

# IMPROVING MOBILITY AND SELF ESTEEM OF SENIORS

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**ABSTRACT:** Within an ERA NET 2007-programme everyday mobility of about 6000 older persons was investigated in Austria, Sweden and the Netherlands by either web-panel, e-mail or telephone-interviews. Main focus lay on possible travel change at transition points (retirement, loss of partner). Knowledge about causes for refusion to leave home e.g. because of the loss of social contact, self evaluation about own physical state resp. general loss of self esteem, could help to find special solutions for senior citizens in the area of ITS –for car users, cyclists or pedestrians.

## 1 INTRODUCTION

Ageing brings about both psychological and physiological changes that may affect the ability to master the outdoor and travel environments. Literature in different countries shows that travel patterns can change with increasing age. Generally, retirement usually brings about a decline in travel.

Within the ERA NET 2007-programme “Keep Moving: improving the mobility of older persons” the project “Senior life transition points and their implications for everyday mobility: perspectives, patterns, scenarios and the issue of car use” is carried out in the frame of co-operation between

- Sweden: VTI/Swedish National Road and Transport Research Institute, Department of Technology and Society, Faculty of Engineering, LTH, Lund University, Department of Technology & Social Change, Linköping University and WSP Group
- Austria: FACTUM, Vienna
- The Netherlands: Goudappel Coffeng BV and TNO

The organisational structure of ERA NET “Keep Moving” is based on co-ordination in the relevant countries by designated national co-ordinators, namely BMVIT in Austria, KIM in the Netherlands, VINNOVA and Vägverket in Sweden.

Main question in this project is: “What are the future needs of older persons regarding their mobility?”

This article reflects some results of this ERA-NET project that dealt with mobility of senior citizens, especially with potential changes in mobility connected to two so-called transition points from active work into retirement, and from a two- or more-persons household to a one-person one. All types of modes were considered in the project. But in Austria the question how good an option car use is for senior citizens was taken up as one explicit topic. The reason is that it is known that in Austria many senior citizens live on the country side with little

industry and few jobs to offer to younger people, and therefore this latter mentioned group leaves many villages on the countryside. The consequence of this is that local infrastructure gets poorer and thinner and longer trips have to be envisaged in order to reach authorities, doctors or hospitals, hairdressers, or even shops. Not being able to use a car there causes severe problems.

In the following some results are presented. Considering the fact that this article is produced in connection with the discussion of ITS issues we will thereby focus car mobility a bit more than the other modes.

The knowledge gained through this study can help to understand shortcomings of traffic and city planning with respect to the needs of senior citizens as well as to make transparent prejudices that exist towards senior citizens. At the same time, it is important in order to support senior citizens to be mobile as long as possible.

As one point of interest in the HUMANIST Conference is that “ITS are designed according to driver needs and are not driven by technological capabilities”, the diversity and specificity of road user groups – in our case the senior citizens - will have to be taken into consideration.

Constructing ITS by knowing the special needs and conditions under which the elderly may keep on driving or maybe after some years start driving again will help save money, support the acceptance of special means and moreover support competence feeling of senior citizens.

The work in the present study [1] is geared to identify problems and to find references for possible solutions. Thereby new technologies in combination with innovative structures and organisation for traffic and transport systems play an important role.

## 2 METHOD

All three countries used the same methodology:

- A random sample was drawn amongst the elderly aged 62 and above
- The sample was broken down by urban-rural dimension
- Questionnaire was the same in all countries
- Within the analysis the results are broken down by:

- Age
- Gender
- Transition
- Urban-Rural
- Health status

	The Netherlands	Sweden	Austria
Participants	2,213	2,033	1,500
Method	Webpanel	E-mail	Telephone

