



## Population ageing, gender and the transportation system

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### ABSTRACT

Across the globe population structures are ageing and how older men and women interact with the transport system is increasingly important in maintaining a good quality of life and inclusion in society. The paper reviews three issues: the nature of older people's interaction with the transport system by gender; older people's attitude to travel; and the involvement of older people as road traffic casualties. Patterns of travel in the UK show that older people are heavily dependent on car use, but in the form of more frequent but shorter journeys than younger people. This is especially so for women over 70 years old who, as passengers, are very reliant on males to drive them. Attitudes suggest that there are few obstacles to public transport use, and most agree that bus travel is good, but convenience means many prefer cars. Involvement of older men and women in serious road traffic accidents show that they have lower killed and seriously injured (KSI) rates than 17–24 year old drivers. However, those aged over 70 years exhibit a trend of increasing KSI rates. Analysis of casualty rates of drivers by type of junction, manoeuvre and environmental conditions found that some gender-age groups are overrepresented in certain accident types, including higher serious accidents rates for men, and over representation of older women when driving in poor conditions and turning right and negotiating roundabouts, crossroads and T, Y and staggered junctions. Improvement in engineering design and driver training are suggested together with the need for a greater understanding of the transportation system needs of old and very old people.

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### 1. Introduction

Across the globe, in general, population structures are ageing and it is recognised that the transportation system is vital to allow older people maintain a good quality of life and their inclusion in society (Su & Bell, 2009). It is of no surprise that people's travel patterns and choice of travel modes varies with age and gender (see: Tackén, 1998). This is especially so for older women, who form the majority of the older population due to their longer life expectancy. Yet in the UK they appear highly dependent on males in providing a conduit to the transportation system through being the main car driver. This remains the case despite changes among younger women (and even among those over 60 years old) who are more likely to have driving licences and be car owners. For both genders the very old also face potential social exclusion and lack of access to appropriate transportation when they can no longer access private transport as a driver or passenger.

As Dunnell (2001) points out, transport infrastructures are important to allow independent living. Older people should be able

to take charge of their lives during increasingly long and healthy active lifetimes. Tackén (1998) and Metz (2000), Franco et al. (2007) also argue that mobility, and unfulfilled travel desires, in old age are important for their quality of life. Older person's interaction with the transportation system is influenced by a variety of socio-economic, financial, age and other demographic factors as well as their mobility options. Yet while older person's travel differs significantly from that of younger people, there has been relatively little research on them, particularly about how travel varies among the older population by gender among those over 60 years old, who have poorer health, less finance but more time (Hildebrand, 2003; Siren & Hakamies-Blomqvist, 2004).

The transportation system not only affects the well being of the older population and the social costs and benefits to the economy, but the older population has a direct effect on the economy, for instance in terms of preferential public transport subsidies or of traffic accidents. McGwin and Brown (1999) found that in the USA older (and young) drivers were overrepresented in car crashes at intersections and/or involving failure to yield the right of way, unseen objects, and failure to heed stop signs or signals as well as during turning and changing lanes, while females also had fewer accidents per licenced driver in all age groups. The total costs of all traffic accidents are a major cost to the economy, cited by Elvik

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(2000) at 2.5 per cent of Gross National Product on average among the sample countries, including an economic valuation of lost quality of life, (2.0 per cent for the UK) and 1.3 per cent if lost quality of life is excluded (.5 per cent for the UK).

This paper reviews the current interaction of those aged over the age of 60 years with the transportation system. Following a literature review, the paper specifically reviews three facets: firstly the nature of older people's interaction with the transport system by gender. This shows a contemporary preference for car ownership and car driving. Secondly, it investigates older people's attitude to travel, including public transport, using available secondary data. Thirdly, it reviews the involvement of older people as road traffic casualties. To do this data are drawn from the 2005 Great British National Travel Survey (NTS), the Scottish Household Survey (SHS) (2005/6) and STATS 19 (2005) which records road casualties in Great Britain in 2005. The focus of analysis is on the Scottish population but drawing on UK level from the NTS to extend the sample size. These sections are then followed by conclusions.

## 2. Literature review

As well as people living longer there is a clear trend of increasing numbers of single households. The demographics of typical Western Europe countries, including the UK and Scotland, are summarised in Table 1 along with projections to 2033, using data from GROS (2011) and Eurostat (2011). The UK as a whole is not yet exhibiting as severe ageing as much of Western and Northern Europe but some of the constituent countries are, notably Scotland (see Khan & Raeside, 2008). All fertility rates are below replacement level (2.1) and are projected to remain low, consequently the populations will age. Germany and Italy are expected to have the oldest populations in 2033 closely followed by Scotland. Table 2 illustrates the expected increase of those over the age of 60 years in Scotland and also the increasing proportion of single occupancy housing populated by older people. This clearly will have important implications for the transportation system.

