

Continuity and change in older adults' perceptions of out-of-home mobility over ten years: a qualitative–quantitative approach

HEIDRUN MOLLENKOPF*, ANNETTE HIEBER*
and HANS-WERNER WAHL*

ABSTRACT

This research report starts from the assumption that a solely geriatric and transport-related view of out-of-home mobility needs to be extended to incorporate other aspects of perceived and experienced mobility. In particular, our goal is to understand better the stability and change in people's perceptions of out-of-home mobility over ten years. We concentrate on: (a) the subjective meaning of mobility over time, including perceived changes in mobility and perceived reasons for change; (b) trends in satisfaction with various mobility domains; and (c) a case-oriented exploration of inter-individual variation over time. A qualitative–quantitative data-analytic approach was applied to data collected from 82 participants on three occasions over ten years in 1995, 2000 and 2005. The mean age of the sample in 2005 was 75.2 years. The results indicate overall stability in the meaning attached to mobility between 1995 and 2005, while the perceived changes point to major losses in the array of mobility experiences and decreasing satisfaction with mobility opportunities, out-of-home leisure activities and travelling, but in contrast satisfaction with public transport increased. Case studies exemplified the reasons for the pronounced variation in satisfaction with mobility dynamics over time. In conclusion, the findings confirm that out-of-home mobility remains of utmost importance when people move from late midlife into old age.

KEY WORDS – out-of-home mobility, ageing, meaning, satisfaction, longitudinal perspective.

Introduction

Both the ability and the opportunity to move around are essential prerequisites for older adults' independent living and societal participation. Mobility – the fundamental physical capacity to move – is a basic human

* Department of Psychological Ageing Research, Heidelberg University, Heidelberg, Germany.

need and essential to personal health (*e.g.* Heikkinen *et al.* 1992; US Department of Transportation 2003; Wahl *et al.* 2007). In gerontology, mobility in the later years of life has been predominantly understood in functional terms; that is, as a physical health or geriatric problem. For decades, a wide range of research has sought to understand, among other things, the decline in mobility performance with age, such as decrements in sensory abilities and sensorimotor integration; the loss of motor control and voluntary strength; slowing motor action and speed of processing; the shrinking range of motion and flexibility; and the decreasing ability to stabilise posture (*e.g.* Ketcham and Stelmach 2001; O'Neill and Dobbs 2004).

In addition, transport research concerned with older people has strongly emphasised the description and explanation of change and stability in objective mobility patterns with increasing age. A multitude of studies have provided rich statistical data on older adults' actual travel behaviour, usually defined as movement in time and space, measured in terms of trips or journeys and reported in standard ways on diary forms (*e.g.* Centre d'études sur les réseaux, les transports, l'urbanisme et les constructions publiques (CERTU) 2001; European Conference of Ministers of Transport (ECMT) 2000; Organisation for Economic Co-operation and Development (OECD) 2001; Rosenbloom 2001; Transportation Research Board (TRB) 2004). It is true that findings depend on national particulars, but general tendencies and structures correspond in important respects. One classic finding, for example, is that older people tend to make less use of most modes of travel but not walking, largely because of increasing health decrements and sensory impairments (*e.g.* Mollenkopf *et al.* 2002). Also, older individuals with a driver's licence and access to a private automobile travel more than those who do not have access to a car (*e.g.* Banister and Bowling 2004; ECMT 2000; Marottoli *et al.* 1997; Mollenkopf *et al.* 2002; Rosenbloom 2004).

Very often, however, the functional and objective approach to mobility neglects the key concerns of older adults' mobility (Alsnih and Hensher 2003; Banister and Bowling 2004; Gabriel and Bowling 2004; Mollenkopf *et al.* 2004*b*; Ziegler and Schwanen 2011). That is, the meaning that individuals attribute to mobility and their experiences when venturing out are assessed only rarely. It has been argued that mobility can be performed for its own sake and not for what is commonly described as a 'derived demand' (Mokhtarian 2005). In this context, the attraction or deterrence of the natural, social and built environment can play a crucial role (Banister and Bowling 2004; Holland *et al.* 2005). Motivational, cognitive or personality aspects are also important in older people's decisions about going out (Schaie 2003). Moreover, in modern society, mobility is associated

with highly appreciated goals like freedom, autonomy and flexibility (Cobb and Coughlin 2004; Handy, Weston and Mokhtarian 2005; Mollenkopf *et al.* 2005). One can even argue that experiencing reduced mobility is an important component of the awareness of getting older, and that it puts pressure on the ageing self and on identity management in later life (Biggs 2005; Diehl and Wahl 2010).

Only in recent years has the focus of empirical mobility and transport research considered the more subjective and motivational aspects of travel and driving behaviour. Case studies in four European cities have made clear, for example, that mobility means much more to older adults than traversing distance (Mollenkopf *et al.* 2004*a, b*). Satisfaction with one's abilities to get about, to pursue leisure activities and to travel have been shown to be more significant components of overall wellbeing than objective predictors such as functional impairments (Mollenkopf *et al.* 2006). In a study of older people's own definitions of quality of life, Farquhar (1995) found that the ability to go out more was specified as a condition for a better quality of their life, while being housebound reduced the quality of life. Similar findings were reported by Coughlin (2001) with respect to the meaning of transport, albeit mostly related to being able to drive a car. Banister and Bowling (2004) found that a sense of optimism and positive expectations of life are critical for the transport dimension of older adults' perceptions of quality of life. Although these studies have contributed much to a better understanding of the importance of perceived mobility in old age, no work has been published that addresses the long-term stability and change of such perceptions. In particular, given the pronounced accumulation of loss experiences from late-middle adulthood and early old age to very old age in the health and social realm (*e.g.* Baltes 2006), it is important to learn whether and how such change is reflected in subjective experiences of mobility.

Against this background, the goal of this research was to understand better the long-term stability and change in major perceptions of out-of-home mobility using data gathered over ten years. This paper first addresses the trajectories over time of the subjective meaning attached to mobility, of perceived changes in mobility and of the perceived reasons for change. Second, we analyse temporal change in satisfaction with various mobility domains – mobility in general and that using public transport, and with out-of-home leisure activities and travel. Third, we present a case-oriented exploration of inter-individual variation in such mobility-related satisfaction. This was driven by the assumption that the subjective experience of out-of-home mobility over long periods is highly individual, and that information about this variability will add substantially to our understanding of the diversity of personal ageing (Daatland and Biggs

2006). We have used both qualitative and quantitative methods to address these goals.

