Transportation Research Part A 107 (2018) 229–245

Contents lists available at ScienceDirect

Transportation Research Part A

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

On the road again: The barriers and benefits of automobility for people with disability

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ARTICLE INFO

Keywords:
Private vehicle
Access
Disability
Barriers
Benefits
Citizenship
Automobility

ABSTRACT

The UN Convention on the Rights of Persons with Disability (PWD) has been signed by over 160 nations to achieve greater social participation, with public and private transport clearly identified as an area to improve accessibility. Whilst the majority of scholarly work has focused on public transport needs, less research has examined the barriers or benefits of access to private modified vehicles for PWD. In this exploratory study, a Delphi technique with health experts, researchers, drivers and funding agencies developed an instrument to examine the barriers and benefits of access to private modified vehicles for PWD. An online survey was completed by 287 drivers and carers to report on barriers to private modified vehicles, whilst a sub-set of 190 drivers with access to a private modified vehicle reported on experientially derived benefits. A factor analytic approach identified how financial and informational barriers vary with respect to several characteristics including disability type and level of support needs. Factors relating to independence, social and recreational benefits are perceived as more valued experientially derived benefits relative to benefits relating to employability and ability to enjoy downtime. Benefits in the form of independence are greater among drivers and owners, those with an acquired condition, less complex mobility and everyday support needs, whilst little difference emerged in terms of the social and downtime benefits. The findings inform policy development and funding opportunities to provide insight and evidence into the barriers, but also benefits and variation in private transport needs among PWD.

1. Introduction

Accessibility is a central component to the United Nations' *Convention on the Rights of Persons with Disability* including living independently, community inclusiveness and enabling participation in cultural activities such as those relating to leisure, sport and tourism (United Nations, 2006, p. np). However, people with disability (PWD) have significantly lower mobility and transport opportunities available to access spaces and places as compared to the general population (Casas, 2007). The specifics and impact of difficulties in transport among various disadvantaged groups has been described as "transport disadvantage" (Currie and Delbosc, 2011; Currie et al., 2009; Currie and Stanley, 2007; Denmark, 1998; Hine and Mitchell, 2003). People who are transport disadvantaged are affected both socially and psychologically (Delbosc and Currie, 2011b). In a review of the transport disadvantage literature, Currie and Delbosc (2011) note that among the few studies considering PWD, disadvantage is more pronounced among them (Currie, 2004; Dodson et al., 2004; Murray and Davis, 2001; Wixey et al., 2005). Such disadvantage compounds the exclusion PWD face every day (Crow, 1996; Kitchin, 1998), affecting all areas of their lives including employment, health, education, social

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https://doi.org/10.1016/j.tra.2017.11.002
Received 12 November 2016; Received in revised form 18 October 2017; Accepted 2 November 2017
Available online 17 November 2017

participation and recreation (World Health Organization and World Bank, 2011). The issue speaks to the rights of individuals for equal access to transportation as part of foundational requirements for social participation and citizenship (Meekosha and Dowse, 1997).

Most research on transport disadvantage among PWD has focused on issues relating to the accessibility and experiences of using public transport (Casas, 2007; Hine and Scott, 2000; Jensen et al., 2002; Lindqvist and Lundälv, 2012; Risser et al., 2015). These difficulties are associated with physical accessibility, malfunctioning equipment (e.g. lifts to platforms), lack of audible signalling and changed or cancelled services (Australian Human Rights Commission, 2015; Currie and Stanley, 2007; Delbosc and Currie, 2011a). This situation can be further compounded for PWD residing in outer-urban, rural, and remote areas with poor or non-existent accessible public transport infrastructure, the need to travel further distances to access employment, services and to participate in activities (Kamruzzaman and Hine, 2012; Rosier and McDonald, 2011).

Many PWD have sought alternative options, including paratransit systems, which are point-to-point systems provided free or subsidised by government to assist PWD. While less flexible than private modified vehicle (PMV) use, such systems offer independence for PWD to travel to places of their choosing, thereby successfully facilitating social participation to employment, health, voluntary, education, social and community engagement activities (Deka and Gonzales, 2014; Fei and Chen, 2015; Nguyen-Hoang and Yeung, 2010). However, there have been multiple problems with these systems depending on the geographic location, governance, delays, effectiveness, efficiency and costs to individuals and to government (Bazaras et al., 2013; Fitzgerald et al., 2000; Fu, 2002).