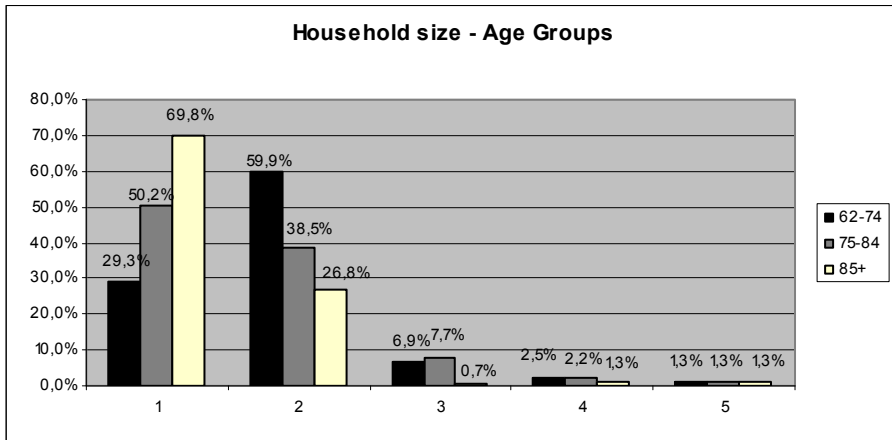
### 3 DEMOGRAPHIC DATA

#### Development of age groups till 2050 and household size per age group

The percentage of persons who are at least 60 years will rise up to 30% not only in the Austrian population. [2]

The distribution of household sizes (graph 1) shows, that older senior citizens are more likely to live in a single person household than the younger age groups.

**Graph 1. Household size – Age groups**



#### Reduction of fitness

Literature shows that main restraints for senior citizens result from

- reduced visual capacity: spatial view reduced from 170° to 140°, less visual acuity, problems in recognition of red frequency
- problems in recognition of direction of acoustics
- reduced movability esp. of the neck

Reduced movability also results in problems to get up again after sitting down (e.g. in public means) or to get out of a car.

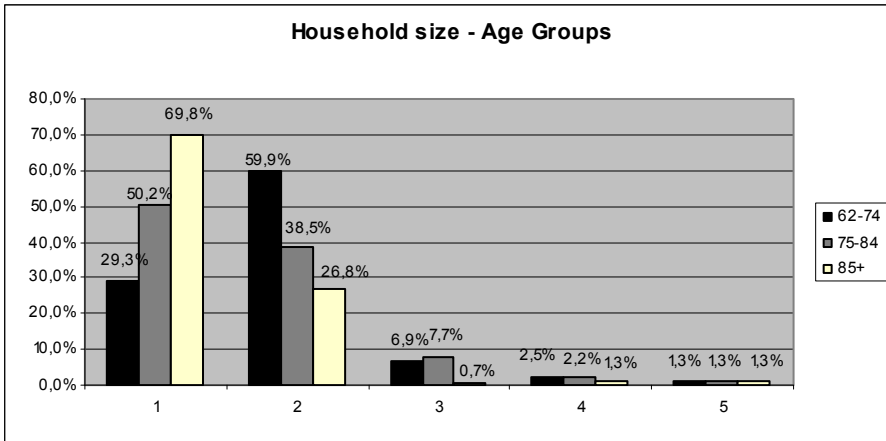
#### Priorities and time

Retired senior citizens differ in priorities: time and speed are not of a big importance any more. Regarding traffic modes comfort, traffic safety and proximity are of more importance.

#### Mobility habits of seniors

Graph 2 and table 1 show differences but also similarities in the three investigated countries.

**Graph 2. Frequency of leaving home – age groups**



Analyses show lower frequencies in leaving home in the older age groups, especially in the group 85 and older.

The current research focuses on mobility amongst senior citizens, particularly on car use. Therefore, participants were asked for their most important means of transport.

Table 1 below shows the modal split for the urban and rural areas in the three investigated countries. It displays some considerable differences.