Methods

Study design and sample

The paper draws from a study that began with research on older adults' out-of-home mobility in four European cities in 1995 (Mollenkopf *et al.* 2004*b*). The German component on which this paper is based was carried out in the cities of Mannheim (western Germany) and Chemnitz (eastern Germany); both are medium-sized industrial cities with diverse settlement structures and public transport (tram and bus lines) as well as inter-city rail connections and *autobahnen* [motorways, freeways]. The quantitative element of the study draws on data collected from 804 people aged 55 or more years at baseline in 1995 (T₁) who were randomly sampled from the population registers maintained by the cities' Municipality Registration Offices and stratified by age and sex. With weighting, the samples were representative of the two communities and did not differ significantly from the major socio-demographic characteristics of the general German population aged 55 or more years in 1995 (Mollenkopf *et al.* 2004*b*). Thirty-five participants were selected for additional in-depth interviews in 1996. At the second wave, five years later in 2000 (T₂), 271 respondents from the original sample were assessed again for the first follow-up of the European project 'Mobilate: Enhancing Outdoor Mobility in Later Life' (*see* Mollenkopf *et al.* 2003, 2005, 2006). A third-wave assessment (T₃) was undertaken in Chemnitz and Mannheim in 2005 of 82 participants (about 30% of the first follow-up and 11% of the original sample). Taken together, the data analysed in this paper refer to ten years of the participants' lives.

The reasons for dropout were recorded using standard protocols. Given the extended duration of the study, the most frequent reasons were deaths or worsened health (almost 20% for each), and others were refusals to continue participation or failure to locate or access participants. Logistic regression analysis based on data from the 2000 wave indicated that age (odds ratio (OR) 0.94, $p < 0.05$), education (OR 1.59, $p < 0.05$) and the number of transport modes used in 2000 (OR 1.27, $p < 0.05$) influenced participation in 2005, and that the probability of participating in 2005 increased with younger age, higher education and the greater number of transport modes used.

As can be seen in Table 1, the average age at T₃ of the 82 individuals who were assessed over the ten years was 75.2 years (50% aged

TABLE I. *Characteristics of the sample*

Variables and categories	1995		2000		2005	
	N	%	N	%	N	%
Living arrangement:						
Living alone	13	15.9	19	23.2	26	31.7
Living with others	69	84.1	63	76.8	56	68.3
Marital status: ¹						
Married, living with a partner	66	80.5	61	74.4	54	65.9
Widowed	8	9.8	13	15.9	20	24.4
Change in health from previous date:						
Became better	–		6	7.3	3	3.6
Became worse	–		35	42.7	45	54.9
Remained the same	–		41	50.0	34	41.5
	Mean	s.d.	Mean	s.d.	Mean	s.d.
Satisfaction score with financial situation ²	7.7	1.8	7.6	2.0	7.0	2.4
Satisfaction score with health ²	7.3	2.1	6.9	2.4	6.7	2.5
Age (years)	62.2		68.9		75.2	

Notes: The sample size was 82. 1. The analyses included also the characteristics ‘married, living separately’ (N=1), ‘divorced’ (N=3) and ‘never married’ (N=4), which amounted to 10 per cent at each assessment. 2. Satisfaction was assessed on an 11-point scale from 0=lowest satisfaction to 10=highest satisfaction.

65–74 years, 50 % aged 75 or more years). The proportions of women and men were almost the same (48 % and 52 %). Most of the participants were married (66 %) and living in multi-person households (68 %). About every fourth respondent (24 %) was widowed. The participants’ level of education was relatively high: almost one-half had a higher level of education (high school or university degree). The participants’ satisfaction with their financial situation decreased over time, from a mean score of 7.7 in 1995 to 7.0 in 2005. Similarly, albeit a less marked trend, the rating of subjective health decreased over time, from 7.3 in 1995 to 6.9 and 6.7 five and ten years later.

The assessment instruments

To assure the comparability of the answers at all assessments, each follow-up retained the main aspects of the instruments used at the first wave of data collection; that is, the standardised questionnaire and the standardised elements of the semi-structured, in-depth, follow-up interviews in 1996 (Mollenkopf *et al.* 2003, 2004*b*). The questionnaire was partly based on assessments of proven value in previous studies, such as the Finnish Evergreen project (Heikkinen 1998), the Nordic Research on Ageing study

(NORA; Avlund, Kreiner and Schultz-Larsen 1993; Heikkinen *et al.* 1997), the German Welfare Survey (Zapf and Habich 1996) and the German Socio-Economic Panel (SOEP; *e.g.* Zapf and Habich 1996), the last being a representative survey of people aged 17 or more years that was established in 1984 and continues.

Levels of satisfaction with mobility opportunities, with public transport, with opportunities to pursue leisure activities, and with opportunities to travel were assessed using one item from the German Welfare Survey and the multi-wave SOEP, which is scored with a Likert scale from '0' (lowest satisfaction) to '10' (highest satisfaction). The wording of the satisfaction with mobility options question was: 'How satisfied are you with your out-of-home mobility?' This question aimed to cover all options about getting where one wants to go, whether on foot, by bicycle, as a car driver or passenger, or on public transport. Three follow-up questions had the same wording: 'How satisfied are you with ... public transport/ your out-of-home leisure activities/ your travel?' A decided advantage of these assessments is the 11-point scale, which counters the common tendency for respondents to nominate positive scores in such ratings. Single-item ratings are quite common in the international satisfaction literature, including those that use multiple measurement designs and have been found to perform no worse in terms of reliability and validity when compared to multi-item questionnaires (Easterlin 2003; Veenhoven 1996). In terms of perceived change, the participants were requested to rate at T₂ (2000) and T₃ (2005) whether their out-of-home mobility had changed with the question: 'Do you think your out-of-home mobility has become better, worsened or remained the same during the last five years?'

