with vision and dexterity impairments.

While many participants highlighted the benefits of app-based booking systems, other participants also brought up the concept of "digital exclusion", in which unequal access to technologies limits how disabled people can access taxis or ride-hailing apps. While participants with no mobility or sensory impairments tend to use ride-hailing apps with no accessibility issues, vehicles on ride-hailing apps tend to be saloon cars which are not wheelchair-accessible. People in higher age groups or those with learning disabilities may also find it more difficult to access taxis due to difficulties in learning to navigate the technology involved in the booking process. Some have also noted the existence of a financial barrier, as booking apps are only available on the smartphone, the cost of which is an obstacle for people with lower incomes.

"I don't think people realise a lot of people don't have computers, or [don't] know [how] to go online to book something online, or use the app. Some people might take about 5 minutes to book on the app, but a lot of people don't know how to use the app. [...] I haven't got the confidence to use the app. [...] We prefer having someone to talk to."

- Focus group participant with learning disability.

Secondly, whilst ride-hailing apps tend to come with various accessibility features, and similar apps have been adopted by some taxi companies, participants stressed the importance of a flexible booking system. Participants stressed the importance of preserving the traditional phone call methods whilst also prioritizing accessibility when designing booking methods, appreciated particularly by participants with less knowledge in technology, along with people with learning disabilities as well as some people with visual impairments. Additionally, whereas some ride-hailing apps are compatible with iPhone's text-to-speech VoiceOver feature, certain taxi booking apps are not, adding another barrier to the booking process for people with visual impairments. Participants suggested that technology and app features should be

developed by consulting with disabled people and disabled people's organisations, so as to ensure accessibility is integrated into the design from the initial development.

> *"Depending on the specific app or the specific service, you can often put a note in your profile, saying, [for example,] 'I'm a wheelchair user, so I need the ramps out' or 'I have a non-visible impairment. I can't walk very far. I need picking up' [...] it really depends on whether drivers read that note in your profile or choose to pay attention to it, and it's also really difficult to explain what your specific access requirements are in this in very limited format."*
>
> - Key Informant (disabled people's organisation) with mobility impairment.

Some participants also raised that apps should have a function for users to notify drivers that they may need access requirements. However, some also noted that disabled people may be hesitant to put such information on their profiles in fear of drivers cancelling their trips due to passengers requiring additional assistance or having guide or assistance dogs.

Theme #9: Legislative gaps and loopholes

The scoping review found that, outside of the vehicles and drivers themselves, a point of contention often raised by disabled people relates to the overall system the vehicles exist in. Inconsistent vehicle dimensions have complicated the boarding process for users of larger powered wheelchairs (Pyer & Tucker, 2017). Lack of national standards has led to varied experiences across different authorities (Soorenian, 2013; Welsh Government, 2018).

Focus group discussion participants also expressed that legislation and laws around taxis need to be revisited, and one key informant even proposed an overhaul of the primary legislation, such as the Town Police Clauses Act 1847 or the Town Police Clauses Act 1889. Participants brought up various cases of loopholes induced by the existing legislation. Regarding the recently introduced Taxis and Private Hire Vehicles (Disabled Persons) Act (2022), participants noted that access for wheelchair users still depends on the provision of wheelchair accessible vehicles. Since the existing legislation allowed no minimum requirements for providing wheelchair accessible vehicles, and the requirements are set by the individual local authorities, the taxi companies that do not have wheelchair accessible vehicles in their fleet are not required to offer vehicles to wheelchair users. In response, some participants proposed setting a minimum standard for wheelchair accessible vehicles to be available at certain times, thereby ensuring there are always vehicles available for passengers.

Another point of criticism among participants has been the devolved nature of the legislation, which has led to the issue of cross-border hire. These are cases of drivers licensed by one authority with less stringent licensing conditions—in knowledge tests, certified training programmes, or vehicle requirements—operating in a neighbouring authority with more stringent conditions. As a consequence, passengers living in the local authority with more stringent conditions may still encounter issues arising from lower training requirements or a mixed vehicle fleet.

> *"... [drivers] can go to another authority that has lower vehicle standards, lower testing requirements, lower anything and then suddenly they can just work in our area. So there's a real reluctance to increase our standards, because it effectively creates a race to the bottom, because why should we increase our standards when we know it's just gonna drive more people to other areas? We know we've*

got hundreds of people we know of working in [our local authority] that have licenses with other authorities."

- Key informant (licensing team).

Another loophole in the existing system was noted by one participant, who noted that there have been cases of drivers sharing licenses and vehicles, but only one member of the group has undergone the mandatory disability training, leaving the remaining members untrained for operating assistance equipment or assisting disabled people in other ways.

"The other problem we have is, particularly in Cardiff, that the taxi driver isn't necessarily the person that's got the license or the ID card, so very often you'll have a group of mates or family that have the license, and they will operate it 24 hours a day, seven days a week with different members of the family. It's a very often they don't look anything like the one in the card, and the reason that they don't know how to do anything is because one of them has had the training, but none of the others have. The local authorities don't seem to be able to crack down on any of that behaviour. When you're talking to the local authority, they say they do spot checks and make sure that they're all doing it right. Yeah, but the spot check tends to be at about 11:00 at night and you're wearing high vis[ibility] jackets and clipboards. They know you're there."

- Focus group participant with mobility impairment (multiple sclerosis).

On the subject of ride-hailing services, one participant noted that legislation has yet to keep up with the new technology. Whilst some participants noted that drivers in the ride-hailing sector may be friendlier, they generally do not possess the same level of disability awareness, and some have recalled acts of discrimination from drivers. The law and systems surrounding ride-hailing apps have further complicated the reporting issue, as drivers on the apps can cancel trips during the booking process without any repercussions, and there are no ways for disabled people or local authorities to identify acts of deliberate disability discrimination.

"... all they have to say is, 'Oh well, you know, it's just... things happen. My phone lost battery, or I don't know, I lost signal for 10 seconds. I don't know where it went.' It's easy. So, we as a licensing authority, we would have to prove to the criminal burden of proof beyond reasonable doubt that this person definitely discriminated against this person, so from an enforcement point of view, how do we prove that? So, in reality it just doesn't... It's not that we can't do it. It's not that we don't want to do it. It's just how do you prove beyond reasonable doubt that that person discriminated against that person when all they did was just they cancelled the journey. And to be fair, I used ride-hailing apps and that happens to me as an able-bodied person, so it's difficult to prove."