For some PWD, public and para transport options are not available, with Rosenbloom (2007) suggesting that this is the case for one-third of Americans. A 2002 study by the U.S. Bureau of Transportation Statistics (BTS) found that that less than one in five used public transport whilst less than 10 per cent had engaged specialised and ADA paratransit modes (Sweeney, 2004). On the other hand, 78% of PWD aged 25–64 had used a private vehicle with 69% doing so as drivers. The dependence on cars among older persons was found to be even higher (Rosenbloom, 2007).

In Australia, in the context of the current study, rates of access to public and private transport among PWD appear higher. One study in Western Australia indicated 96% had access to public transport with 68% making use of it, whilst 92% of those PWD surveyed were a passenger or driver of a private vehicle at least once per month (Haning et al., 2012). More broadly, the Australian Bureau of Statistics (ABS, 2009) reported that 80% of PWD had either driven or been a passenger in a car upon their last trip, with less than 10% suggesting private transport was sought because of a lack of public transport or preclusions due to their health or disability. However, another variable in the disability ageing and carers survey specifically examines those who use a modified car or car aids in Australia. This equated to 0.4% of people with disability or some 15,600 people (ABS, 2009).

The use of a modified car or car aid varies considerably by impairment type. An analysis of data from ABS (2009) highlights these differences. Amongst those who use modified vehicles or car aids with lower levels of modified vehicle adoption include those with breathing difficulties (8%), nervous or emotional conditions (10%), loss of hearing (20%) or have a mental illness (24%). Groups with a higher proportion of PMV adoption include those with incomplete use of their feet or legs (91%), restricted in their physical activities or work (84%), those with chronic recurring pain (67%) or have difficulty gripping or holding (56%). However, such data does not identify how many of these people would seek the use of a modified vehicle if they had the need and the means. Further, these statistics overshadow the reported difficulties among those with greater severity, who are more likely to encounter a wider range of problems including getting to and navigating transport hubs or getting in and out of vehicles/carriages (Haning et al., 2012).

For these reasons, it is important to understand the benefits and barriers to transportation, but also account for differences in how such outcomes are realised at different levels across the population of PWD. Identifying potentially marginalised groups and highlighting which PWD groups can benefit most and on which dimensions informs the design of policies that support the utilisation of transport with respect to various factors such as disability type and level of support. The objective of the current research is to undertake such an investigation in the context of understanding the perceived benefits and barriers of automobility for PWD in Australia, and how differences in perceptions vary to see whether benefits are uniform or provide greater opportunities to groups within the PWD community in terms of disability type, level of support need and sociodemographics.

2. Automobility for PWD

To date, research in transportation on private transport options using automobiles for PWD has received less attention relative to issues of transport disadvantage in public transport and alternatives such as paratransit options. This is surprising given the considerable opportunities that exist for PWD given the right support, assistive technology and engineering modifications to motor vehicles. In contrast, the medical and allied health research literature explores at length the assessment and interventions for assisting people with impairments to drive (e.g. Legh-Smith et al., 1986). Not surprisingly, both areas of study of PWD consistently highlight costs as a barrier to PMV (Woodbury, 2013, p. ii). However, not all PWD are transport disadvantaged to PMVs, with the variation in costs affected by a person's disability type and their level of support needs (Australian Bureau of Statistics, 2009). For example, vision impaired requires no modifications to PMVs whereas wheelchair users require significant modification for independent access.

Few production vehicles are made for people with mobility disability. Instead, standard production vehicles must be specially modified to cater for drivers and passengers with disability. Modifications can range from simple additions (e.g., steering wheel spinner knob) to more complex modifications to the vehicle body structure, such as extending a vehicle's length or altering its roof line (Roads and Traffic Authority, 2007; van Roosmalen et al., 2010). The cost of such modifications varies from a median as low as $US50 for a steering wheel spinner knob, $US2600 for a roof mounted hoist, to $US25000 for body modifications. In the case of wheelchair users with the highest support needs, the combined cost of lowering a vehicle's floor or raising its roof to allow a