Much of the semi-structured interview at T₃ (*i.e.* the qualitative element of the assessment) focused on the respondent's personal experiences and the subjective meanings they attributed to their out-of-home mobility options. Questions such as, 'What does being out-of-home mean to you?' and 'How important is travelling for you?' were used to elicit the meaning attached to various facets of out-of-home mobility. A similar exploration of the meanings of mobility was conducted at T₁, so the participants' understanding of mobility at T₁ and T₃ could be directly compared. Furthermore, an open-ended question asked them to explain why their mobility had changed since 2000, and encouraged them to relate all relevant events and experiences over the previous five years. All T₃ interviews were tape recorded and all the qualitative responses were transcribed. Well-trained interviewers from the *Markt-, Meinungs- und Sozialforschung* (USUMA) research institute in Berlin conducted the German interviews in 1995 and 2000. In 2005, the Chemnitz interviews were also carried out by USUMA interviewers, while the Mannheim

interviews were conducted by project staff trained in quantitative as well as qualitative assessment.

Data analyses

Analysis of the quantitative data records was performed using the SAS statistical package and, because of the rather low sample size, was kept simple. Statistical testing used *t*-tests and the conventional decision level of 5 per cent ($p < 0.05$). For the analysis of the open-ended responses, we applied the principles of content analysis (e.g. Mayring 2003). First, the project team undertook several readings of the elicited material to extract the main themes mentioned by the participants, which were then grouped and re-grouped into conceptually meaningful categories as consensually agreed by the project team. Then statements that exemplified well the categories were selected – some are quoted in the results section. We gave special attention to the translation of the quotations into English, by engaging a translator who is highly competent in both German and English and who used a back-and-forth procedure. All names were changed to comply with data protection regulations. An important and distinctive ambition was to combine the quantitative and qualitative data with the intention that each data-analytic element supplemented the understanding of the other about how out-of-home mobility was perceived by older adults over time.

Results

Perceived changes of out-of-home mobility over time and reasons for change

The meaning in the participants' statements of what out-of-home mobility meant to them was almost the same in 2005 as ten years earlier (see Table 2). As in our earlier reports (Mollenkopf and Flaschenträger 2001; Mollenkopf *et al.* 2004*b*), we were able to categorise the elicited semantic material into seven categories, although they should not be seen as completely distinct but to an extent interwoven and overlapping: (1) out-of-home mobility as a basic emotional experience; (2) physical movement as a basic human need; (3) mobility as movement and participation in the natural environment; (4) mobility as a social need; (5) mobility as an expression of personal autonomy and freedom; (6) mobility as a source of stimulation and diversion; and finally (7) the ability to move about as a reflective expression of the person's remaining life force. For most of the participants, mobility included more than one aspect and some of the facets were tightly interwoven, reflecting mobility's multi-dimensional

TABLE 2. *The meaning of out-of-home mobility: main categories extracted from verbal material with exemplary citations*

Year	Category label and exemplary citations
	1. Overarching meaning of mobility as a basic emotional experience, essential for life itself
1995:	Joy!; It's everything, it's life!
2005:	A piece of quality of life – yes, that's a really considerable piece of quality of life! Really, it's getting out what makes up life, isn't it. When you stay at home you can watch TV, but that's not life, that's dying slowly...
	2. Physical movement as a basic human need
1995:	A person has to move! I want to move and feel good when I do.
2005:	Moving about outdoors is very important for me. I use every opportunity to go into the open air.
	3. Mobility as movement and participation in the natural environment
1995:	I have to get out, have to know what is going on in nature!
2005:	That's worth a lot [...]. Of course, getting out, open air, movement and other environments and other people and nature – all this has to be worth a lot to everybody.
	4. Moving around as a social need, as a desire for social integration and participation
1995:	Still being able to take part in social life; So that I don't get lonely.
2005:	Getting out of one's home, this means meeting friends and acquaintances, socialising, participating in culture, broadening one's horizons, and a lot more.
	5. The possibility to move about as an expression of personal autonomy and freedom
1995:	Being able to go out any time I want!; Not being locked in!
2005:	A wonderful step to freedom [...]. It has always been like this, the desire for going into the open and the ability to do so – that's simply beautiful. The possibility to do so is important, very important.
	6. Mobility as a source of stimulation and diversion
1995:	Sometimes seeing something other than the four walls you live in!; So that I don't get dotty up here!
2005:	This means very much to me. Freedom of movement – and you have to see what's new, the celebrations, meeting other people and enjoy a bit – that's what you need in old age.
	7. The ability to move about as a reflective expression of the life force one still has – a typical topic of old age
1995:	The last bit of freedom!; Proof that I'm still a human being like anyone else.
2005:	That I can say: I'm still well – I am happy that I am still able to go out and move about myself.

meanings. Taken together, it seems that out-of-home mobility maintained more or less the same range and richness of meaning elements over the ten years of observations.

Comparing the older adults' subjectively perceived changes in their out-of-home mobility over the ten years gave a clear picture of continuity and change in this domain (Table 3). About two-thirds of the participants said at both follow-up assessments (in 2000 and 2005) that their mobility had not changed, and about one-third (27% in 2000 and 34% in 2005) reported a decline. While 4 per cent reported improved mobility in 2000, none did in 2005. It is clear that a perceived worsening of mobility was linked with chronological age. Almost 30 per cent of the older age group

TABLE 3. *Perceived changes in out-of-home mobility in 2000 compared to 1995 and in 2005 compared to 2000*

Change in mobility	2000–1995				2005–2000			
	N	%	N	%	N	%	N	%
Became better	3	3.7	0	0.0	0	0.0	0	0.0
Became worse	22	26.8	28	34.2	28	34.2	20	48.8
Remained the same	57	69.5	54	65.8	54	65.8	21	51.2
Sample size	82		82		82		82	

Age group (years) in 2005:	65–74		75+		65–74		75+	
	N	%	N	%	N	%	N	%
	Became better	3	7.3	0	0.0	0	0.0	0
Became worse	10	24.4	12	29.3	8	19.5	20	48.8
Remained the same	28	68.3	29	70.7	33	80.5	21	51.2
Sample size	41	41	41	41	41	41	41	41

Gender:	Females		Males		Females		Males	
	N	%	N	%	N	%	N	%
Became better	1	2.6	2	4.6	0	0.0	0	0.0
Became worse	11	28.2	11	25.6	14	35.9	14	32.6
Remained the same	27	69.2	30	69.8	25	64.1	29	67.4
Sample size	39	43	39	43	39	43	39	43

stated a decline in 2000 compared to just 24.4 per cent of the younger participants. Five years later, the differential was greater (50 % and 20 %, respectively). Men and women showed only minor differences in this regard.