- Key informant (licensing team).

Participants also raised the lack of communication with licensing authorities and members of the taxi trade when new policies are introduced. In describing the lack of communication between the government and the local authorities, one key informant noted that the new bill's stipulation—Clause 3 (2) of the Taxis and Private Hire Vehicles (Disabled Persons) Act 2022—to publish the list of wheelchair accessible vehicles may not be particularly helpful as it would not assist in the booking process. Another participant observed that there was a lack of consultation before introducing the Taxis and Private Hire Vehicles (Disabled Persons) Act (2022) and lack of support

after the bill was introduced. They suggested any changes made to the licensing policies should be preceded by consultation with local authorities.

> *"We spent years trying to encourage [taxi companies]. Then UK Government brings out a bill which they haven't really consulted with the trade or the people who licenses vehicles and go, you know. Yeah, I don't. I don't actually disagree with what they're saying. Most of us do. It's just that all you've done now is probably set the process back a few years because all now what's happening is it's another cost to put vehicles and drivers on the road. [...] I think I do know of at least one or two independent individual drivers who've gone, 'I can't do this. I can't afford to do this.' And what we've then done is left the field open for the riding. The big companies, Lyft app, you know, Uber, whatever, who come in and then still don't provide the service, but are big enough to argue the point."*
>
> - Key informant (licensing team) with mobility impairment.

Theme #10: Lack of coordination with the green agenda and the built environment

Key informants raised that certain policies or government departments may come into conflict with each other. One policy frequently brought up is the transition to electrical vehicles to reduce emissions. This has brought up the price difference between vehicles. A standard vehicle is typically priced between £20,000 to £45,000, whereas its electrical vehicle counterpart would be priced at around £50,000 to £75,000. According to one key informant, the Welsh government has a commitment for zero emission vehicles starting from 2028. With existing zero emission policies, if a driver were to purchase a new vehicle, they are often required to purchase an electrical vehicle, or purchase a non-electrical vehicle that they then are required to discard in several years. Understandably, due to the expensive costs, drivers hesitate to purchase a new wheelchair-accessible electrical vehicle, leading to an aging fleet of vehicles and hesitation for prospective drivers to join the taxi trade.

> *"...generally they want within the next say 6-7 years, they want all vehicles to be electric or, you know, zero emission. So, if you're a prospective taxi driver looking to enter the market and you want your wheelchair vehicle, but then on the one hand, people are saying, 'Well, hang on, in maybe six years, you might only accept electric vehicles.' They're gonna say, 'Well, do I want to spend tens of thousands of pounds on a non-electric wheelchair accessible vehicle, when I might not be able to use this in six years?' So again, it's quite difficult at the moment for [drivers]."*
>
> - Key informant (licensing team).

The sentiment was shared by another key informant on the topic of rural areas, where the typical fare is not comparable with urban areas, making it hard to justify the purchase of a wheelchair-accessible vehicle, which some drivers may perceive are not used by the general population, along with a perceived low demand by wheelchair users.

> *"...in rural areas there's a great difficulty in getting people to [purchase wheelchair] accessible vehicles, because you might have a one-man band in a rural area maybe doing a lot of airport transfers and things. Why is he gonna spend £15,000 more for that odd occasion where someone requires a wheelchair? And it's not right. [...] it doesn't make any commercial sense for them to do so."*
>
> - Key informant (taxi driver)

There have also been cases of powered wheelchair users being refused carriage. Participants who are powered wheelchair users cited being rejected on the grounds of weight-related safety, unsuitable ramps, or the wheelchair not being able to fit inside a vehicle. These participants voiced their frustration at not being able to board a wheelchair-accessible vehicle despite its name. This evidence suggests that there needs to be a revision on the national guidance for the dimensions and specifications of a standard wheelchair, which would be referenced when local authorities determine which vehicle models are suitable for carrying a wheelchair. One participant explained the lack of suitable taxis has made it impossible for her to take her powered wheelchair to work, which in turn reduced her mobility in the office and impacted her self-esteem.

> *"I've had to use my manual chair and then have somebody at work physically move me around the building, or move me around at work and at least on half of the occasions, because there hasn't been an accessible taxi and it just feels so demeaning. They've made adaptations at work, [but] I can't even just go to the toilet by myself, because there hasn't been a taxi that I can get into work. I can go into the office one day in my manual chair, but I have to be pushed around [by coworkers] because I can't get [my powered chair] into work. [...] Can't even go to the printer by myself because I haven't got the strength to push the manual chair. I've got the [powered] chair at home to be able to do that, but I can't get it in [the taxi]."*
>
> - Focus group participant with mobility impairment (multiple sclerosis).

However, one key informant attributed the issue to the lack of a clear standard for a reference chair with the introduction of the larger powered wheelchairs, citing difficulties in balancing safety and accessibility for wheelchair accessible vehicles. Furthermore, whilst black cabs are required to carry a reference wheelchair[11], an independent study in 2022 found that the existing guidance for the reference wheelchair only accommodates 54% of all mobility aid users and 60% of wheelchair users (Atkins-Jacobs Joint Venture, 2022). Thus, the current issues reflect a need for revision in the dimensions of a reference wheelchair, thereby ensuring all wheelchairs can fit inside a wheelchair accessible vehicle.

> *"I've had to say explain to the people that actually, I'm sorry I cannot take your complaint, because what you have is an electric wheelchair, which is much larger than a reference wheelchair and the drivers will say – and I think they make a point – they say 'That will struggle to fit in my vehicle. And if it does fit in my vehicle, I'm not sure if I'm insured, because that and also this is such a heavyweight that I don't feel comfortable actually trying to push this into my vehicle because it's just too heavy.' It contains batteries, etcetera, etcetera. And so I think the government needs to be clear on this about what is the requirement, what size wheelchair should you expect to go in vehicles, because it seems to be that there's such a grey area at the moment [...] companies there would probably be asking these similar sort questions. They're saying, 'Well, what [specification] of wheelchair should we allow in our vehicle and what would be the required size?'"*
>
> - Key informant (licensing team).

