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Relocation and residential reasoning in very old age -Housing, health and everyday life

Marianne Granbom

DOCTORAL DISSERTATION

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To be defended at Hörsal 1, Health Sciences Centre, Baravägen 3, Lund.
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Abstract		
<p>Introduction: Moving in very old age is considered to be a major life event and relocation and access to appropriate housing options is a hot topic in the public debate across Europe. For very old people, the decision-making process and aspects influencing relocation is not well studied. Occupational therapy interventions mainly focus on ageing-in-place solutions when aiming for independence and well-being for older people. Although theoretically, relocation can be seen as a major form of environmental adaptation that helps counter aspects of age-related functional decline.</p> <p>Aims: The aim was to expand and deepen the knowledge on relocation in very old age in two Western European countries (Sweden and Germany). With a focus on person-environment relations concerning housing and health, predictors and consequences of relocation were explored. Also, residential decision-making was explored with focus on how very old people reason about their home and everyday life in relation to relocation and ageing-in-place.</p> <p>Methods & Results: The thesis is based on the Swedish (studies I to IV) and German (studies III and IV) parts of the ENABLE-AGE Project. At baseline, the participants were 80-89 years old and lived alone in ordinary housing. In study I (N=384), Cox regression models showed dependence in cleaning but perceived functional independence when living in a one-family house predict a move within the ordinary housing stock. Dependence in cooking and cognitive deficits in combination with accessibility problems predicted a move to special housing. After relocation to another dwelling in the ordinary housing stock (N=29) the number of environmental barriers in the new dwelling were fewer than in the former (study II). Usability and accessibility were stable comparing former and new dwellings. Analyses of in-depth interviews of 80 participants in 2002 (study III) and 16 participants in 2003 and 2011 (study IV) revealed ambivalence between moving and ageing-in-place to arise along with increasing problems in everyday life. The findings supported the use of residential reasoning as a concept describing older peoples reasoning on relocation and ageing-in-place as one intertwined topic.</p> <p>Conclusions: The findings contribute to the knowledgebase on relocation in very old age, with practical implications for very old people and their families, occupational therapists and other professionals and for societal planning at large. The knowledge can be used as a first step in designing counselling services to help deal with very old people's ambivalence and to guide in their decision-making processes. Further, having the potential to integrate theoretical perspectives from different disciplines to enhance our understanding on residential decision-making in old age, theoretical development on the concept residential reasoning is needed.</p>		
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Marianne Granbom

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List of papers

This thesis is based on the following publications, referred to by their roman numerals:

I. **Granbom, M.**, Löfqvist, C., Horstmann, V., Haak, M., & Iwarsson, S. (2014). Relocation to ordinary or special housing in very old age, aspects of housing and health. *European Journal of Ageing*, 11(1): 55-65.

II. **Granbom, M.**, Slaug, B., Löfqvist, C., Oswald, F., & Iwarsson, S. Community relocation in very old age: Changes in housing accessibility (submitted).

III. Löfqvist, C., **Granbom, M.**, Himmelsbach, I., Iwarsson, S., Oswald, F., & Haak, M. (2013). Voices on relocation and ageing-in-place in very old age – A complex and ambivalent matter. *The Gerontologist*, 53 (6): 919-927.

IV. **Granbom, M.**, Himmelsbach, I., Haak, M., Löfqvist, C., Oswald, F. & Iwarsson, S. (2014). Residential normalcy and environmental experience in very old age. Changes in residential reasoning over time. *Journal of Aging Studies*, 29, 9-19.

Reprints of paper I, III and IV are made with permission from the publishers.

Definitions

<i>Accessibility</i>	A relative concept, describing the relationship between the functional capacity of the individual and the demands of the physical environment. Often referred to as an aspect of person-environment (P-E) fit (Iwarsson & Ståhl 2003).
<i>Ageing-in-place policy</i>	The possibility to remain at home in old age as long as possible despite need of care (Äldrecentrum 2010).
<i>Environmental experience</i>	Short for “The Life Course Model of Environmental Experience” and concerns the reattachment process after a move. Part of the meaning-making strand of P-E relations. In particular, on how to make use of previous environmental experience in order to feel “at home” in a new dwelling. (Rowles & Watkins 2003).
<i>Environmental adaptation</i>	Strategies used by occupational therapists to modify the physical home environment to support and enhance occupational performance and independent living. Three basic forms are: assistive technology, structural changes in the built environment (in Sweden called housing adaptations) and material adjustments (Gitlin 2009).
<i>Housing</i>	
<i>-ordinary</i>	Dwellings in the ordinary housing stock.
<i>-senior</i>	“In-between” housing, in Sweden provided either by the municipalities (but without needs assessment, e.g. <i>trygghetsboende</i>) or actors on the regular housing market (e.g., <i>65+boende</i>). The dwellings have a higher level of accessibility, and many of units have facilities for social activities (Äldreboendedelegationen 2008). The term refers to similar housing options in Germany, such as <i>Altenwohnung</i> and <i>Betreutes wohnen</i> (Grossjohann 2003).
<i>-special</i>	In Swedish, an umbrella term covering housing options provided by the municipalities that are granted after a needs

assessment (*särskilt boende*) (SFS 2001:453). Lately also the term *vård- och omsorgsboende* (Äldreboendedelagtionen 2008) is being used. In Germany special housing includes facilities for older people in need of long-term care and services (*Pflegeheim*) (Grossjohann 2003).

- P-E fit* Person-Environment (P-E) fit. One strand of P-E relations. The fit between the individual, defined as having a set of competencies and the environment, defined in terms of its demands, labelled environmental press (Lawton & Nahemow 1973).
- P-E relations* Theoretical term used in this thesis when referring to the influence of environment on human behaviour in its broadest sense. An exchange in which both the person and the environment influences each other.
- P-E-O* Person-environment-occupation (P-E-O) transaction is one strand of P-E relations and constitutes an important base in occupational therapy-theory. Occupational performance, as one outcome of such transactions is the core construct of occupational therapy (Kielhofner 2008).
- Relocation* In this thesis referring to short distance residential moves, in opposite to long distance migration. Relocation and move are used interchangeably.
- Residential normalcy* Short for “The Theoretical Model of Residential Normalcy”. Part of the meaning-making strand of P-E relations. Explains the residential decision-making process in old age. When older people live in an environment where they can fulfil their needs and goals they are in their comfort and mastery zones. When out of the zones, relocation is one coping strategy, of several, to regain residential normalcy (Golant 2011).
- Usability* A perceived aspect of housing denoting the individual’s opinion on to what degree the physical environment supports activity performance (Iwarsson & Ståhl 2003).
- Very old people* In this thesis used for people 80 years and older.