The perceived reasons for a change in mobility reflected both personal and environmental circumstances and most centred on the themes of loss and deterioration. Declining health was mentioned most frequently, but it is important to note that many health changes were set in a wider context of day-to-day life, as in the following quotation from Mr Walter (aged 86 years): ‘Despite the prosthesis I feel pain and because of this my walking is restricted, and when I come home – not in winter, but in spring, in summer, I have to undress and my wife gives me a shower’. In addition to health-related reasons, many others were mentioned as impacting on out-of-home mobility, such as caring for a family member. As Mrs Hansen (aged 75 years) said: ‘Of course, my whole situation has changed because of this task [to care for the husband who suffers from dementia]. I myself, if I were independent, if I would not have to care for someone, I could walk, I could travel and I could do anything I want’.

The challenges imposed by specific environmental circumstances were also mentioned frequently, as by Mr Nolte (88 years) who said: 'I can no longer move about in the open countryside as I did in the past. Five years ago I still went fishing, but this is not possible any more. When I go to the river I risk being alone and if I passed out there – maybe I wouldn't fall into the water, but I'd stay lying a long time'. Furthermore, financial, health and aspects of the family situation were frequently intricately interwoven, as Mr Ober (77 years) explained: 'I don't have a car any more, have to go everywhere on foot – or [use] only public modes of transport like the tram, but I have no other options. I would have to ask my son to take me somewhere'. In sum, many reasons for change in mobility were perceived and they went far beyond health and function-related issues. Moreover, the latter were typically embedded with other issues related to the family or the environment; in other words, attributions of perceived mobility changes simply to health and disease were seldom perceived in the everyday world of the participants.

Satisfaction with key areas of mobility over time

Taking first *satisfaction with out-of-home mobility*, in general the participants' reported a high level of satisfaction with their mobility opportunities over the ten years, but there was a decrease from the second to the third wave (Table 4). The mean satisfaction scores were 8.4 at T1, 8.3 at T2 and 7.8 at T3. This trend applied particularly for men, and those aged 75 or more years expressed lower satisfaction with their mobility opportunities than those aged 65–74 years. As expected, older adults who reported a decrease in their mobility opportunities at the second and third assessments were significantly less satisfied with their mobility in general than people whose mobility did not change. Turning to *satisfaction with public transport*, average satisfaction with public transport increased over the ten years among the people who used it, from a mean score of 7.2 in 1995 through 8.1 in 2000 to 8.2 in 2005 (Table 4). Women were less satisfied than men at all assessments. When distinguishing between people with mobility impairments and those without, the former's satisfaction decreased only slightly between the second and third assessment (from 7.9 to 7.2). Older adults who did not report mobility restrictions showed a remarkable rise in their satisfaction with public transport.

As everyday activities require at least a minimum of physical mobility, it is no surprise that over time changes in *leisure activities and travel* occurred predominantly among those who reported mobility restrictions. Among the mobility impaired, 61 per cent experienced a decline in both domains, 33 per cent only in leisure activities, and 49 per cent in just travel.

TABLE 4. Mean scores for satisfaction with mobility opportunities and satisfaction with public transport

Variables and categories	Satisfaction with mobility opportunities			Satisfaction with public transport		
	1995 Mean (s.d.)	2000 Mean (s.d.)	2005 Mean (s.d.)	1995 Mean (s.d.)	2000 Mean (s.d.)	2005 Mean (s.d.)
Entire sample	8.4 (1.9)	8.3 (1.9)	7.8 (2.1)	7.2 (2.8)	8.1 (1.7)	8.2 (1.7) ³
Age group at T ₃ :						
65–74 years (N = 41)	8.3 (2.0)	8.4 (2.0)	8.2 (1.8)	7.2 (3.0)	8.3 (1.9)	8.1 (1.7)
75+ years (N = 41)	8.5 (1.8)	8.1 (1.9)	7.4 (2.3) ³	7.3 (2.5)	7.8 (1.4)	8.3 (1.7)
Gender:						
Female (N = 39)	7.9 (2.1)	7.8 (2.4)	7.6 (2.5)	6.8 (2.8)	7.8 (2.0)	8.0 (1.9)
Male (N = 43)	8.8 (1.6)	8.7 (1.4)	8.0 (1.8) ³	7.7 (2.7)	8.3 (1.3)	8.4 (1.4)
Perceived changes in mobility 2005:						
Became worse (N = 28)	8.6 (1.6)	7.8 (2.3) ²	5.8 (2.4) ³	7.9 (1.9)	7.9 (1.6)	7.2 (2.3)
Remained the same (N = 54)	8.3 (2.1)	8.5 (1.7)	8.7 (1.2)	7.0 (3.0) ¹	8.1 (1.7)	8.5 (1.3) ³
Sample size	82	82	82	53	53	53

Notes: The satisfaction score is scaled from 0 to 10. The sample for public transport is of users only. 1. Significant differences between 1995 and 2000. 2. Significant differences between 2000 and 2005. 3. Significant differences between 1995 and 2005.

The main reasons for decreasing activities were the same as for decreasing mobility: declining health, lack of money, having to care for a family member or having no companion, difficulties using transport modes as well as environmental barriers. About a quarter of all the respondents and about one-half of those with mobility impairments did not travel at all. This means, however, that every other older adult with impairments went on journeys, albeit to less distant destinations and of shorter duration than previously. With regard to *satisfaction with one's opportunities for leisure activities and travel*, a similar trend was observed as that for satisfaction with mobility opportunities (Table 5). On average, there was a significant decrease over the ten years for the entire sample and for various subgroups. Satisfaction with leisure activities decreased from a mean score of 8.1 in 1995 through 7.9 in 2000 to 7.5 in 2005, and the equivalent scores for satisfaction with travel were 8.5, 7.9 and 7.0. Significant decreases occurred both in leisure activities and travel among people who reported mobility impairments. However, a significant decrease was also observed in those without mobility impairment regarding travel, which may indicate that reducing travel in very old age is driven not only by mobility restrictions but also by safety issues and concerns about using specific means of transport, particularly cars, trains and planes.