11. The reference wheelchair is the standard used as reference for typical wheelchair specifications. They tend to be referenced by authorities when they set out conditions that certain vehicle models need to be suitable to carry a wheelchair, thus being deemed a "wheelchair accessible vehicle".

One key informant attributed the issue to the lack of communication between vehicle designers/manufacturers and wheelchair designers/manufacturers and proposed that there should be collaboration between wheelchair manufacturers and vehicle manufacturers. Communication is needed between the two sectors to allow disabled people to effectively travel using a powered chair without risking being unable to fit inside a wheelchair accessible electrical vehicle.

> *"Well, [what] you would want is just, you know, the technical people that are developing chairs to communicate with WAVCA—if you like Wheelchair Accessible Vehicle Converters Association—or ALFA in Europe, which is the European version. Just so there's some collaboration, so that they understand because there's no point in a customer getting a 220 kilo[grams] wheelchair and thinking 'Oh, this here is fantastic', and then actually he's unable to buy a vehicle to transport it, because the heaviest duty restraints are 200 kilos. And so it's just something like that."*
>
> - Key informant (Taxi/PHV manufacturer).

Another frequently raised point of conflict is the wider built environment around the transport system. Efforts such as reducing traffic congestion, adding cushioned floor gripping to help pushing wheelchairs, removing barriers that make wheelchairs harder to navigate the space, and placement of taxi ranks to ensure wheelchair users and people with visual impairments can safely board the vehicles would also assist disabled people. Whilst there are clear documents on guidance and requirements for accessible buildings, there is no equivalent for the boarding and alighting spaces for vehicles.

Theme #11: Additional costs

Existing evidence shows that wheelchair accessible taxi and PHVs incur additional financial and time costs for both disabled users and service providers. For disabled people, the cost of taxi fares is commonly brought up as a barrier to taking taxis (Pyer & Tucker, 2017; Simek, et al., 2018; Velho, 2019; Sooreniian, 2013). Similarly, using a ride-hailing app requires the user to own a smartphone, which is a barrier for those with low incomes (Cochran & Chatman, 2021). For operators and drivers, the modifications and maintenance costs for wheelchair accessible vehicles have been deemed impractical by drivers (San Francisco Municipal Transport Agency, 209; Choi & Maisel, 2022). In the UK, drivers lack an incentive to take time off from their working hours and spend additional costs to participate in training courses (Vector Transport Consultancy, 2020).

The cost of taxis/PHV for disabled people is not limited to finances, as the use of the vehicle incur additional costs in other areas of their lives; calling or hailing accessible taxis or PHVs necessitate additional waiting time for disabled people (Sooreniian, 2013; Welsh Government, 2018). Although advanced booking may help mitigate this issue, there are still chances of last-minute cancellations and late arrivals (Pyer & Tucker, 2017). All these factors add travel time to disabled people and limitations to their social lives (Wilkinson-Meyers et al., 2014). For operators, a limited number of wheelchair accessible vehicles has also complicated operations. When standard vehicles nearby are unable to pick up a wheelchair user, other wheelchair accessible vehicles, which may be further away, need to spend additional time to travel to the pickup location (Pyer & Tucker, 2017). Operators have also noted that multiple appointments in a day and the extra time to travel between appointments have limited the number of bookings they can take on. For drivers, the process of helping a

wheelchair user board a vehicle and securing the wheelchair also takes up additional time – as would the alighting process at drop-off (Vector Transport Consultancy, 2020). Subsequently, this may explain the lower number of wheelchair accessible ride-hailing vehicles and the longer wait times associated to these vehicles, even if there are incentives provided by the ride-hailing companies (Hassanpour et al., 2021).

Focus group participants agreed that taxis are expensive, which restricts how often they can take one and, for those that rely on taxis, it restricts where and when they can travel. This issue is further exacerbated in rural areas, where there are fewer vehicles available and taxi drivers may be reluctant to travel longer distances with dead milage to pick up a passenger. Participants also reported drivers or firms overcharging in cases where they accept the fare.

> *"If I try and get a taxi from here to the local town, which bear in mind to drive is about 7 minutes' drive, it's £20. That makes it a £40 round trip which is cost prohibitive. I mean, there's no way that I can fund that. [...] There's nothing else and I can't justify spending £40 to go and meet someone for a coffee, which is what I might be doing, and they're just it is not happening. So I don't go."*
>
> - Focus group participant with mobility impairment (fibromyalgia).

However, there are methods for disabled people to reduce the costs of the fares. Participants noted there are support schemes for taxi travel like Taxicard, or Access to Work, both of which could reduce the prices of their journeys. However, these solutions also have their limitations: a participant noted Taxicard only reduces the fare after a certain distance., and another participant recalled that firms were not interested in taking on Access to Work contracts.

> *"Every single company I called, they weren't interested. The second that you mentioned Access to Work, if it was involving a work contract that, even though we'd be regular money, they weren't interested."*
>
> - Focus group participant with mobility impairment (cerebral palsy) and mental health conditions.

However, some participants cited positive experiences of cases where drivers have given them a reduced fare or free carriage due to unique circumstances, such as after having built a bond with a driver or meeting a sympathetic driver at a time of need.

> *"And again, if the drivers that I know who are really good and like I said, the one who doesn't overcharge when he shouldn't be doing or like, say, going to charge it is actually, because he charges me £8.00 when he should be charging me £8.40. But we just get past that and it's a nice thing he does."*
>
> - Focus group participant with vision impairment.

From the perspective of within the trade, participants proposed methods of incentivising drivers or setting minimum numbers of wheelchair accessible vehicles in supply. Multiple methods of financial support were proposed, including subsidising drivers in the purchase of wheelchair accessible vehicles, corresponding to a solution proposing by the Disabled Persons Transport Advisory Committee (Disabled Persons Transport Advisory Committee, 2020). Key informants noted that, even with an existing retrofitting scheme, the prices for entry into the taxi trade is still quite high, considering the price of a new wheelchair accessible and electrical vehicle.

"There's a retrofitting scheme and so they're able to do that economically, but for buying a new taxi, you have to... I believe the cost is now £65,000 to £70,000. That's huge when you consider even borrowing most of that and then running that as a business. So, you have to keep things going and be able to pay the interest and so on. It's clearly very expensive and therefore less accessible to taxi driver businesses to upgrade, to renovate, [and] to acquire new vehicles. That's quite a hurdle."