Setting the Scene

A strong demographic change with increasing life expectancy and lower birth rates is transforming European countries into ageing societies. The European Commission (EC) has declared ageing societies to be one of the grand challenges of our time (European Commission 2009). The proportion of people 65 and older is expected to increase from 18% today to 28% in 35 years. The number of very old people (defined here as 80 years and older) is expected to increase the most by more than double, and reach 57 million people in 2050 (Eurostat 2014). With the aims for older people to lead healthy, active and independent lives and for countries to keep economic sustainability of social care systems, housing has become a hot topic in the public and political debate around Europe.

For very old people, the home is maybe the most important everyday life context, and emotional attachment to the home grows stronger over the years. Older people are known to move less often than younger cohorts, and several surveys and researchers conclude that the vast majority of older people prefer not to move (AARP 2012; Costa-Font, Elvira & Mascarilla-Miro et al. 2009). The possibility of remaining at home despite need of care is supported by an ageing-in-place policy influencing social care systems in many Western European countries.

However, our housing needs and preferences change over time. Concerns have been raised that a dwelling suiting the needs of one life stage might not suit the needs in the next (Rahm Hallberg 2008). National commissions in Sweden and Germany have estimated that roughly two thirds of all very old people have inaccessible dwellings. Lack of lifts in entrances with stairs, limited space in bathrooms and bedrooms, and bathrooms and bedrooms on separate floors were common problems (German Centre of Gerontology 2013; Äldreboendedelegationen 2008). Of the few studies in this area reports that in the United States (U.S), environmental barriers are often present in bathrooms and toilets and at entrances in dwellings of older people (Choi, 2004).

Occupational therapists who work with older clients often make environmental adaptations in the home to enable independence and directly or indirectly enable ageing-in-place. However, that relocation as another environmental adaptation could promote independence has not gained much attention, neither in occupational therapy practise nor in research.

Actually, relocation research in general has up until now mainly focused on relocation to institutional settings by establishing which health problems and diseases predict relocation (Oswald & Rowles 2007; Northcott & Petruik, 2011).

In what way the home environment also influences relocation to institutional settings is virtually unknown. The knowledge-base on moves to non-institutional dwellings like ordinary housing and senior housing is even weaker. Moves made in very old age to another dwelling within the ordinary housing stock are not common today but expected to increase when new cohorts grow older (Abramsson, Elmqvist & Turner 2013; Oswald & Rowles 2007). Knowledge concerning in what way health and housing aspects influence these kinds of moves is certainly called for.

In order to increase our understanding on the interaction and influence on health and housing of relocation, the anticipated reluctance to move in old age cannot be neglected. The residential decision-making seems to be filled with contradictions. It has been described as a long process, or abrupt due to sudden health changes (Nygren & Iwarsson 2009; Peace, Holland & Kellaheer 2011; Young 1998). The decision to relocate is intricately linked with thoughts and desires remaining in the home for as long as possible when ageing (Cutchin 2001). Still, the topics of relocation and ageing-in-place are far too often treated separately (Wiles et al. 2011). More profound knowledge on how very old people reason concerning their living arrangements while balancing goals and desires in everyday life against increasing health decline as they age, is needed.

The overall purpose of this thesis is therefore to reduce the knowledge gap on relocation to ordinary and special housing in very old age. By starting out from the example of Sweden, housing and health related aspects influencing relocation will be explored. In addition, by listening to the voices of very old people in Sweden and Germany on how they reason about ageing-in-place and relocation, understanding of the complexity of residential decision-making will be gained.

Context of the thesis

This thesis in health science, specialising in occupational therapy, was carried out at the interdisciplinary Centre of Ageing and Supportive Environments (CASE) at Lund University, Sweden. I entered my doctoral studies with a Master of Science in Occupational Therapy and 10 years of clinical experience and teaching experience in the field. The core assumptions of occupational therapy served as a basis for the thesis: mankind is active by nature; human activity is a necessity for health and well-being; and human activity is formed by and forms the context in which it is performed. Nevertheless, after five years at CASE, working with co-authors representing gerontology, psychology, occupational therapy, public health and pedagogics the interdisciplinary nature of the thesis is evident.

Four studies are included in the thesis, based on the ENABLE-AGE Project. The studies form two parts. Both parts concern relocation within the ordinary housing stock and to special housing in very old age. Both parts stem from ideas from occupational therapy and environmental gerontology, which explain the importance of the environment for health and well-being.

In the first part (studies I & II), I used a traditional occupational therapy perspective on housing issues. I used it to explore health and housing aspects that predict very old people moving, and to explore whether very old people seize the opportunity to improve their potential for health and independence when they move (by moving to a dwelling which has a physical environment that better fits their functional status).

In the second part of the thesis (studies III & IV), I left the traditionally functional perspective on housing and independence. It was not enough to understand the complex decision-making process preceding a move. For this, other theoretical frameworks were needed with a focus on the meaning of places for each individual. It demanded a different kind of data.

It did cause me some problems when writing up the thesis, but today I am glad that it is built on two different parts. It is in line with my personal conviction to always look at things from more than one angle.

In my opinion, the home is the most important context for very old people. That is why, in order to understand the phenomenon of relocation, the conditions of the physical home environment and older people's individual meaning of the value and importance of the home are of equal importance.

My contribution to the studies

When I entered as a PhD student the ENABLE-AGE Project had been running for several years, containing huge data sets for me to make sense of and use in accordance with my specific questions on relocation. Methodologically this was an advantage, being able to make complex longitudinal analyses within the time frame of a PhD project. Instead of taking part in the data collection (except for study IV), I have struggled to learn and to understand all dimensions of the assessments used. No conclusions could have been drawn from the data unless I understood what had been collected and how. In study III, I conducted the validating phase of the analysis, reflected in my position as second author of the paper. However, I substantially contributed to study design and writing up the paper.