**Table 1. Modal Split – Urban and Rural**

	The Netherlands		Sweden		Austria	
	Urban	Rural	Urban	Rural	Urban	Rural
Walking	22	15	23	13	55	52
Cycling	21	39	13	5	2	10
Car	50	41	48	72	18	34
Public transport	5	1	8	3	22	3
Disabled transport target population transport	3	4	8	7	2	1

From this table some conclusions can be drawn regarding the travel modes in the three countries:

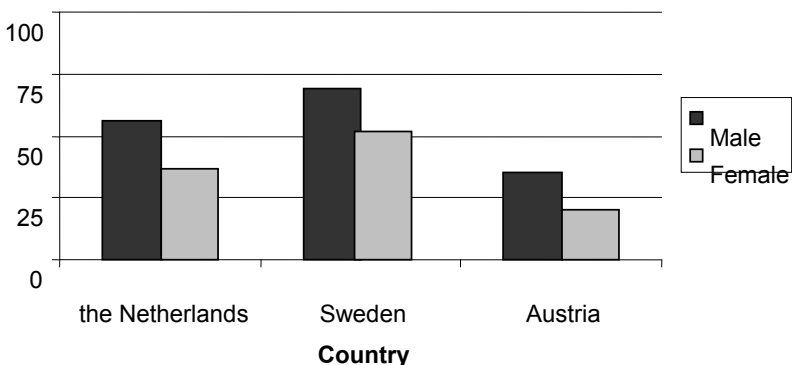
- **Walking:** In general walking is the preferred travel mode of seniors in Austria, in urban areas a little bit more than in rural. Cycling and walking together represent about two third of all travel modes of seniors in Austria.
- **Car Use:** Especially in Swedish rural areas seniors travel often by car; regarding urban areas for the seniors in the Netherlands car driving seems the most appreciated travel mode. In Austria seniors drive a car less frequently than in the other countries
- **Cycling:** Cycling, an important travel mode in the Netherlands in general is also relevant for the seniors of the Netherlands especially on the country side; compared to the other countries this mode is chosen much more often
- **Public Transport:** Public transport is the most frequently but on chosen travel mode of seniors in Austria in urban areas.
- **Disabled transport:** In Sweden seniors use special transport for persons with functional limitations as often as public means. In rural areas this kind of transport is used even more than public transport

In rural areas walking is less used as a means of transport as compared to urban areas. Bicycle use amongst senior citizens in urban areas in the Netherlands and Austria is less than in rural areas. This effect is contrary to bicycle use in Sweden. In the Netherlands car use amongst senior citizens is higher in urban areas as compared to rural areas. In Sweden and Austria car use is higher in rural areas. The use of public transport is lower in rural areas, which may be caused by poor supply of public means in the rural areas.

#### 4 GENDER, HEALTH STATUS, TRANSITION POINTS AND CAR USE

Gender seems to have the largest impact on car use, followed by health status and the transition points.

**Graph 3. Car use: country and gender**



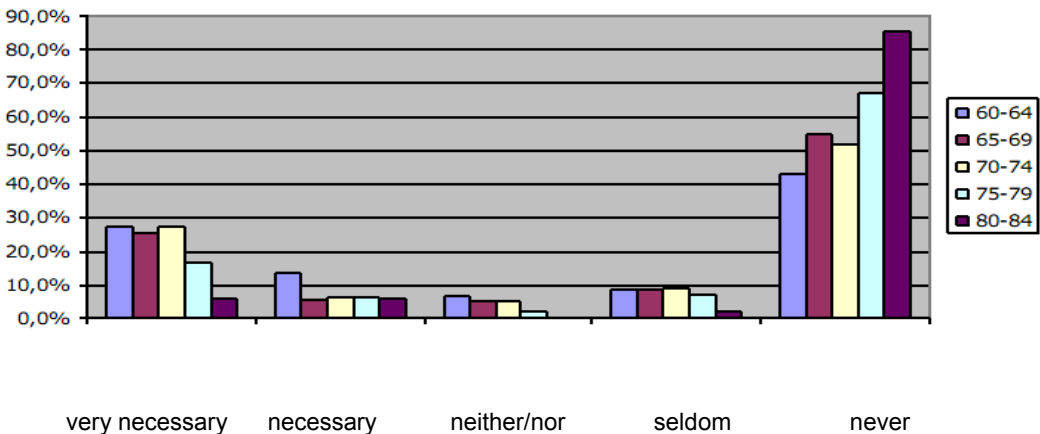
In all three countries older females travel less by car compared to males. This could change in the coming ten to twenty years as there is no more difference between genders in gaining the driving licence. But literature shows that women (also the younger ones), also if they could drive a car, more often prefer walking, cycling or public transport. Older women in case of living alone after the death of the partner seldom use the car, even if there still is one available at home [3].