- Key informant (councillor).

Another key informant shared the sentiment, proposing that the government could create a contract, paying a specific taxi firm to always provide a set number of wheelchair accessible vehicles.

"...if Welsh government were to say there must be at least 10 wheelchair vehicles in the city at any time [...] and they would put it out to one of the —probably— the major operators and they say, 'Look, we'll give you this pot of money and we understand that you'll probably get fewer journeys, so you might make less money with these vehicles. However, the drivers in these vehicles have to be specifically trained and they have got to be specialist vehicles, etcetera, etcetera and you provide this service. So when somebody brings up your company, they know that you're the designated wheelchair provider within this city and you provide this service to these people.' [...] they're compensated somewhat by the government for providing this service. That's the only actual solution, that's the only solution I can see that would genuinely really help disabled people, because I don't think leaving it up to the market is gonna work."

- Key informant (licensing team).

Another informant suggested there should be incentive schemes to increase the number of wheelchair accessible vehicles, though it is possible that the incentive schemes may need to compromise with other policies, such as the green agenda.

"We need to incentivize the uptake of wheelchair accessible taxis and to make sure that there is some sort of incentive, whether that's funding [...] either the taxi driver saves money or the taxi driver makes money [...] nobody will like this but put on a vehicle that maybe does pollute a bit more. And I'm not saying extreme pollution, but [...] If it's wheelchair accessible one, you can hold on to the internal combustion version for a bit longer."

- Key informant (Taxi/PHV manufacturer)

Theme #12: Taxis provide door-to-door transport and facilitates independence

Taxis fulfil a unique niche in the transport system. Participants repeatedly cited the door-to-door aspect as a major advantage over public transports with set routes, like buses or trains. They perceive taxis/PHVs as safer, less stressful, and more accessible compared to the transfers they may need to do on public transports.

"...it takes off a lot of stress from multiple issues that could go wrong in arranged assistance [...] with Covid around, I feel safer in a car than a whole bus full of people or a train full of people."

- Focus group participant with mobility impairment.

More importantly, taxis offer independence to disabled people, allowing them to participate in their communities or go to unfamiliar places, especially for people with visual impairments, as they do not need to learn new public transport routes.

However, driver assistance is integral if they are going somewhere unfamiliar, as the drivers could help direct them to building entrances or reception desks.

> *"I do think the positivity of having the door-to-door experience [led] to good confidence. Using a taxi encourages you to maybe go to places that you haven't tried before, whether that's shops or restaurants. It encourages you to maybe take part in activities or attend meetings out of town, but otherwise if someone said to me taxis are not an option, there would be a lot of things that I just simply wouldn't do."*
>
> - Focus group participant with vision impairment.

Extant literature also highlights the importance of taxis as a unique form of transport. Per the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), disabled people should have access to transportation on an equal basis with others, thereby allowing disabled people to participate fully as a member of the community. Based on the usage patterns related to taxis and other on-demand transports (Brewer & Kameswaran, 2019; Pyer & Tucker, 2017), disabled people have expressed a desire for on-demand and door-to-door transportation (Wilkinson-Meyers et al., 2014; Ipsos MORI, 2021), even if they are car owners (Velho et al., 2019; Simek et al., 2018; Márquez, 2019; Vector Transport Consultancy, 2020). These on-demand transports offer higher flexibility and increased mobility for disabled people (Choi & Maisel, 2022), allowing disabled people to take part in spontaneous activities, which would otherwise be inaccessible to them (Pyer & Tucker, 2017; Sitter & Mitchell, 2020; Vector Transport Consultancy, 2020). Disabled people have raised independence as an important benefit of using ride-hailing apps, in particular praising accessible features that facilitate independence, like the app's text-to-speech compatibility (Simek et al., 2018), electronic payments (San Francisco Municipal Transport Agency, 2019), upfront pricing, reduced communications problems (Alanazi, 2022), and the ability to directly contact the drivers (Brewer & Kameswaran, 2019; Brewer et al., 2019).

Theme #13: Drivers as helpful and accommodating

Some participants reported good experiences with drivers. These positive experiences tend to be attributed to the drivers being helpful or accommodating or providing personal assistance outside of the taxi journey itself.

> *"I have had some really good people, and they've actually really wanted to make an effort. And if anyone is uh, has had a go at them about stopping where they shouldn't or have been [stopped for] a bit of a long time. They've actually said, 'Well, yeah, I've got a passenger who needs a bit of assistance, so cut me some slack, mate'."*
>
> - Focus group participant with vision impairment.

Additionally, participants reported that they appreciate drivers that treat them equally. As one focus group participant with mobility and speech impairments said: "Many drivers will talk to me despite my speech impediment, which I appreciate."

They also reported enjoying unintrusive conversations and appreciating drivers that understand they do not want to chat sometimes.

> *"Just the ones who ask sensible questions about how I do things. I'm not going to say every driver has to have a chat about life. I don't expect that, because sometimes I don't want to chat, but I like the ones that do chat to you as if you are just an everyday human being like anyone. I can get into some really fun conversation about sport, like just normal stuff."*
>
> - Focus group participant with vision impairment.

Theme #14: Long-term relationships with a taxi/PHV company

Participants repeatedly emphasised the importance of building a relationship with their local taxi firms and its drivers. Many participants praised the drivers or operators they maintain contact with. One participant even described an instance of when a driver helped them return home when their wheelchair broke down. More broadly, participants praised drivers for their assistance, friendly attitudes, and ability to respond quickly to their needs.

> *"...the main one I use is great. He helps me in when I asked him to. We always double check when he buckled me down. He brings me right down to my front door and brings everything in. He checks on me and ask if I'm having a bad day. If I am not feeling great, I ring him to come and pick me up early. [...] If I'm running a bit late, he's not one of those that whingers and go like, 'You're running 10 minutes late. Come on. I've got a schedule to keep to'."*
>
> - Focus group participant with mobility impairment (multiple sclerosis).

The ability to build relationships extends to taxi firms and their operators as well. They provide a smoother or more personal experience that enables participants to travel independently or comfortably. As such, many participants expressed their appreciation about using the same firm for its tailored service, and their tendency to remain loyal to the same firms or drivers.