In summary, my learning outcomes are based on my substantial contribution to the study design (studies I-IV), collecting data (study IV), analysing data (studies I, II & IV), writing up the papers (studies I-IV) and having the primary responsibility for the final content of studies I, II & IV.

Introduction

It is well known that people relocate less often in old age than in young adulthood and working years. Relocation in this thesis refers to short distance, residential moves and will be used interchangeably with move. From the Survey of Health, Ageing and Retirement in Europe database (SHARE) a comparison of 6,454 people, 65 years or older, from eight countries in north, central and south Europe showed a north/south difference in relocation rates. In Denmark, Sweden and the Netherlands 30% of the participants had relocated to their present home after the age of 65, and in the central and southern countries 15% had relocated after 65 years of age. Similar for all countries, the number of people who had moved to the present dwelling after the age of 80 was less than 1.5% (Fernandez-Carro 2012). That rates for relocation within the ordinary housing stock for older people in Germany is particularly low, is confirmed also by national research (Keese 2012). Turning to relocation to institutional settings, reliable relocation rates are hard to obtain (Keese, 2012). One Swedish study reported that 50% of the population aged 70–100 years is expected to experience a move to an institutional setting at some point in time (Ernst Bravell et al. 2009). Regardless of relocation rates, 12% of people 80 years and older live in special housing in Germany, and 14% in Sweden (Statistiska centralbyrån 2012; Federal Statistics Office 2011).

Very old people in Sweden and Germany

Very old people are the focus of this thesis, and people 80-89 years old from Sweden (studies I - IV) and Germany (studies III & IV) will constitute the study population. Sweden and Germany share a high life expectancy, but due to low fertility rates in Germany the ageing of German society is expected to be greater. Today, people 80 years and older represent 5% of the population, but in 50 years' time this group is expected to reach 9% in Sweden and 14% in Germany (Myndigheten för delaktighet 2014; Federal Statistics Office 2011). The groups of very old people in Sweden and in Germany have similarities as well as differences, which makes them an interesting group in qualitative studies. The countries share high life expectancy, even if the demographic challenge is even larger in Germany than Sweden. The countries are geographically close, but have different contemporary history reflected in the 80-year-olds' life experience. The

large majority live in ordinary housing (86-88%) (Socialstyrelsen 2013; Federal Statistics Office 2011). More than half of those live in single households (Myndigheten för delaktighet 2014; Federal Statistics Office 2011), known to predict relocation to institutional settings (Bharucha et al. 2004; Hallberg and Lagergren 2009).

Along with increasing life expectancy, the health status of very old people seems to have improved as well, even if the number of older people with disabilities is likely to increase (Christensen et al. 2009). National reports describe a varied picture of the health conditions and need of care among very old people. A fourth of the age group in Sweden receives home care, and a slightly larger proportion in Germany. After the age of 85 the proportion of the group which is dependent and need help in Activities of Daily Living (ADL) increases dramatically. In Sweden, each year every second person over the age of 80 experiences a fall accident, and after the age of 90, 50% have dementia (German Centre of Gerontology 2013; Federal Statistics Office 2011; Sveriges kommuner och landsting 2013; Myndigheten för delaktighet 2014).

Both countries have a high housing standard. However, in general, older people live in dwellings with a large number of environmental barriers (Iwarsson et al. 2006). This is partly due to living in dwellings from the older housing stock, which also implies a greater need of refurbishment (Keese 2012). ADL and accessibility of the home are related. That is, the more accessibility problems in the dwelling the more dependent is the older person in ADL (Iwarsson, 1997; Iwarsson 2005; Wahl et al. 2009). From the European ENABLE-AGE Project, accessibility problems in the homes were related to life satisfaction, depression and predicted falls among very old people (Wahl et al. 2009).

Along the course of ageing more of daily life takes place in the home and very old people spend most of their time in the home (Chilvers, Corr & Singlehurst 2010; McKenna, Broome & Liddle 2007), and the activities performed at home are mostly perceived as meaningful (Nilsson, Blanchard & Wicks 2013). The familiarity of the environment, as well as the confidence that comes from knowing it by heart, serves as a perceived guarantee for maintaining independence (Haak et al. 2007a) and the home is the basis for participation - both in the home and in the society (Haak et al. 2007b). The home represents a sense of security as well as freedom (Dahlin-Ivanoff et al. 2007).

Housing, home-care and housing options

An ageing-in-place policy strongly influences long-term care and social services in Sweden & Germany. Similar to many European countries, Sweden and Germany provide long-term care based on a needs-based approach. However, there are differences between the financing systems in the two countries and there are also

differences concerning the degree of family orientation in the care of older people (Geerts & Van den Bosch 2011).

In Sweden, the municipalities are responsible for providing home care services for older people living in ordinary housing as well as for providing special housing when more extensive care is needed. Sweden has a well-developed home-care system to also support very frail older people at home. Several services complementing home-care are available such as transportation services, home-delivered meals and personal alarm systems.

In Sweden, special housing is an umbrella term that represents a diversity of settings, providing different levels of care. Special housing, as well as home care services, are financed by taxes and provided after individual assessment is made by a municipality official, regulated via the Social Services Act (SFS 2001:453). The decision, based on the needs assessment, specifies to which kind of special housing a move is granted as well as type and amount of service provided.

Major reductions in places over the most recent decades have resulted in only those with a great need of care being granted a placement in special housing (Larsson, Thorslund & Kåreholt 2006). The growing gap between the ideals of current legislation (SFS 2001:453) and the reality of limited availability of special housing has received public attention. Not least, municipality officials have been criticised for being overly severe in not granting special housing, even when the older person no longer feels that staying home is manageable (Söderberg 2014). Instead, the availability of senior housing within the ordinary housing stock is increasing. Senior housing refers to “in-between” housing provided either by the municipalities (but without needs assessment, e.g. *trygghetsboende*) or from the private housing sector (e.g., *65+boende*). Overall in these settings, the dwellings have a higher level of accessibility, and many of these units have facilities for social activities. As in ordinary housing, home care service can be provided.