But there also seems to exist some kind of lacking self esteem regarding the ability to use a car. In the Austrian investigation women to a significantly higher percentage valued their abilities significantly lower than men did. This could be a result of lacking experience - in households where both partners hold a driving license mostly men drive - still

The following graph 4 shows that in Austria only the younger senior citizens experience to be able to use a car as very necessary to do the daily shopping. The older persons get the more they find other solutions.

**Graph 4. Necessity of availability of a car to do daily shopping (different age groups, Austria)**

Question: How much do you need a car to do your daily shopping?



## 5 TRANSITION POINTS, HEALTH STATUS AND SELF ASSESSMENT

From the perspective of both fitness to drive and mobility in older age, it is often noted that patterns of mobility especially concerning car use change when people retire. It seems necessary to study the role of car use in order to assess its importance in connection with "keeping moving" at older age, which in some ways can be viewed as starting with retirement from work.

Being dependent on car use and being able to drive a car safely may be even more of an issue when there is a change in household composition. It is often discussed that problems arise when one partner dies - more often it is the male one - and the other one remains alone in the household. If the remaining

partner is not an experienced driver, then both mobility and safety problems may arise.

**Table 2. Transition: Retirement – Change of frequency leaving home**

	The Netherlands		Sweden		Austria	
	Urban	Rural	Urban	Rural	Urban	Rural
No change	73	75	77	73	75	65
Less outside	23	21	22	22	22	<b>35</b>
More outside	4	4	2	5	3	0

Table 2 shows that around 75% of the participants who retired in the last two years did not change their frequency of leaving their home. Around 22% of the participants who retired reduced their frequency of leaving home. The largest decrease is shown in rural areas in Austria.

One's health status but also how one experiences one's health seems to have a big influence on the assessment of being able to drive a car.

In Austria a more thorough investigation of attitudes towards self assessment of being able to drive a car showed that retired compared to working seniors value their abilities to drive a car significantly worse than those who still work (table 3).

**Table 3. Transition: Partner dies/leaves – Change of frequency leaving home**

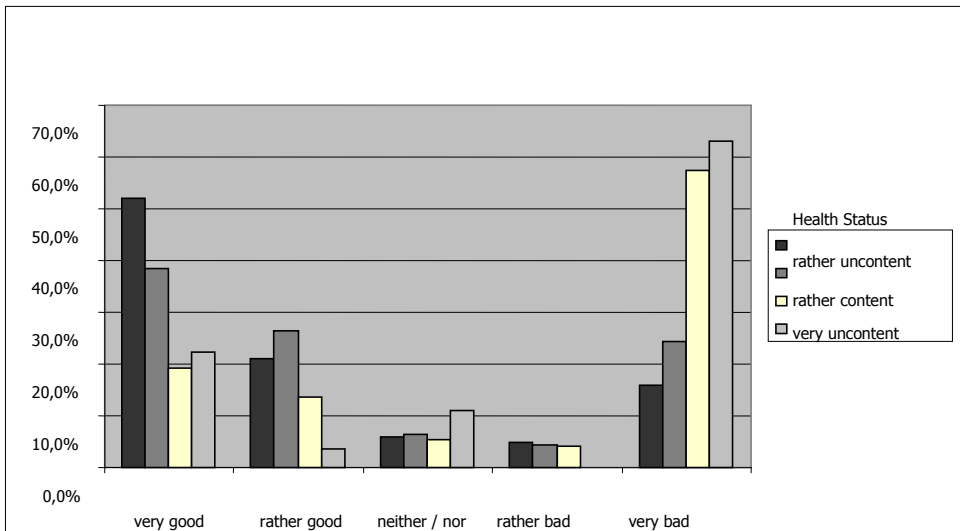
	The Netherlands		Sweden		Austria	
	Urban	Rural	Urban	Rural	Urban	Rural
No change	78	63	<b>59</b>	<b>52</b>	75	70
Less outside	14	22	<b>32</b>	<b>31</b>	11	22
More outside	8	16	9	17	<b>14</b>	7

Sweden has a lower portion of participants that do not change their frequency of leaving home but it also has a high proportion of participants that decrease their frequency of leaving home at this transition point. Urban areas in Austria have a higher portion of those who increase their frequency of leaving home after their partner dies. This effect is contrary to the other countries.