> *"I've now found it much more easier, because I think I've got a much better rapport with people in the sense of the taxi firms that I use where that I can actually say, listen, I don't want that person again, and they've actually done the reverse of blacklisting me. I've blacklisted them, so to speak, in the way of that. There's sort of like a hold on that particular [driver] picking me up again."*
>
> - Focus group participant with mobility impairment (fibromyalgia and arthritis) and mental health conditions.

Theme #15: Importance of Disability Awareness Training

In extant research and literature, disability awareness training for drivers is often attributed as the main reason behind more confident drivers (Welsh Government, 2018), high service quality, and high satisfaction in the transportation journey for disabled people (Reynolds, 2010; Rose & Hensher, 2018; Simek et al., 2018; Steiner et al., 2021; Ipsos MORI, 2021), as well as stopping incidents of disability stigma and discrimination (Bezyak et al., 2017; Cochran & Chatman, 2021; Disability Wales, 2018; Welsh Government, 2018). Furthermore, without training programmes across taxi, PHV, and ride-hailing drivers, disabled people have expressed concerns for safety or needs not being addressed (Simek et al., 2018; Steiner et al., 2021; Ana Calle et al., 2022).

Many participants in the focus group discussions also emphasised the need for various aspects of disability awareness training. Some emphasised the need for taxi staff to learn to communicate with disabled people especially deaf people. Others suggested that drivers learning to properly use equipment would build up confidence and reduce their hesitation to take a wheelchair using passenger, thereby lowering cases of service refusals. Participants also brought up the need for updated training, especially with the introduction of powered wheelchairs, and that refresher training programmes, especially for long-time drivers, may help build driver confidence and knowledge.

Additionally, one key informant proposed the mindset of a disability "equality" training to provide a greater overall service would be much more suitable than being aware of disabilities and making adjustments around disabilities: "It's not about being aware of disabled people; it's about committing to removing disabling barriers and treating everyone equally in providing an equal and equitable service."

This connects to some feedback from participants about general improvements that would be applicable to general populations, such as that drivers should be more patient and willing to assist passengers regardless of impairments.

In the United Kingdom, whilst many local authorities have implemented requirements for drivers to participate in disability awareness training programmes as a part of their licensing conditions, there is little to no existing evidence whether these training programmes are effective, especially with reports of drivers denying services (Welsh Government, 2018; Rickly et al., 2021), ignoring disable people's needs (Ana Calle et al., 2022), or not knowing how to use wheelchair ramps or lifts on their vehicles (Disability Wales, 2018). In order to evaluate the effectiveness of these training programmes, research needs to be done on actual practices displayed by drivers as reflected in the taxi journey experience of disabled users. There should also be consideration of assessment after training programme delivery, and a monitoring system to provide ongoing information about training efficacy and driver behaviour.

Aspirations for general changes in public transport

Addressing Research Aim 2, based on discussion among the Steering Group members[12], the Table below shows the aspirations for public transports, categorised by the environment surrounding the vehicle, the characteristic of the transport itself, and the support schemes that are relevant to the mode of transport. These ideas and recommendations are presented in Table format without further analysis as they are based on the views of a relatively small group of disabled people (*N* = 4).

	Environment around the Transport	Transport Characteristics	Support Schemes
Trains/Rail	■ Step-free access at every station (lifts, entrance to platform, ramp, wheelchair spaces) and information on the accessibility prior to travelling to the station ■ Underground stations not accessible for guide dogs ■ Better maintenance for ramps condition	■ Passenger assistance turning up on time ■ More wheelchair spaces on train to avoid sharing spaces with suitcases, bikes, etc. ■ Equitable wheelchair spaces (e.g., tables at wheelchair spaces, not directly adjacent to toilets)	**Railcards** ■ Should be simplified based on location and user conditions ■ Streamline or remove the 3-year reapplication process, especially for people with lifetime disabilities ■ Reconsider price: £20 for a year is expensive for people with less active social lives, especially those with no support workers ■ Carers' costs should be waived when travelling with disabled people as it is their jobs

12. Participants were asked about their aspirations of different categories of transport, Train/Rail, Buses Cars and Personal Vehicles, and the Underground.

	Environment around the Transport	Transport Characteristics	Support Schemes
Buses	■ More information on accessibility ■ Higher compatibility with roads with no dropped kerbs	■ Information onboard inaccessible due to backwards wheelchair seating ■ More wheelchair spaces; inefficient for routes near hospitals and travelling with other users of wheelchairs or scooters ■ Less obstructive pole design within the bus	**Community Transports or Dial-A-Ride** ■ Restrictive hours lead to inflexible times for disabled people ■ Low reliability due to service often taken up by local day care centres
Personal vehicles	■ More wheelchair-accessible parking spaces to avoid additional travelling distances ■ Avoid sloped parking spaces due to difficulties with setting ramps ■ More independent payment process, including heights of the parking ticket machines ■ Parking spaces should be linked to kerbside paths for guide dogs to follow	■ Internal seating's seatbelts are too high for wheelchair users ■ Tighter docking system for wheelchairs ■ Improved storage space so as to avoid having to move belongings to the floor behind the wheelchair ■ Size should be able to accommodate guide dogs, wheelchair, and storage.	**Blue Badge** ■ Online application process is not as easy and accessible as it should be. **Motability Scheme** ■ Reduce the long application process for grants

	Environment around the Transport	Transport Characteristics	Support Schemes
Underground	■ Stations should be fully accessible to wheelchairs ■ Lack of clear information online (e.g., signposting) ■ Clearer indication of help desk ■ More responsive help points ■ Staff should be better trained in disability	None	**Freedom Pass** ■ Use conditions are limited by time, especially during commute hours despite some disabled people having commute hours ■ Carers' costs should be waived when travelling with disabled people as it is their jobs

Recommendations

Conduct additional research to fill gaps in knowledge

Based on the findings from the scoping review, there is a lack of research conducted on disability and taxis. Research on relevant topics, such as the disabled people's perception of the barriers, the efficacy of driver training, and effectiveness of enforcement methods, are integral to identifying the priorities and approach to updates in the legislation. The research should be co-produced with disabled people, seeking their advice on research focus and study design as well as finding validation or interpretation.