In Germany, financial aid for long-term care is specified via the Long-Term Insurance Act and the care allowance can be used to finance either help in the home - by relatives or mobile nursing services - or in special housing. About one-third of the recipients received care in senior housing (*Altenwohnung*, or *Betreutes wohnen*) and special housing (*Pflegeheim*). Over the last decade the trend has been shifting towards professional care in the home, or senior and special housing, as opposed to care from relatives – although this is still the most common option (Federal Statistics Office, 2011). Unlike in Sweden, after being granted financial support older people and their families in Germany have the responsibility of finding an available, suitable housing option on their own. (Grossjohann, 2003). In Germany, due to the strong demographic challenge ageing-in-place is debated. A stronger focus is put on citizens, private companies, non-for-profit organisations and other actors to enable *Lebens im Quartier* (Life and living in the neighbourhood). Initiatives in the municipalities aim at age-friendly cities and barrier-free environments (physically, socially and culturally) (Ines Himmelsbach

oral communication 21 October 2014; Bundesministerium für Familie, Senioren, Frauen und Jugend 2014).

Occupational therapy and housing

A main focus for occupational therapy is to promote occupational performance, independence and participation. Age-related health issues often cause occupational performance problems which make very old people frequent clients of occupational therapists. Since the home is an essential context for very old people and their everyday life, many interventions directly or indirectly target the home environment (Söderback 2009). Occupational therapists use environmental adaptation strategies to modify the physical home environment to support and enhance occupational performance and independent living. Three basic forms are: assistive technology, structural changes in the built environment (in Sweden called housing adaptations) and material adjustments (Gitlin 2009). Such intervention strategies are common practice for occupational therapists worldwide (Söderback 2009), even if the setting for the delivery of the interventions varies (Gitlin 2009). In Sweden, these interventions are often provided from the primary care or municipality context.

In Germany, occupational therapists work mostly in hospital settings after a referral from a physician. Interventions made in the home of the participants are less common than in Sweden (Coyle 2012).

There have been initiatives for occupational therapists to undertake preventive actions when it comes to older people. For example, in recent years preventive home visits have been increasingly common. The goal is to promote independence and well-being and to identify potential risks for activity limitations and health problems (Löfqvist et al. 2012; Stuck et al. 2002.) Preventive home visits and housing adaptations, as well as other housing-related interventions, focus on independence and ageing-in-place. Relocation counselling has not been included in this intervention arsenal, and knowledge is needed to establish its relevance for promoting independence in very old age.

Relocation in old and very old age

Considering the diversity in individual needs, circumstances and living conditions, relocation in older ages can be influenced by a variety of aspects.

Older people moving in order to live nearer to their children have received substantial attention for many years (Wiseman 1980). One Swedish study describes that younger old people move nearer to their children to a greater extent

than very old people do. The authors suggested that social contact and being of assistance to their adult children were stronger reasons for moving nearer than the need to receive care (Pettersson & Malmberg 2009).

In Europe and the U.S, older people living alone tend to move more often than couples (Bharucha et al. 2004; Fernandez-Carro 2012; Hallberg and Lagergren 2009). Older people renting their dwelling seem to move more often than those owning their dwelling (Abramsson et al. 2013; Fernandez-Carro 2012; Keese, 2012; Miller & Weissert 2000).

Reasons and predictors of relocation: health and housing aspects

Establishing predictors for relocation to special housing has received a lot of scholarly attention, with the focus mainly on health aspects. Two large reviews from the United States reported ADL-dependence and dementia/cognitive decline being among the strongest health-related predictors for relocation to special housing (Miller & Weissert 2000, Gaugler et al 2007). The findings have been confirmed in a review including some European studies (Luppa et al. 2010) as well as in a Swedish population (Hallberg and Lagergren 2009; Larsson et al. 2006).

Knowledge covering whether housing aspects influence relocation to special housing is virtually non-existent. To my knowledge, the only exception is a study from the U.S indicating that the risk of relocation to special housing increases when older people report that they are living in dwellings with environmental barriers restricting mobility indoors (Stineman et al. 2012).

Turning to relocation to other housing forms (ordinary and senior housing), a complex mix of reasons seems to motivate older people to move. Studies from the Nordic countries, the U.S and Australia show that health and housing related reasons are common when making the decision. Frequent reasons were need of care for one's self or spouse; wanting to avoid stairs and hazards causing falls and wanting to downsize because the upkeep and maintenance of home or garden had become too hard. For moves to senior housing, attractive attributes of the new dwelling were a motivating factor as well (Hansen & Gottschalk 2006; Sergeant & Ekerdt 2008; Tyvimaa & Kemp 2011). Even though several studies explore housing and neighbourhood related reasons, they were based on self-reports and few included very old people. To further verify how housing aspects are related to relocation in very old age, prospective method-designs and objectively assessed data are needed.

Consequences of relocation: health and housing aspects

Relocation has for more than 40 years been described as a stressful life event (Holmes & Rahe 1967) having a negative effect on older people's health. A number of studies have examined consequences in terms of mortality and morbidity for relocation to special housing, but the results are contradictory (Castle 2001). Neither have negative health effects been validated in studies on relocation within the ordinary housing stock.

A study from the U.S showed a short-term increase in ADL-dependence after relocation for older person moving for health-related reasons. However, no effect was seen in a long-term perspective. The authors argue that a move can potentially enhance functioning by improving the social and physical home environment (Chen & Wilmoth 2004). Even so, only two studies have investigated the physical home environments older people move into. These studies indicate that people tend to improve housing conditions and amenities when moving, at least in young old age (Oswald et al. 2002). For example, in Germany it was found that improvements were made regarding all kinds of household amenities, even if the majority of the participants reported good housing conditions already in their former homes. Nearly half (45%) of them reported barrier-free environments in the former homes, increasing to more than three thirds (78%) in the new homes (Oswald et al. 2002). In a study from the United States, one third of the movers relocated to dwellings with at least one out of five self-reported environmental improvements. Most common were bathroom safety features (26%) and wheelchair-accessible dwellings (17%) (Stoekel 2011). Whether such improvements take place also among very old people needs further research attention. In addition, longitudinal data on validly and reliably measured aspects of both dwellings is needed to be able to draw conclusions whether relocation can be a major form of environmental adaptation improving the home environment for very old people.