To a large extent this paper is motivated by Solomon (2000) who highlighted the top four transport issues for older people: 'SARA – Safety, Accessibility, Reliability and Affordability'. These are the four transport requisites for an inclusive society to ensure mobility, inclusion, quality of life and dignity'. The report pointed out that 'The whole philosophy of sustaining people independently in their own homes and meeting their needs in the community depends on their mobility'. Carp (1988) also emphasised the qualities of mobility important to older people: feasibility, safety, and personal control; with other factors that affect mobility including a person's socioeconomic status, physical characteristics of the site and transportation technology.

In relation to the mobility of older people and their quality of life, Metz (2000) found that there is a significant correlation

between mobility and quality of life. 'Loss of mobility is seen as resulting in a substantial diminishing of well being, as happens when a person can no longer safely drive a car or when physical movement is significantly impeded through age-related disability.' If this is not provided then problems can occur as shown in a study by Marottoli, Ostfeld, and Merrill (1993) who found that driving cessation is associated with the increased depressive symptoms among older people.

Banister and Bowling (2004) explored the perception of quality of life among elderly people. According to their definition, quality of life is sought from three aspects of transport: mobility pattern, locality and social networks. They found that, there are clearly links between mobility, social activity, quality of local area and quality of life, demonstrating that over the previous decade, there were significant increases in travel by older people and the quality of their social relationships and an active participation in social activities were becoming a more important part of their quality of life.

Yet the transportation system can present problems, as illustrated by Rosenbloom (2001, 2003) who found that there is an increased feeling of loneliness and isolation among older people, especially for the very old, because of the changing family structures and the reduction of mobility in old age. As their degree of mobility decreases, some older people, proportionally more for very old females, face several serious constraints with little family assistance (see also Raeside, Gayen, & Canduela, 2010).

Older people wish to remain mobile and active to facilitate independent living for as long as possible (Parry, Vegeris, Hudson, Barnes, & Taylor, 2004). Also, many older people desire to travel and this growing cohort has high expectations about remaining socially active and higher mobility freedom (see: DETR, 1999; Department for Transport, 2010). Metz (2000) emphasised the benefits of mobility: benefits from actual travel to visit people and places; psychological benefits of movement; healthy exercise benefits; involvement in the local community-support gives benefits from informal local community networks; and potential travel – the perceived benefits of knowing that a trip could be made if needed.

In relation to transport needs, Buck (2005) found that the main concerns of older people are crime and accessibility. Particularly for women, the fear of violence and aggression mean that they are less willing to travel after dark and use public transport (Granville & Campbell-Jack, 2005). This tends to favour car use. Thus for older people driving remains a critical component in their lives; the aims of maintaining social contacts, accessing medical services, and participating at places of worship are pivotal to their quality of life (Eby, Molnar, Shope, Vivoda, & Fordyce, 2003; Kua, Korner-Bitensky, Desrosiers, Man-Son-Hing, & Marshall, 2007; Rudman, Firedland, Chipman, & Sciortino, 2006; Vance et al., 2006).

Of course, the older age group is not homogenous (e.g. Hildebrand, 2003), with the very old making up an increasing proportion of the population. There are differences between, for instance, those over and under 85 or 70 years old, but most appear heavily car dependent. Mobility is more difficult for people in older years as is shown by: Suen and Mitchell (1998); McGwin, Chapman, and Owsley (2000); Lyman, McGwin, and Sims (2001); King (2007) King et al. (2006). Alvarez and Fierro (2008) also indicate the declining health conditions and suffering from long-term illness or disability that increase with advancing years. These impairments affect sensory perception such as visual and cognitive functioning and flexibility and therefore make mobility and the maintenance of an independent life considerably more difficult for older people. Mobility difficulties are much more common among older people (King, 2007). In 2005, 45 per cent of

**Table 1**  
Demographics of Western Europe and ageing.

Country	Median age	% Over the age of 60 years in 2008	Projected % over the age of 60 years in 2033	Total fertility rate
Scotland	41	22.62%	31.60%	1.8
France	40.1	21.82%	29.96%	1.9
Germany	51.7	25.23%	36.44%	1.3
Italy	43.3	25.83%	35.37%	1.4
Norway	54.4	20.49%	28.23%	1.9
Spain	40.2	21.73%	31.09%	1.6
Sweden	53.4	24.30%	29.16%	1.9
United Kingdom	39.9	21.93%	27.25%	1.9

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