Address overall Wheelchair vehicle unavailability by incentive schemes

Disabled people have reported difficulties in acquiring taxis or PHVs. The phenomenon extends to disabled people who reported that their disabilities limited their daily activities "a little", suggesting that the low provision cannot be attributed solely to the lack of wheelchair vehicles. The issue could be attributed to the expensive vehicles, the loss of drivers during the Covid-19 pandemic, and the smaller population in rural areas. Incentive schemes should be introduced to increase the uptake of drivers, attract drivers to return to the taxi trade, and purchase wheelchair accessible vehicles.

Enhance the disability awareness training for drivers and operators

Improvements to driver behaviours have been raised as an important factor across disabilities. Measures should be taken to implement new national minimum standards, particularly in the mandatory completion of disability awareness training as a part of taxi/PHV licensing. In addition to reinforcing existing knowledge like strapping in wheelchairs and avoiding posing distractions to guide dogs or assistive dogs, drivers' training programmes need to incorporate the understanding of disability equality, emphasising the provision of an equal service regardless of visible or non-visible disabilities. The training should apply to both drivers and operators to improve attitudes and communications for disabled people.

Furthermore, based on responses from participants across various disabilities, the disability awareness training should encompass a wide range of disability needs—removing the generalisation of wheelchair users as the only group of disabled people that have access requirements—including non-visible impairments or conditions, such as people with autism being sensitive to loud noises, or that people with diabetes may need to administer insulin injections. These programmes should involve disabled people with corresponding different impairments and updated overtime.

Implement proactive systems to monitor training efficacy

A monitoring mechanism on driver behaviour should be implemented, thereby reducing the existing burden on disabled people to make reports as a feedback mechanism. Drivers should be provided with a toolkit, with information on various disabilities, to remain abreast with the training programmes.

Local authorities should be more proactive with monitoring driver behaviour or have more driver information readily available to make reporting easier. Local authorities can also consider conducting mystery shops with disabled people, in which knowledgeable disabled people can provide meaningful feedback to the

taxi companies and their drivers. The fares can be waived by the local authority, so disabled people would be incentivised to participate. Local authorities can also introduce confidence schemes to taxi drivers, allowing passengers to review the drivers' behaviours, creating a tangible feedback system in which drivers, especially ones with ratings that fall below a certain threshold, are required to undergo another training session.

Recommendations Table

The findings of our study have led to a number of recommendations, outlined in the Table below. These recommendations are divided by issue and by key stakeholders who would play a central role in implementing the proposed recommendations, namely:

- **National government:** Policymakers in the UK government, government departments (Department for Transport, Department for Work and Pension, etc.)
- **Local licensing authorities:** Local authorities' licensing committees, licensing teams (mangers and officers), etc.
- **Taxi/PHV companies:** Drivers, operators, managers, owners, and board of directors at taxi or PHV companies
- **Taxi/PHV driver training providers:** Organisations that design the taxi driver training programmes (e.g., National Vocational Qualification, Scottish Qualifications Authority, etc.) and organisations that provide the training programmes (subject to each local licensing authority)

Recommendations to increase access to taxi/PHVs in the UK		
Issues	**Key stakeholders who need to implement recommendation**	**Recommendation**
Lack of available wheelchair accessible vehicles, particularly in rural areas. High upfront costs for taxi/PHV suppliers to acquire wheelchair accessible vehicles. The overall pool of taxi/PHV drivers (and therefore WAVs) has reduced since the Covid-19 pandemic. Existing firms with WAVs reluctant to operate outside usual business area due to dead mileage	National government Local licensing authorities Taxi/PHV companies	1. Financial incentive schemes should be introduced for taxi/PHV companies to cover some of the upfront costs of purchasing sector-compliant (e.g., electric) WAVs, attract drivers back to the trade and to ensure costs associated with dead mileage are not passed to consumer. 2. Incentive schemes should be targeted to areas of the UK where there is a significant unmet need for WAVs (e.g., rural areas).

Recommendations to increase access to taxi/PHVs in the UK		
Issues	**Key stakeholders who need to implement recommendation**	**Recommendation**
Many taxi/PHV staff lack disability awareness. Drivers do not know how to operate disability-related equipment (e.g., ramps) or about the needs of people with different disabilities. Taxi/PHV drivers frequently display disability stigma and discrimination. Disabled people experience refusals from taxi/PHVs operators and drivers due to disability despite this being unlawful. Drivers who are friendly, helpful, and accommodating of disabled people's needs make a hugely positive impact to their customers' experience. There is little extant evidence on the efficacy of existing disability training programmes for taxi/PHV staff	National government Local licensing authorities Taxi/PHV companies Taxi driver training providers	1. Disability awareness training should be mandatory across the UK for all new taxi/PHV staff (i.e. both operators and drivers) and existing staff should receive refresher training at regular intervals. 2. Training should be differentiated by disability type and cover the needs of customers with different disability types. Training should also cover taxi/PHV provider obligations under the Taxi and Private Hire Vehicles (Disabled Persons) Act. 3. Drivers should be provided with supporting resources that they can refer to when undertaking professional duties (e.g., good practice toolkit). 4. Disability awareness training programmes should be evaluated and more research undertaken to identify particularly effective approaches.

Recommendations to increase access to taxi/PHVs in the UK		
Issues	**Key stakeholders who need to implement recommendation**	**Recommendation**
Previous existing negative experiences with taxi/PHV drivers, have caused many disabled people stress, anxiety and poor mental health. This deters them from booking taxi/PHVs in the future. Existing reporting/complaint mechanisms place too much burden and time costs on disabled sector. There is a greater need for taxi/PHVs among disabled people compared to the general population. This mode of transport is crucial for this population's independence and provides a unique door-to-door service. Disabled people value long-term relationships with specific taxi/PHV companies	National government Local licensing authorities Taxi/PHV companies	1. The taxi/PHV sector should have its own version of the Disability Confident Scheme, whereby employers can display public facing badges, in response to meeting certain requirements. This may provide disabled people who have had bad experiences the confidence to return to the sector. 2. The scheme should include a "voluntary disability reporting requirement", placing the obligation on taxi/PHV providers to monitor and achieve a certain level of customer satisfaction among disabled customers, in order to remain a member of the scheme. 3. Rollout of the scheme should be accompanied by a campaign to galvanize disabled customers to provide business to scheme members and encourage taxi/PHV companies to sign-up.