Residential decision-making

Relocation in old age is considered to be a major life event and many older people prefer to stay in their own home (AARP 2012; Costa-Font et al. 2009). Not surprisingly, research on how very old people arrive at the decision to move illustrates a complex decision-making process. To deepen the knowledge on this complexity additional methods are needed. The residential decision-making process in old age has been suggested to include mixed feelings and personal negotiations. It seems to be a process that can be extended over many years (Nygren & Iwarsson, 2009). Peace et al. (2011) argues that when older people talk about wanting to remain in the home, the habitual use of the phrase "as long as possible" showed an awareness of people's vulnerability and uncertainty of the

future. Thus, the decision to relocate seems to be intricately linked with thoughts and desires of remaining in the home for many older people (Cutchin, 2001). However, the topics of relocation and ageing-in-place are far too often treated separately (Wiles et al. 2011). Older people who are at the moment ageing-in-place might have experience from several previous moves and some older people might in fact have decided to move into their present dwelling in order to be able to age-in-place. To better grasp residential decision-making the experiences of movers as well of those staying put are important, together with being able to follow these experiences over time. This requires in-depth data and qualitative methods (Northcott & Petruik, 2011) and additional theoretical frameworks.

Theoretical framework: Person – Environment relations

For this thesis, theories on person (P)-environment (E) relations served as the framework. P-E relations is not a theory per se. I use it in this thesis to describe a field of research focusing on the influence of environment on human behaviour in its broadest sense. It refers to the exchange in which both the person and the environment influence, and are influenced by, each other. Several strands of theory are based on P-E relations, on which some are used in this thesis and will be described.

In the ecological theory of ageing Lawton and Nahemow (1973) coined the notion of P-E fit. Using this perspective, the individual is defined as having a set of competencies and the environment is defined in terms of its demands, labelled environmental press. When health declines in old age, the environmental pressure tends to rise in relation to the personal capacities, resulting in poor P-E fit (Lawton and Nahemow 1973). Theoretically, relocation can be seen as a major adaptation of the environment in order to optimise the congruence or fit between the demands of the environment and the declining competence of the older person (Lawton 1989; Lawton and Nahemow 1973). One facet of P-E fit concerning the home environment is accessibility. Accessibility is the objective relationship between functional limitations of the person and the barriers in the environment (Iwarsson & Ståhl 2003). Thus, accessibility can change either due to changes in functional capacity or due to changes in terms of environmental demand.

Person-environment-occupation (P-E-O) transaction is another strand of P-E relations. Occupational performance, as the main focus in occupational therapy literature, is the outcome of the transaction between three core constructs: the person, the task performed and the environment in which it is performed (Kielhofner 2008). When well-designed in relation to older people's needs, the home environment can support occupational performance and independence. In the same way a home environment with many environmental barriers can restrict occupational performance and increase dependence (Stark 2003). One of many

operationalisations of P-E-O is usability, which captures the individual's opinion as to what degree the environment is supportive for performing occupations (Iwarsson & Ståhl 2003). However, while an accessible and usable environment can make occupational performance possible, the outcome is still dependent on the older person's preferences and habits (Kielhofner 2008.) For example, a housing adaptation improving accessibility might conflict with older people's preferences, and thus not improve occupational performance and independence.

Another strand of theory development stemming from P-E relations concerns how older people perceive and relate to their environment (meaning-making). It is a response to P-E fit (Lawton & Nahemow 1973) being critiqued for viewing older people as being passive towards their environments, and for the dominance of quantitative aspects of the environment (e.g., Scheidt & Norris Baker 2003). It is based on qualitative research focusing on how older people grow emotional attachment to the environments they live in. In focus is, for example, how older people develop a feeling of being "at home"; what the individual meaning of home is to different people and how older people's identities are related to places (e.g., Rowles 1987, Rubinstein 1989.) Recently, theories on residential decision-making and relocation adjustment have built upon theories on place attachment and the meaning of home. Some authors (e.g., Cutchin 2001; Golant 2011; Rowles & Watkins, 2003) emphasise that the present living situation and the accumulated experiences throughout the life course are equally important when older people make decisions about their homes. This has not gained much attention in recent European relocation research. Thus, further empirical and theoretical development is needed.

Residential normalcy and environmental experience

The Theoretical Model of Residential Normalcy focuses on the residential decision-making process (Golant 2011) and the Life Course Model of Environmental Experience focuses on the reattachment process after a move. (Rowles & Watkins 2003). The models have a focus on the transactive aspects of the home, the older person and everyday life, which, in my opinion, related them to the basis for occupational therapy and made them useful for understanding the complex residential decision-making process of very old people.

According to the Model of Residential Normalcy (Golant 2011), the home is a place where older people can fulfil their goals and needs. When they live in environments that are congruent with that, they are in their comfort and mastery zones. In the residential comfort zone, people experience pleasurable, hassle-free and memorable feelings about where they live, and when in the residential mastery zone, they occupy places where they feel generally competent and in control. Undesirable changes in health, social network or physical home environment can change their experience and can lead to people finding themselves out of their

comfort and mastery zones. In such situations, people tend to use accommodative (mind) and/or assimilative (action) strategies to regain residential normalcy. Relocation would be the most strenuous action strategy and will only be decided upon voluntarily when four conditions are met: a) other adaptive efforts have not been sufficient; b) moving is considered a feasible option; c) the individual believes that the move will improve their residential experience; and d) the individual does not perceive the actual move as too strenuous.

The Model of Environmental Experience (Rowles & Watkins 2003) explains that when older people move to a new dwelling it is merely a neutral space. When the older person starts to feel at home in the new environment it transforms into a place. The transformation happens gradually over time. According to Rowles and Watkins, being in place, is a state characterised by feeling comfortable and at home in an environment which has a physical intimacy and social meaning. The sense of being in place is shaped by the autobiographical component, i.e., the individual's unique life-story. The transformation is accomplished when older people can transfer past environmental experiences to the new space, when integrating former experiences into the new circumstances and when redefining one's own individual view of what it means to be in place and feel at home. According to this model, making spaces into places is a skill that evolves over the course of life, where history, habits, heart and hearth are interwoven elements. People with little or poor experience develop inferior place-making skills and might not be able to attach to a new dwelling after a move. Such experiences thus have a negative influence on the individual's well-being.

The ENABLE-AGE Project

With the intention of examining the home environment's role in healthy ageing, in 2002 the ENABLE-AGE Project - a major cross-national, interdisciplinary project including very old people in five European countries (Sweden, the United Kingdom, Germany, Latvia and Hungary) - was initiated. The main aim was to examine the home environment as a determinant for autonomy, participation and well-being in very old age (Iwarsson et al. 2007). The ENABLE-AGE Project had a conceptual and theoretical base in Lawton's Ecological Model of Ageing (Lawton & Nahemow 1973) and the International Classification of Functioning, Disability and Health (ICF; WHO 2001). It was an EC-funded research project comprising three major studies.