Case-oriented exploration of individual differences in satisfaction with mobility

In the following section, we return to the key areas of out-of-home mobility as itemised above, examine and contrast selected extreme cases of divergent trajectories, and concentrate on the overall rating of satisfaction with mobility opportunities and with public transport (users only). We use the total sample as a basis for the overall comparison and provide background material and quotations to explicate the diversity. In addition, Figure 1 illustrates individual differences in mobility as people age. When compared with the entire sample, the change in Mr Lechner's (aged 80 years) and Mrs Dahlmann's (87 years) satisfaction with their mobility opportunities over the ten years mirrored a characteristic pattern (Figure 1a). Mr Lechner's *satisfaction with out-of-home mobility opportunities* decreased between 1995 (mean score 10.0) and 2000 (mean 9.0) as a result of a severe illness. He recovered from this illness between the second and the third assessment and was happy about his new freedom. He said: 'Thanks to my recovery it is possible to put more strain on my body and I make the most of it for journeys, for hiking and for long-distance trips'. Together with his wife, he walked at least five to six kilometres every day and did all his shopping and errands on foot or by public transport – they had no car. He was still able to pursue his hobbies actively – cooking, painting,

TABLE 5. Mean scores for satisfaction with out-of-home leisure activities and satisfaction with opportunities to travel

Variables and categories	Satisfaction with out-of-home leisure activities			Satisfaction with opportunities to travel		
	1995 Mean (s.d.)	2000 Mean (s.d.)	2005 Mean (s.d.)	1995 Mean (s.d.)	2000 Mean (s.d.)	2005 Mean (s.d.)
Entire sample	8.1 (2.0)	7.9 (2.4)	7.5 (2.3)	8.5 (2.0)	7.9 (2.7) ²	7.0 (2.8) ³
Age group at T ₃ :						
65–74 years (N = 41)	8.0 (2.0)	7.7 (2.7)	7.8 (2.1)	8.1 (2.3)	8.2 (2.4) ²	7.1 (2.6) ³
75+ years (N = 41)	8.2 (2.1)	8.0 (2.1) ²	7.1 (2.5) ³	8.8 (1.6) ¹	7.5 (3.0)	6.8 (3.1) ³
Gender:						
Female (N = 39)	8.1 (2.0)	7.6 (2.7)	7.6 (2.3)	8.3 (2.2)	7.6 (3.1)	6.9 (3.0) ³
Male (N = 43)	8.1 (2.0)	8.1 (2.1)	7.4 (2.4)	8.7 (2.0)	8.1 (2.3) ²	7.0 (2.7) ³
Perceived changes in mobility 2005:						
Became worse (N = 28)	8.1 (2.1)	7.4 (2.7)	6.3 (2.5) ³	8.5 (2.6)	7.3 (3.1)	6.7 (2.5) ³
Remained the same (N = 54)	8.1 (2.0)	8.1 (2.2)	8.0 (2.1)	8.5 (1.7)	8.1 (2.5) ²	7.0 (2.9) ³
Sample size	82	82	82	82	82	82

Notes: The satisfaction score is scaled from 0 to 10. 1. Significant differences between 1995 and 2000. 2. Significant differences between 2000 and 2005. 3. Significant differences between 1995 and 2005.

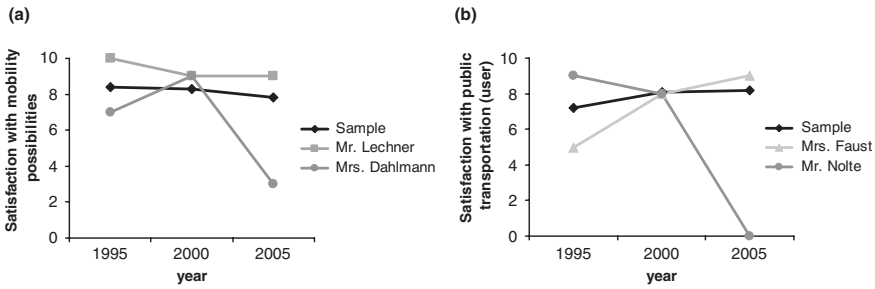


Figure 1. Change over time in mobility satisfaction scores for the sample and two individuals. (a) Satisfaction with mobility opportunities; (b) satisfaction with public transport (users only). Notes: 0 = not satisfied at all; 10 = very satisfied.

working with wood and other material – and felt no impairments. He said, ‘So I can be quite satisfied’ (mean score 9.0).

Mrs Dahlmann’s satisfaction with her mobility opportunities changed quite differently. Her mobility-related satisfaction increased between 1995 (mean 7.0) and 2000 (9.00), but she suffered from late effects of cancer surgery and had operations on her veins and hip between the second and third assessment. As the last was not completely successful, her mobility was heavily restricted. She could still reach shops and services in the neighbourhood by foot, but longer trips were no longer possible because she had given up driving and had not become accustomed to public transport. Her satisfaction with her opportunities to move about decreased sharply at the third measurement (mean 3.0). As she explained:

My activities in the dwelling are only a little restricted – of course, I can’t do many things and this matters a lot. As to moving about outdoors, out-of-home activities are restricted. ... Actually, because of the pain I walk with the aid of a stick anyway, and that makes me feel very uncertain. ... In the past I loved hiking, even in high mountain areas – but this is no longer possible. My activities are limited to what I have to do: shopping and what is necessary for daily living.