Recommendations to increase access to taxi/PHVs in the UK		
Issues	**Key stakeholders who need to implement recommendation**	**Recommendation**
Sector-wide technological advancements like apps make taxi/PHV journeys more accessible for some disabled people. Some disabled people experience digital exclusion. Technological advancements like apps are not accessible for them and they need to use traditional approaches (e.g., speaking to a human operator).	Taxi/PHV companies	1. Taxi/PHV companies should retain, wherever possible, multiple methods of booking (e.g., via an app, via talking to a human operator) and paying for taxi/PHVs (e.g., via card linked to an app, via cash), as different groups of disabled customers find different options accessible.

Recommendations to increase access to taxi/PHVs in the UK		
Issues	**Key stakeholders who need to implement recommendation**	**Recommendation**
Despite the introduction of supportive policies like the Taxi and Private Hire Vehicles (Disabled Persons) Act, mandatory disability awareness training in many local authorities and licensing authority hearings to address disability discrimination cases, key gaps, disconnects and loopholes remain, hampering effectiveness. Key potential issues signposted by this research are: No minimum requirement for provision of WAVs, mean that companies that do not have WAVs are effectively exempt from the Taxi and Private Hire Vehicles (Disabled Persons) Act. Drivers based in a local authority without stringent disability awareness training requirements are free to operate in neighbouring local authorities with stringent requirements. This fails to pass on the protection provided to disabled consumers by stringent requirements in these areas. Where drivers share an operating licence with others, they may not be compelled to attend licensing hearings Lack of disability regulation in ride-hailing sector	National government Local licensing authorities	1. The appropriate regulatory bodies (e.g., Department for Transport, local authorities) should conduct a review to ascertain and address policy gaps. Consideration should also be given to how to reduce disability discrimination via supportive policies in the ride-hailing sector. 2. National guidance setting out the dimensions and specifications of a standard wheelchair, should be harmonised to the dimensions of a powered wheelchair.

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Technical Appendix

Statistical Analysis Tables

Table 2

Sample sociodemographic characteristics		
Sociodemographic characteristics	**Number of participants (n)**	**Percentage of sample (%)**
Gender		
Male	954	45.9
Female	1114	53.6
I identify in another way	10	0.5
Prefer not to say	2	0.1
Age groups		
18-24	104	5.0
25-34	182	8.8
35-44	240	11.5
45-54	365	17.5
55-64	418	20.1
65+	771	37.1
Ethnicity		
White English / Welsh / Scottish / Northern Irish / British	1856	89.2
White Irish	21	1.0
Gypsy or Irish Traveller	6	0.3
Any other White background	45	2.2
Mixed White and Black Caribbean	14	0.7
Mixed White and Black African	7	0.3
Mixed White and Asian	17	0.8
Any other mixed/multiple ethnic background	12	0.6
Indian	24	1.2
Pakistani	9	0.4
Bangladeshi	4	0.2
Chinese	3	0.1

Sample sociodemographic characteristics		
Sociodemographic characteristics	**Number of participants (n)**	**Percentage of sample (%)**
Ethnicity (continued)		
Any other Asian background	4	0.2
Black African	15	0.7
Black Caribbean	9	0.4
Black British or any other Black background	14	0.7
Arab	7	0.3
Prefer not to say	8	0.4
Any other ethnic group	5	0.2
Region of residence		
Scotland	141	6.8
Wales	219	10.5
England		
East	191	9.2
East Midlands	167	8.0
London	178	8.6
North-West	257	12.4
North-East	109	5.2
South-East	269	12.9
South-West	190	9.1
West Midlands	170	8.2
Yorkshire & Humberside	189	9.1
Urban-rural dimension for place of residence		
Urban - population over 10,000	731	35.1
Town and surrounding	908	43.7
Village	404	19.4
Hamlet/isolated dwelling	37	1.8

Table 3

Disability severity, type, status, weekly disposable income and assistive device usage		
Lived experience with disability	**Number of participants (n)**	**Percentage of sample (%)**
Severity of impairments on reduction of ability to carry out day-to-day activities		
Yes, a lot	648	31.2
Yes, a little	1225	58.9
Not at all	201	9.7
Prefer not to say	6	0.3
Impairments or Conditions		
Vision	182	8.8
Hearing	292	14.0
Mobility	946	45.5
Speech	49	2.4
Dexterity	270	13.0
Learning, understanding, concentration or memory	189	9.1
Mental health	760	36.5
Stamina or fatigue	655	31.5
Neurodivergent	167	8.0
Respiratory	416	20.0
Chronic conditions	542	26.1
Others	101	4.9
Don't know	9	0.4
None of these		
Congenital or acquired disabilities		
Congenital	155	7.5
Acquired	1762	84.7
Both	139	6.7
Prefer not to say	24	1.2

Disability severity, type, status, weekly disposable income and assistive device usage		
Lived experience with disability	**Number of participants (n)**	**Percentage of sample (%)**
Average Budget per Week (minus bills)		
£0 - 10	94	4.5
£11 - £20	108	5.2
£21 - £50	272	13.1
£51 - £75	261	12.5
£76 - £125	368	17.7
£126 - £215	267	12.8
£216 - £349	165	7.9
£350 - £449	80	3.8
£450 or more	99	4.8
Prefer not to say	119	5.7
Don't know	247	11.9
Assistive Device Usage		
Braille equipment	15	0.7
Canes/sticks, tripods and quadropods, walking/standing frames, walking sticks/crutches	574	27.6
Communication aids (for example tablet, book, boards, or cards)	67	3.2
Hearing aids (analogue or digital), hearing batteries, hearing loops, or cochlea implants	275	13.2
Manual wheelchairs	123	5.9
Powered wheelchairs	57	2.7
Scooters	140	6.7
Mobility cane	162	7.8
Assistive dogs / guide dogs	36	1.7
Cognitive aids / memory aids	59	2.8
Other	89	4.3
Don't know	31	1.5
None of these	1008	48.5