First, with the ENABLE-AGE Update Review on housing-related policies and legislation, European key policy issues were established and served as the starting point for the project.

Second, in the ENABLE-AGE Survey Study quantitative data on housing and health was collected using a comprehensive questionnaire during home-visits

with roughly 400 participants from each country (N=1,918). The questionnaire comprised standardised assessments (both interview- and observation-based) and project-specific questions. Specific attention was paid to both objective and perceived housing aspects and P-E relations. Data at baseline and follow-up one year later (T2) was collected within the 3-year period initially funded. In Sweden and Germany additional national funding made two more follow-ups possible within 9 years from baseline. The target group was very old people (in Sweden, Germany and UK: 80-89 years old and in Hungary and Latvia: 75-84 years old), living alone in ordinary housing in urban districts. The sample was stratified to 25% men (Iwarsson et al. 2007).

Third, the ENABLE-AGE In-depth Study generated qualitative data on the meaning and experience of home in relation to the key concepts such as autonomy, participation and well-being. About 10% of the Survey Study participants positive to also taking part in the qualitative study arm were interviewed (N=189).

Since 2004 the ENABLE-AGE Project has generated close to 60 original publications in several areas such as: home and participation, assistive devices, ADL and independence, cross-national comparisons on housing and living conditions, and relationships between objective and perceived aspects of housing and supportive home environments (see e.g., Iwarsson et al. 2014, submitted). Issues on relocation had not, to now, been explored and data from the Swedish and German samples together with additional follow-up data collection was used for the present thesis.

Aims

The overarching aim of this thesis was to expand and deepen the knowledge on relocation within the ordinary housing stock and to special housing in very old age in two Western European countries (Sweden and Germany). With a focus on person-environment relations concerning housing and health, predictors and consequences of relocation was explored. Also, the complexity in residential decision-making concerning how very old people reason about their home and everyday life in relation to relocation and ageing-in-place were explored. The overall intentions were to contribute to the theoretical development in the field of relocation research and to generate knowledge with potential to contribute to the development of occupational therapy practice as related to housing issues.

Specific aims were to...

...in a prospective study over 4 years explore what aspects of housing and health predict relocation within the ordinary housing stock or to special housing among very old people living alone in Sweden.

...compare dwellings before and after relocation in terms of environmental barriers, housing accessibility and usability among very old people living alone in ordinary housing in Sweden, including an exploration of whether the participants were better off in terms of accessibility after relocation compared to a scenario where they had remained in their former dwellings.

...explore how very old people, living in ordinary housing in Sweden and Germany, reason about ageing-in-place and relocation.

...explore the reasoning on relocation/ageing-in-place as a process and changes in that process over time among very old people in Sweden and Germany.

...present and discuss some implications of applying the Model of Residential Normalcy and the Model of Environmental Experience in empirical qualitative studies on ageing-in-place and relocation.

Methods

Having access to data from the Swedish and German samples of the longitudinal ENABLE-AGE Project enabled the use of a wide range of method designs and analyses in reaching the overall aims. Quantitative data from the Swedish sample was used in studies I and II. With a prospective design, data on housing and health aspects at baseline and dates on relocation over 4 years (from the Public National Registry) was used to analyse predictors for relocation within the ordinary housing stock and to special housing (study I). With a before-after design, aspects of the former and new physical home environment could be compared among participants who had relocated within the ordinary housing stock (study II).

Qualitative interview data from the Swedish and German samples collected in the ENABLE-AGE In-depth study was used to explore reasoning on relocation and ageing-in-place (Study III). Follow-up interviews were conducted 8 years later to explore changes in the reasoning process longitudinally (study IV).

Figure 1 shows sample sizes at each data collection from the ENABLE-AGE Project, as well as additional data collections specific for this thesis (dotted line). An overview of designs, methods and specific sample sizes of each study is presented in table 1.

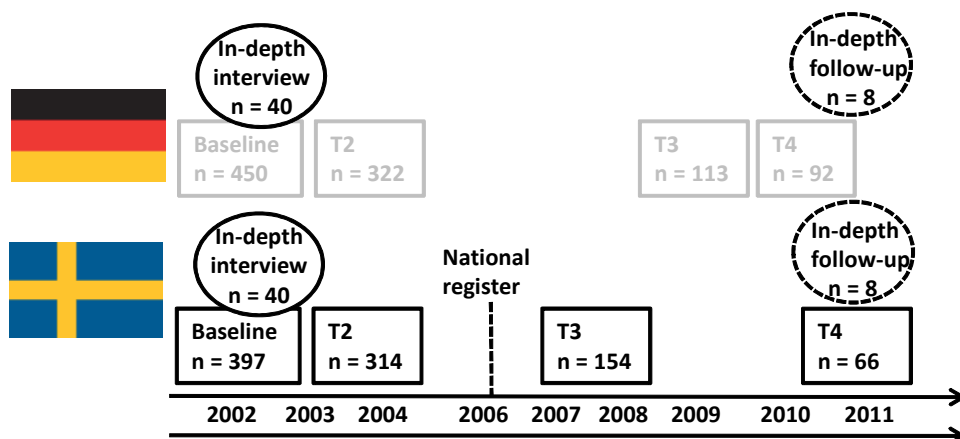


Figure 1: Overall design, timeline and sample sizes for data collections within the ENABLE-AGE Project in Sweden and Germany and thesis-specific data collections (dotted line).

Table 1. Overview of designs and methods of the four studies in the thesis.

	Study I.	Study II.	Study III.	Study IV.
	Quantitative		Qualitative	
Design	Prospective	Before-after	Cross sectional	Longitudinal
Sample	Swedish	Swedish	Swedish and German	Swedish and German
Data	Baseline data and Public National Registry data on moves	Baseline - T4 data	In-depth interview data from 2003	In-depth interview data from 2003 and 2011
N	384	29	80	16
Analyses	Cox regression analysis ¹	Wilcoxon Signed Rank Test	Secondary analysis ² , Conventional content analysis ³	Longitudinal analysis ⁴ , sensitising concepts ⁵

Note: In accordance with ¹Norman & Streiner (2008) ²van den Berg (2005), ³Hsieh & Shannon (2005), ⁴Saldana (2003), ⁵Corbin & Strauss (2008).