The variability in individual circumstances and experiences and the resulting evaluations regarding satisfaction with public transport are illustrated well by two examples (Figure 1b). Mrs Faust’s (aged 77 years) husband had moved into a nursing home during the last months of his life, but she had visited and provided care everyday. Her limited mobility options were reflected by a rather low satisfaction score for public transport (mean 5.0 in 1995). After her husband passed away between the second and third interviews, she re-engaged in out-of-home activities, but because she did not have a driver’s licence, she made most trips on foot or by public transport, and because of a severe visual impairment she had

difficulties orientating herself when moving about on foot. For some years, her reliance on public transport had grown, and her satisfaction with the services increased from a mean score of 8.0 in 2000 to 9.0 in 2005. She said, ‘everything [I do is] by bus or tram ... just [going] to the baker’s, I walk, but because of my visual impairment and ... well, indeed, you are no longer entirely agile with advancing age’. In contrast, Mr Nolte (88 years) had seriously impaired physical mobility but nonetheless at the first and second assessments was quite satisfied with public transport (mean scores 9.0 and 8.0, respectively). Between the second and third assessment, however, his health worsened to the extent that he needed help to leave the house and consequently public transport was irrelevant and his satisfaction with it was zero. He complained: ‘I have the problem that I don’t have the strength any more to walk to the tram stop by myself ... because I am physically handicapped. I am no longer satisfied with the tram because I cannot use it any more!’

Discussion

The reported longitudinal investigation of older adults’ out-of-home mobility in two German cities over ten years has provided the opportunity to analyse how older men’s and women’s perceptions of moving about alter or remain stable over time. We have considered the meaning attached to out-of-home mobility in 1995 and in 2005 as well as the perceived changes in out-of-home mobility, the subjectively reported reasons for such changes, and people’s satisfaction with various mobility domains across the three measurement points (1995, 2000 and 2005). One key finding is that out-of-home mobility – the opportunity and ability to move about outside one’s home and get to places one wants or needs to go – remains of great significance through the course of growing older. This is remarkable given that by 2005 many of the participants had major health problems, but these seem to have had little affect on the fundamental meaning attached to out-of-home mobility. The participants’ individual accounts indicate both the manifold meanings people attach to out-of-home mobility and its positive quality. The meanings included such basic aspects as zest for life, autonomy and freedom, the sense of belonging, and the pleasure of just moving about.

The results are consistent with findings from previous research (Banister and Bowling 2004; Coughlin 2001; Fernández-Ballesteros, Zamarrón and Ruíz 2001; Holland *et al.* 2005; Mollenkopf *et al.* 2006), and demonstrate that being able to go out, to be active and to meet other people associate with positive affect. We therefore agree with Banister and Bowling’s (2004)

advocacy of taking a wider view of older people's travel and quality of life issues than has been customary in transport research (*cf.* Farquhar 1995). Going further, one may infer from our findings that many in later life experience a pronounced decline in the ability to move about but at the same time continue to attach rich meanings to their remaining out-of-home mobility, and that the adjustment is for many a major issue in identity management (Biggs 2005; Diehl and Wahl 2010), which involves the regulation and modification of personal goals and life preferences (Brandtstädter and Rothermund 2002).

The results from the follow-up assessments reflect the well-documented risk of declining health and decreasing out-of-home mobility with advancing age (CERTU 2001; Heikkinen *et al.* 1997; Ketcham and Stelmach 2001; Marottoli *et al.* 2000; OECD 2001; O'Neill and Dobbs 2004). The participants expected worsening mobility because of the well-known correlation between increasing age and health decline, especially beyond age 75 years, but the subjective explanations of such worsening went well beyond health factors and included family circumstances as well as environmental issues. Satisfaction with general mobility options and with their opportunities to pursue leisure activities and to travel on average remained high across the 10 years, albeit with substantial individual differences, but nevertheless the subjective evaluations decreased in the total sample and were lower among those aged 75 or more years, particularly among those with mobility impairments at the third assessment. Women reported slightly lower satisfaction scores than men for most of the domain-specific aspects of mobility, which corresponds well with the general finding in the epidemiological literature that women experience more functional losses than men (Wolinsky *et al.* 1996). In addition, it may well be that among the present generations of older people, the basic preconditions of mobility are generally more favourable for the 'young old' and for men (*e.g.* Banister and Bowling 2004; ECMT 2000; Rosenbloom 2004). The general decline of out-of-home mobility over the ten years was similar, however, for both genders.

The temporal change in satisfaction with public transport differed from this general pattern, for it increased among all subgroups except for the users whose mobility worsened between the second and third assessments. This positive appraisal may be explained by improvements in the local transport systems of the cities under study. In particular, in Chemnitz after the re-unification of East and West Germany in 1989, there was major investment in the improvement of public transport, as in many cities of the former German Democratic Republic. Besides, at the individual level, public transport can be used as an alternative when previous modes such as driving a car are no longer

possible, which may have led to the more positive subjective preferences and satisfaction scores.

We conclude that it is important to consider not only the objective indicators of mobility that are commonly examined in the epidemiological literature (Guralnik *et al.* 2000), but also the subjective evaluation of mobility that older people find significant. Going further, it has been shown that the subjective indicators are more effective predictors of well-being, as was found by analyses from the Berlin Ageing Study (Smith and Baltes 1999; *see also* Holland *et al.* 2005). This supposition is backed up by the results of our previous European studies (Mollenkopf *et al.* 2005, 2006). The experience of being able to move about was revealed to be among the important variables in satisfaction with life in general.

In addition, our findings partly qualify the so-called 'satisfaction paradox', that the high adaptability of older people enables them to maintain a high level of satisfaction with life despite unfavourable or aggravating living conditions (Staudinger 2000). Obviously this is no longer the case if fundamental needs such as the need to be mobile and active are concerned. The mean values that we have reported may conceal marked individual variations and changes. Only a differentiated view, which considers the variability of older adults' living circumstances, leads to valid statements about their out-of-home mobility. In this respect, the longitudinal perspective of our study and its combination of qualitative and quantitative methods proved particularly useful. Also in this vein, our case-related analyses underscore what a highly individualised process the perceptions of out-of-home mobility in old age over time are. In this sense, our findings also support the view that out-of-home mobility is an important facet for the better understanding of the diversity of personal ageing (Daatland and Biggs 2006).