Table 4

Frequency of using taxi, PHV, or ride-hailing app among all respondents		
Frequency	**Number of participants (n)**	**Percentage of sample (%)**
At least once a day	45	2.2
At least once a week	301	14.5
At least once a month	338	16.3
At least every six months	269	12.9
At least once a year	147	7.1
Less than once a year	848	40.8
Don't know	132	6.3

Table 5

Frequency of being refused service from taxi, PHV, or ride-hailing app vehicle among all respondents		
Frequency of being refused service	**Number of participants (n)**	**Percentage of sample (%)**
Never	1357	65.2
Hardly ever	267	12.8
Sometimes	183	8.8
Often	113	5.4
Always	44	2.1
Don't know	116	5.6

Table 6

Tendency for physical or mental health condition or impairment to be the reason for being refused service from taxi, PHV, or ride-hailing app vehicle among respondents that have been refused service (n = 607)		
Tendency for being refused service due to physical or mental condition or impairment	**Number of participants (n)**	**Percentage of sample (%)**
Never	238	39.2
Occasionally	62	10.2
Sometimes	96	15.8
Often	118	19.4
Always	54	8.9
Don't know	39	6.4

Table 7

Frequency of different methods of booking a taxi or PHV among respondents		
Methods of booking a taxi or PHV	**Number of participants (n)**	**Percentage of sample (%)**
Kerbside hailing / taxi rank	164	7.9
Online via smartphone	544	26.2
Online via personal computer	180	8.7
Telephone call	1196	57.5
Text to speech / next generation text relay / interpreter service	66	3.2
Someone else books it for me	176	8.5
Other	14	0.7
Don't know	71	3.4

Table 8

Socio-demographic predictors of frequency with which respondents can access taxi/ PHVs when they need them.				
Variable	**B**	**SE**	**ß**	**p**
Age	.003	.002	.037	.182
Gender	.000	.064	.000	.996
Ethnicity	.120	.127	.025	.345
Urban (>10,000)	.312	.091	.119	<.001
Town	.038	.043	.030	.376
High disability severity	-.449	.123	-.165	<.001
Medium disability severity	-.307	.116	-.119	.008
Weekly disposable income	.057	.016	.091	<.001
Frequency of taxi/PHV use	.539	.071	.209	<.001

Note. The outcome variable was "How frequently can you access a taxi, a private hire vehicle, or a ridesharing service when you want to use them? 1 = Never, 2 = Hardly ever, 3 = Sometimes, 4 = Often, 5 = Always." In terms of categorical variables, gender was coded as 1 = Male, 0 = Female. Ethnicity combined White English / Welsh / Scottish / Northern Irish / British, White Irish, Gypsy or Irish Traveller, Any other White Background = 1, All other categories = 0. For urbanity variables, Village and isolated dwelling were combined as the referent category. For severity of disability, "Not at all" was the referent category. Frequency of taxi/PHV was coded as 1 = High frequency, 0 = low frequency. High frequency comprised "At least once a month", "At least once a week" & "At least once a day". Low frequency comprised the remaining categories. The overall model was significant, $F(9, 1471)$ 12.17, $p < .001$.

Table 9

Socio-demographic predictors of frequency with which respondents report experiencing stigma and discrimination from taxi/PHV drivers.				
Variable	**B**	**SE**	**ß**	**p**
Age	-.020	.001	-.321	<.001
Gender	.204	.041	.102	<.001
Ethnicity	-.363	.085	-.090	<.001
Urban (>10,000)	.073	.058	.035	.209
Town	.040	.028	.040	.145
High disability severity	.419	.077	.194	<.001
Medium disability severity	.227	.073	.111	.002
Frequency of taxi/PHV use	.392	.047	.189	<.001

Note. The outcome variable was "How often do you experience negative attitudes, stigma, or discrimination from taxi or PHV (Private Hire Vehicles) operators or drivers? 1 = Never, 2 = Hardly ever, 3 = Sometimes, 4 = Often, 5 = Always." In terms of categorical variables, gender was coded as 1 = Male, 0 = Female. Ethnicity combined White English / Welsh / Scottish / Northern Irish / British, White Irish, Gypsy or Irish Traveller, Any other White Background = 1, All other categories = 0. For urbanity variables, Village and isolated dwelling were combined as the referent category. For severity of disability, "Not at all" was the referent category. Frequency of taxi/PHV was coded as 1 = High frequency, 0 = low frequency. High frequency comprised "At least once a month", "At least once a week" & "At least once a day". Low frequency comprised the remaining categories. The overall model was significant, $F(8, 1791) = 72.98$, $p < .001$, explaining 24% of the variability in stigma and discrimination frequency.

Table 10

Socio-demographic predictors of frequency with which respondents report feeling unsafe due to the conduct of taxi/PHV drivers.				
Variable	**B**	**SE**	**ß**	**p**
Age	-.015	.001	-.294	<.001
Gender	.056	.038	.032	.140
Ethnicity	-.140	.076	-.041	.067
Urban (>10,000)	-.020	.053	-.011	.704
Town	.014	.025	.016	.574
High disability severity	.275	.070	.148	<.001
Medium disability severity	.176	.066	.100	.008
Frequency of taxi/PHV use	.314	.042	.177	<.001

Note. How often if at all does the conduct of a taxi or PHV (Private Hire Vehicle) driver make you feel unsafe during a journey? 1 = Not at all, 2 = Occasionally, 3 = Sometimes, 4 = A lot" In terms of categorical variables, gender was coded as 1 = Male, 0 = Female. Ethnicity combined White English / Welsh / Scottish / Northern Irish / British, White Irish, Gypsy or Irish Traveller, Any other White Background = 1, All other categories = 0. For urbanity variables, Village and isolated dwelling were combined as the referent category. For severity of disability, "Not at all" was the referent category. Frequency of taxi/PHV was coded as 1 = High frequency, 0 = low frequency. High frequency comprised "At least once a month", "At least once a week" & "At least once a day". Low frequency comprised the remaining categories. The overall model was significant, $F(8, 1750) = 47.48$, $p < .001$, explaining 18% of the variability in the frequency of feeling unsafe due to the conduct of taxi/PHV drivers.

Leonard Cheshire Disability is a registered charity no: 218186 (England & Wales) and no: SC005117 (Scotland), and a company limited by guarantee registered in England no: 552847. Registered office: 66 South Lambeth Road, London SW8 1RL

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