Study samples

To establish predictors for relocation (study I), the Swedish baseline sample was used as starting point (N=397). Data on relocation was obtained from the Swedish Public National Registry within 4 years from baseline (see figure 1). Thirteen participants were excluded due to incomplete baseline data or because they were untraceable in the National Registry. Thus, the final study sample was 384 people (see table 2). For sample characteristics, see table 2.

To compare differences in former and new dwellings after relocation (study II), participants from the Swedish sample who had relocated within the ordinary housing stock¹ at any follow-up occasion and had data on environmental barriers and accessibility, were included in the analysis (N=29). For sample characteristics at baseline, see table 2.

¹ In study II, participants relocating to special housing were included if the new dwelling had the following necessary housing functions: own entrance; hygiene area with toilet function and bath/shower function; kitchen/ kitchen alcove; dining area and storage place.

To explore how very old people reasoned about relocation and staying put (study III), participants from the Swedish and German samples from the ENABLE-AGE In-depth study from 2003 were included. Qualitative data from the in-depth interviews conducted in 2003 were utilised to perform a secondary analysis (N = 80).

To explore changes in reasoning over time (study IV), 10 people from Sweden and 11 people from Germany who participated in the in-depth study in 2003 were contacted. That is, all who were still alive. Eight participants from each country agreed to take part in a follow-up interview. For sample characteristics at baseline, see table 2.

Table 2. Description of the samples of the four studies at baseline (2003).

Variable	Study I (N=384)	Study II (N=29)	Study III (N=80)	Study IV (N=16)
Sex, men, n %	95 (25)	9 (31)	30 (38)	5 (31)
Age, M (SD)	85 (3)	84 (3)	85 (3)	83 (3)
Economic situation ¹ , Md (q1-q3)	8 (6-10)	8 (5-9)	9 (7-10)	9 (5-10)
Number of symptoms ² , Md (q1-q3)	7 (4-10)	6 (4-9)	8 (5-11)	7 (4-11)
Number of symptoms of depression ³ , Md (q1-q3)	3 (1-4)	3 (1-5)	2 (1-5)	2 (1-3)
Cognitive deficits ⁴ , Md (q1-q3)	100 (75-100)	100 (75-100)	100 (75-100)	100 (75-100)
Perceived health ⁵ , Md (q1-q3)	3 (2-4)	2 (2-4)	4 (3-4)	3 (1-3)
Tenure				
Rented, n (%)	194 (52)	9 (33)	42 (53)	8 (50)
Owned, n (%)	182 (48)	18 (67)	38 (48)	8 (50)
Dwelling				
One-family house, n (%)	63 (16)	7 (24)	11 (14)	4 (25)
Multi-dwelling, n (%)	321 (84)	22 (76)	69 (86)	12 (75)
Number of rooms, Md (q1-q3)	3 (2-4)	3 (3-5)	3 (2-4)	3 (2-4)
Number of movers ⁶ , n (%)	70 (18)	29 (100)	n.a	4 (25)

Note: In some occasions, the sum of the percentages exceeds 100% due to rounding.

¹0 (very unsatisfied) to 10 (very satisfied) (Iwarsson et al. 2005)

²Possible range 0–30 (Tibblin et al. 1990)

³Possible range 0–15 (Sheikh and Yesavage 1986)

⁴Study-specific short version of the MMSE (Iwarsson et al. 2005); proportion of correctly performed tasks, 0–100 %

⁵1 (excellent) to 5 (poor) (Sullivan and Karlsson 1994)

⁶Number of movers at follow-up or end of study.

Quantitative data collection and data analyses

Quantitative data for the ENABLE-AGE Project was collected over one or two home visits for each data collection. A comprehensive battery of interview questions, assessments and observations on housing and health was completed by experienced occupational therapists, specifically trained for the project. Smaller revisions and updates of the assessment battery were made at T2, T3 and T4.

Study I

Data on health aspects such as number of symptoms, cognitive decline, depression, independence in ADL, perceived health and life satisfaction was used as well as data on objective and perceived housing aspects such as type of dwelling, accessibility, housing-related control beliefs and the meaning of the home. Concerning the P-E fit variable accessibility, the Housing Enabler was used (Iwarsson & Slaug 2001). Environmental barriers in the dwelling, at the entrance and in the closest outdoor surroundings were observed and registered as present/not present, as defined by current standards for housing design (environmental component, 188 items). Functional limitations and dependence of mobility devices were assessed by a combination of interview and observation and registered as present/not present (personal component, 15 items). The magnitude of accessibility problems were calculated by combining present barriers with present functional limitations according to a predefined scoring system.

The information from the Swedish Public National Registry included old and new addresses, dates of moves and deaths within 4 years from baseline. For an overview of variables used in study I, see table 3.

Study II

Information on relocation was gained with a study specific question at all follow-up occasions. The data collection closest in time before each move was used to describe the former dwelling and health aspects before the move. The data collection closest in time after relocation was used to describe the new dwelling and current health status. Information on functional limitations, environmental barriers, usability and different aspects of accessibility were analysed. For accessibility, a reduced version of the Housing Enabler was used (Carlsson et al. 2009). For usability, the Usability in My Home Questionnaire (Fänge & Iwarsson 1999, 2003) was used. It is an assessment capturing to what degree the participants perceived that the physical home environment supported their performance of daily activities in the home. For an overview of variables used in study II, see table 3.

Since the data collections in the ENABLE-AGE Project were made with different time intervals (see figure 1.), the period of time between pre and post

data collection differed for the participants from one to four years. The average mean time was 2.6 years (SD = 1.6 years).

Statistical analyses

The Housing Enabler software (Slaug & Iwarsson 2001) was used for accessibility computation and the SPSS 17.0 to 21.0 for statistical analyses.

Study I

Cox regression analyses were used in order to explore health and housing aspects that predicted relocation, either within the ordinary housing stock or to special housing. The participants were followed for up to 4 years from baseline until whichever of the following dates came first: date of relocation within the ordinary housing stock, date of relocation to special housing, date of death, or end of study. For participants who moved more than once ($n = 6$) only the first move was considered.