Turning to the limitations of this study, it should be stressed that the individuals who were still able and willing to participate in this research after ten years were selective survivors, and noted that we cannot distinguish the extent to which the findings are attributable to regional factors. Studies that have compared regions (*e.g.* Holland *et al.* 2005; Mollenkopf *et al.* 2005, 2006) suggest that different mobility factors play an equally important role in older adults' lives under various national and regional conditions. Furthermore, this paper presents only a small selection of the qualitative material and has exemplified only some of the variations in satisfaction with mobility. Keeping such limitations in mind, we believe that our findings are relevant for both policy debates and further research. Improved knowledge of perceived mobility could be a helpful addition to objective data on mobility, because it will enable policy makers to understand the various meanings and motivations related to mobility in older

people's views. This may raise the priority given to enhancing the mobility of older adults at the community level even higher than is currently the case. In terms of research, there remains a need to better link geriatric, objective transport and subjective mobility research to achieve a more comprehensive understanding of mobility in old age.

Acknowledgements

We would like to thank the Eugen-Otto-Butz Foundation, Germany (www.butzstiftung.de), which kindly provided the funding for the second follow-up in 2005 and hence, the long-term perspective of this study.

References

- Alsnih, R. and Hensher, D. A. 2003. The mobility and accessibility expectations of seniors in an ageing population. *Transportation Research A: Policy and Practice*, **37**, 10, 903–16.
- Avlund, K., Kreiner, S. and Schultz-Larsen, K. 1993. Construct validation and the Rasch model: functional ability of healthy elderly people. *Scandinavian Journal of Social Medicine*, **21**, 3, 233–45.
- Baltes, P. B. 2006. Human dignity and the limits of life. *Daedalus*, **135**, 1, 32–9.
- Banister, D. and Bowling, A. 2004. Quality of life for the elderly: the transport dimension. *Transport Policy*, **11**, 2, 105–15.
- Biggs, S. 2005. Beyond appearances: perspectives on identity in later life and some implications for method. *Journal of Gerontology: Social Sciences*, **60B**, 3, S118–28.
- Brandtstädter, J. and Rothermund, K. 2002. The life course dynamics of goal pursuit and goal adjustment: a two-process framework. *Developmental Review*, **22**, 2, 117–50.
- Centre d'études sur les réseaux, les transports, l'urbanisme et les constructions publiques (CERTU) 2001. *La mobilité des personnes âgées – Analyse des enquêtes ménages déplacements* [*The Mobility of Older People: Analysis of Household Displacements*]. Rapport d'étude, CERTU, Lyon, France.
- Cobb, R. W. and Coughlin, J. F. 2004. Transportation policy for an aging society: keeping older Americans on the move. In Transportation Research Board (TRB), *Transportation in an Aging Society: A Decade of Experience*. TRB, Washington DC, 275–89.
- Coughlin, J. 2001. *Transportation and Older Persons: Perceptions and Preferences*. AARP, Washington DC.
- Daatland, S. O. and Biggs, S. (eds) 2006. *Aging and Diversity*. Policy Press, London.
- Diehl, M. and Wahl, H.-W. 2010. Awareness of age-related change: examination of a (mostly) unexplored concept. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, **65B**, 3, 340–50.
- Easterlin, R. A. 2003. Explaining happiness. *Proceedings of the National Academy of Science*, **100**, 11176–83.
- European Conference of Ministers of Transport (ECMT) 2000. *Transport and Aging of the Population*. Report of the 112th Roundtable on Transport Economics, Paris, 19–20 November 1998. OECD, Paris, France.

- Farquhar, M. 1995. Elderly people's definitions of quality of life. *Social Science and Medicine*, **41**, 10, 1439–46.
- Fernández-Ballesteros, R., Zamarrón, M. D. and Ruíz, M. A. 2001. The contribution of socio-demographic and psychosocial factors to life satisfaction. *Ageing & Society*, **21**, 1, 25–43.
- Gabriel, Z. and Bowling, A. 2004. Quality of life from the perspectives of older people. *Ageing & Society*, **24**, 5, 675–91.
- Guralnik, J. M., Ferruccia, L., Pieper, C. F., Leveillea, S. G., Markides, K. S., Ostird, G. V., Studenskie, S., Berkman, L. F. and Wallace, R. B. 2000. Lower extremity function and subsequent disability. Consistency across studies, predictive models, and value of gait speed alone compared with the Short Physical Performance Battery. *Journals of Gerontology Series A: Medical Sciences*, **55**, M221–31.
- Handy, S., Weston, L. and Mokhtarian, P. L. 2005. Driving by choice or necessity? *Transportation Research A*, **39**, 2, 183–203.
- Heikkinen, E. 1998. Background, design and methods of the Evergreen Project. *Journal of Aging and Physical Activity*, **6**, 1, 106–20.
- Heikkinen, E., Berg, S., Schroll, M., Steen, B. and Viidik, A. (eds) 1997. *Functional Status, Health and Aging: The Nora Study. Facts, Research and Interventions in Geriatrics 1997*. Serdi, Paris.
- Heikkinen, E., Era, P., Jokela, J., Jylhä, M., Lyra, A. and Pohjolainen, P. 1992. Socio-economic and life-style factors as modulators of health and functional capacity with age. In Schroots, J. J. F. (ed.), *Ageing, Health and Competence*. Elsevier Science, Amsterdam, 65–86.
- Holland, C., Kellaher, L., Peace, S., Scharf, T., Breeze, E., Gow, J. and Gilhooly, M. 2005. Getting out and about. In Walker, A. (ed.), *Understanding Quality of Life in Old Age*. Open University Press, Maidenhead, UK, 49–63.
- Ketcham, C. J. and Stelmach, G. E. 2001. Age-related declines in motor control. In Birren, J. E. and Schaie, K. W. (eds), *Handbook of the Psychology of Aging*. Fifth edition, Academic Press, San Diego, California, 313–48.
- Marottoli, R., Mendes de Leon, C. F., Glass, T. A., Williams, C. S., Cooney, L. M., Berkman, L. and Tinetti, M. E. 1997. Driving cessation and increased depressive symptoms: prospective evidence from the New Haven EPESE. *Journal of the American Geriatric Society*, **45**, 2, 202–6.
- Marottoli, R., Mendes de Leon, C. F., Glass, T. A., Williams, C. S., Cooney, L. M. and Berkman, L. 2000. Consequences of driving cessation: decreased out-of-home activity levels. *Journal of Gerontology: Social Sciences*, **55B**, 6, 334–40.
- Mayring, P. 2003. *Qualitative Inhaltsanalyse. Grundlagen und Techniken [Qualitative Content Analysis: Basics and Methods]*. Eighth edition, Beltz, Weinheim, Basel, Switzerland.
- Mokhtarian, P. L. 2005. Travel as a desired end, not just a means. *Transportation Research A: Policy and Practice*, **39**, 1, 93–6.
- Mollenkopf, H. and Flaschenträger, P. 2001. *Erhaltung von Mobilität im Alter [Maintaining Mobility in Old Age]*. Schriftenreihe des Bundesministeriums für Familie, Senioren, Frauen und Jugend, Band 197, Kohlhammer, Stuttgart, Germany.
- Mollenkopf, H., Baas, S., Kaspar, R., Oswald, F. and Wahl, H.-W. 2006. Outdoor mobility in late life: persons, environments and society. In Wahl, H.-W., Brenner, H., Mollenkopf, H., Rothenbacher, D. and Rott, C. (eds), *The Many Faces of Health, Competence and Well-being in Old Age: Integrating Epidemiological, Psychological and Social Perspectives*. Springer, Dordrecht, Netherlands, 33–45.
- Mollenkopf, H., Marcellini, F., Ruoppila, I., Baas, S., Ciarrocchi, S., Hirsiaho, N., Kohan, D. and Principi, A. 2003. *The MOBILATE Follow-up Study 1995–2000. Enhancing Outdoor Mobility in Later Life: Personal Coping, Environmental Resources, and Technical*