Again, a look at the self assessment of seniors concerning their ability to drive a car at this transition point showed that those who lived in multi-person

households valued their abilities to drive a car good or very good to a significantly higher percentage than seniors living in a single-person household.

**Graph 5. How do you value your abilities to drive a car?**



A comparison of the evaluation of the abilities to use a car between the different states of health shows that those who value their state of health good also value their abilities to drive a car as good or very good (graph 5).

## 6 CONCLUSIONS

### Modal split

Large differences exist between the three countries. Several indicators may influence modal split differences:

### Self assessment / Feeling of competence

The studies could show the following regarding the feeling of competence. Those of the seniors who assess their ability to drive a car as good or very good are to a significantly higher extent

- men
- younger seniors (< 75)
- living in multi-person households
- still working
- persons who also value their state of health good

Although car use in some countries, like Sweden or the Netherlands, is the first mode of choice by seniors, the older one gets, the more one has to rely on walking in any case. This has to be taken into consideration when talking about ITS.

### **Reduced car use correlates with**

- lower estimation of own abilities to drive
- change to single person household
- health complaints and diseases
- low self-assessment of ability to drive a car

It seems to be something like a vicious circle: the more seniors loose contact to others because of retirement and stop of working and / or change to a single-household, the more they refuse to leave their home and stop driving a car. If seniors did not have other habits of daily travelling earlier, like using a bike or public means or walking they loose social contact much more.

There are, altogether, two main groups of seniors with limitations: those who lack different physical capacities and those who lack self-esteem. Both groups need special means to be kept mobile.

## **7 CONCLUSIONS REGARDING ITS**

The understanding of the different causes for reduction of mobility of elderly can lead to better focussed support, e.g. by ITS.

As could be shown there exist big differences in countries especially regarding the intensity of car use in urban and rural areas but there are (still) also some similarities: more older men drive cars and cars are driven more in rural areas. And if bad assessment of one's own ability to drive a car led to stay at home this would require special support to raise the self esteem again.

The support by ITS could take different traffic modes into consideration. In general devices should be designed according to recommendations provided by research. There is for instance the EU-project ASK-IT [4] that suggests the following features of ITS:

- simple and intuitive (easy to understand, regardless the users' experience)
- well perceivable information (regardless of ambient conditions or the users' sensory abilities)
- tolerant of error
- requiring low physical effort
- simple and clear to use (e.g. big keys)

**Pedestrians:** Nomadic systems can help to find one's way; especially seniors with visual limitations may profit from special guiding systems based on GPS which could be shown in ASK-IT [4].

**Car drivers:** Considering the usual self-restriction concerning distances and areas (driving in well-known areas more than in unknown surroundings) navigation systems will not be the most necessary items for the senior citizens – also regarding the problem of distraction they could cause. But distance warning systems and support for reverse parking would do a good job. Visual

enhancement could also help considering the visual problems discussed above (limitations in spatial cognition, limited recognition of red frequency and reduced visual acuity). Senior women as novice drivers or who start driving again after having lost their partner could especially take advantage of these ITS-systems while getting supported in their feeling of self-esteem.

**Bicyclists:** pedelecs resp. electric bicycles or tricycles could enhance the possibilities of elderly – especially women – to move around.

All of them could support the feeling of competence and being able to master live autonomously and independently.

## 8 REFERENCES

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- [3] European Conference of Ministers of Transport: Transport and ageing of the population 1998  
<http://www.internationaltransportforum.org/europe/ecmt/pubpdf/00RT112.pdf>
- [4] [www.ask-it.org](http://www.ask-it.org)