- Support. Research Report 14, German Centre for Research on Ageing, Heidelberg, Germany.
- Mollenkopf, H., Marcellini, F., Ruoppila, I., Széman, Z., Tacke, M., Kaspar, R. and Wahl, H.-W. 2002. The role of driving in maintaining mobility in later life: a European view. *Gerontechnology*, **4**, 2, 231–50.
- Mollenkopf, H., Marcellini, F., Ruoppila, I., Széman, Z., Tacke, M. and Wahl, H.-W. 2004a. Social and behavioural science perspectives on out-of-home mobility in later life: findings from the European project MOBILATE. *European Journal of Ageing*, **1**, 1, 45–53.
- Mollenkopf, H., Marcellini, F., Ruoppila, I. and Tacke, M. (eds) 2004b. *Ageing and Outdoor Mobility: A European Study*. IOS Press, Amsterdam.
- Mollenkopf, H., Marcellini, F., Ruoppila, I., Széman, Z. and Tacke, M. (eds) 2005. *Enhancing Mobility in Later Life – Personal Coping, Environmental Resources, and Technical Support. The Out-of-home Mobility of Older Adults in Urban and Rural Regions of Five European Countries*. IOS Press, Amsterdam.
- O'Neill, D. and Dobbs, B. 2004. Age-related disease, mobility, and driving. In Transportation Research Board (TRB), *Transportation in an Aging Society: A Decade of Experience*. TRB, Washington DC, 56–66.
- Organisation for Economic Co-operation and Development (OECD) 2001. *Ageing and Transport: Mobility Needs and Safety Issues*. OECD, Paris. Available online at <http://oecdpublications.gfi-nb.com/cgi-bin/OECDBookShop.storefront/655091789/> [Accessed June 2010].
- Rosenbloom, S. 2001. Sustainability and automobility among the elderly: an international assessment. *Transportation*, **28**, 4, 375–408.
- Rosenbloom, S. 2004. Mobility of the elderly: good news and bad news. In Transportation Research Board (TRB), *Transportation in an Aging Society: A Decade of Experience*. TRB, Washington DC, 3–21.
- Schaie, K. W. 2003. Mobility for what? In Schaie, K. W., Wahl, H.-W., Mollenkopf, H. and Oswald, F. (eds), *Ageing Independently: Living Arrangements and Mobility*. Springer Publishing Company, New York, 18–27.
- Smith, J. and Baltes, P. B. 1999. Trends and profiles of psychological functioning in very old age. In Baltes, P. B. and Mayer, K. U. (eds), *The Berlin Aging Study. Aging from 70 to 100*. Cambridge University Press, Cambridge, 197–226.
- Staudinger, U. M. 2000. Viele Gründe sprechen dagegen, und trotzdem geht es vielen Menschen gut: Das Paradox des subjektiven Wohlbefindens [There are many reasons against it, but many people still feel well: the paradox of subjective well-being]. *Psychologische Rundschau*, **51**, 2, 185–97.
- Transportation Research Board (TRB) 2004. *Transportation in an Aging Society: A Decade of Experience*. TRB, Washington DC.
- US Department of Transportation 2003. *Safe Mobility for a Maturing Society: Challenges and Opportunities*. US Department of Transportation, Washington DC.
- Veenhoven, R. 1996. Developments in satisfaction research. *Social Indicators Research*, **37**, 1, 1–46.
- Wahl, H.-W., Mollenkopf, H., Oswald, F. and Claus, C. 2007. Environmental aspects of quality of life in old age: conceptual and empirical issues. In Mollenkopf, H. and Walker, A. (eds), *Quality of Life in Old Age: International and Multidisciplinary Perspectives*. Springer, Dordrecht, Netherlands, 101–22.
- Wolinsky, F. D., Stump, T. E., Callahan, C. M. and Johnson, R. J. 1996. Consistency and change in functional status among older adults over time. *Journal of Aging and Health*, **8**, 2, 155–82.
- Zapf, W. and Habich, R. (eds) 1996. *Wohlfahrtsentwicklung im vereinten Deutschland [Welfare Development in the United Germany]*. Sigma, Berlin.

Ziegler, F. and Schwanen, T. 2011. 'I like to go out to be energised by different people': an exploratory analysis of mobility and wellbeing in later life. *Ageing & Society* (in press).

Accepted 14 July 2010

Address for correspondence:

Hans-Werner Wahl, Department of Psychological Ageing Research,
Heidelberg University, Bergheimer Str. 20, 69115 Heidelberg, Germany.

E-mail: h.w.wahl@psychologie.uni-heidelberg.de