All variables representing aspects of health and housing were inserted separately in Cox regression analyses, modelling time to relocate to each form of housing. Variables with a p-value < 0.25 in the bivariate analyses were then entered into the multivariate analyses aiming at a model for relocation within the ordinary housing stock and to special housing. The models were reduced in a backward, step-wise manner, implying that the independent variable with highest p value was taken out of the model at each step until the remaining variables had p values < 0.05 . Sex and age were entered into the models to control for possible confounding.

Study II

To analyse differences between former and new dwellings following relocation the Wilcoxon Signed Rank Test was used. Besides housing accessibility, an accessibility score for each environmental barrier was calculated as well. The so called P-E function expresses how much each environmental barrier contributes to the total accessibility score. Moreover, to explore whether the sample was better off after relocation in terms of accessibility compared to a scenario where the participants had remained in their former dwellings, a simulated accessibility score was calculated. This was done by combining the environmental barriers from the pre data collection of the former dwelling (E^{pre}) with the functional limitations as assessed at the post data collection (P^{post}) and calculating a simulated score (P-E fit^{sim}). The P-E fit^{sim} was compared with the ordinary accessibility score from the new dwelling (post data collection), using the Wilcoxon Signed Rank Test. For description of the differences in construct of accessibility and P-E fit^{sim}, see figure 2.

Table 3. Overview of health and housing variables used in studies I and II.

Variables	Study	Original instrument	Reference	Study specific adaptation and description
Number of symptoms	I	Symptom List Questionnaire	Tibblin et al. 1990	Range 0-30
Number of symptoms of depression	I	Geriatric Depression Scale	Sheikh and Yesavage 1986	Range 0-15
Cognitive deficits	I	Mini Mental State Examination	Folstein et al. 1975; Eccles et al. 1998	4 tasks. Proportion of correctly performed applicable tasks
Number of functional limitations	II	Housing Enabler	Iwarsson and Slaug 2001	14 items from the personal component, yes/no
Use of mobility device	I	Housing Enabler	Iwarsson and Slaug 2001	2 items from the personal component merged to 1 item, use or no use
Independence in ADL	I	ADL Staircase	Sonn and Hulter Åsberg 1991	Dichotomised into independent/dependent in feeding, transferring, toileting, dressing and bathing (PADL, 5 items) and cooking, using transportation, cleaning and shopping (IADL, 4 items)
Perceived functional independence	I	Neuropsychological Ageing Inventory	Oswald 2005	1 item, 0 (totally dependent) to 10 (totally independent)
Perceived health	I	SF-36	Sullivan and Karlsson 1994	1 item, 1 (excellent) to 5 (poor)
Life satisfaction	I	Project specific (P.S) question	Iwarsson et al. 2005	1 item, 0 (very unsatisfied) to 10 (very satisfied)
Tenure	I	P.S question	Iwarsson et al. 2005	1 item, dichotomised to rented or owned
Type of dwelling	I	P.S question	Iwarsson et al. 2005	1 item, dichotomised to multi-dwelling block or one-family house
Years lived in present dwelling	I	P.S question	Iwarsson et al. 2005	1 item
Number of rooms	I	P.S question	Iwarsson et al. 2005	1 item, kitchen and bathroom not included

Accessibility	I	Housing Enabler (HE)	Iwarsson and Slaug 2001	Environmental barriers (environmental component, 188 items) (personal component, 15 items). An accessibility score is calculated by combining present barriers with present functional limitations according to a predefined scoring system. Higher scores mean more accessibility problems.
Accessibility	II	HE, reduced version	Carlsson et al. 2009	Environmental component (61 items) and personal component (14 items). See above.
Number of environmental barriers	II	HE, reduced version	Carlsson et al. 2009	61 items from the environmental component
Usability	I+II	Usability in My Home Questionnaire	Fänge and Iwarsson 1999, 2003	Two subscales including 10 items, 1 (not at all suitable) to 5 (very suitable)
Meaning of home	I	The Meaning of Home Questionnaire	Oswald et al. 1999	Three subscales including 24 items, 0 (strongly disagree) to 10 (strongly agree)
Housing-related control belief	I	Housing-Related Control Belief Questionnaire	Oswald et al. 2003	16 items on external control, 1 (not at all) to 5 (very much)
Housing satisfaction	I	Housing Options for Older People questionnaire (HOOP)	Sixsmith and Sixsmith 2002	1 item, 1 (no, definitely not) to 5 (yes, definitely)
Dwelling still suitable in the future	I	HOOP	Sixsmith and Sixsmith 2002	1 item, 1 (no, definitely not) to 5 (yes, definitely)
Upheaval to move	I	HOOP	Sixsmith and Sixsmith 2002	1 item, 1 (no, definitely not) to 5 (yes, definitely)
Neighbourhood satisfaction	I	P.S question	Iwarsson et al. 2005	1 item, 0 (very unsatisfied) to 10 (very satisfied)

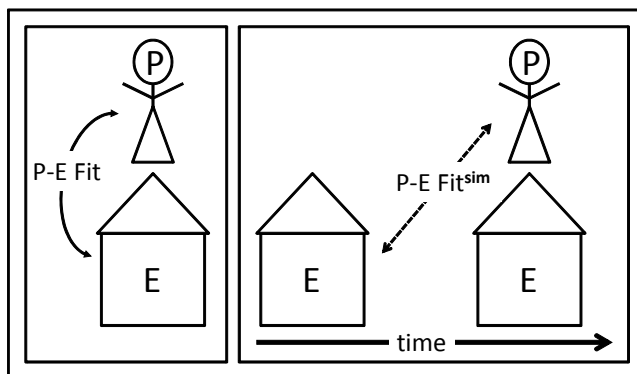


Figure 2. The accessibility score captures the P-E fit at a given time. The simulated accessibility score captures the P-E fit that would have occurred if the person had stayed in the previous environment, considering changed functional limitations over time (P-E fit^{sim}).

Qualitative data collection and data analyses

Study III

The in-depth interviews conducted in the ENABLE-AGE Project in 2003 were based on a thematic interview schedule guiding the interviews to focus on social and community participation, independence, the meaning of home, health and well-being, and societal supports for ageing-in-place. In this study, the data from the Swedish and German participants (N=80) was used for a secondary analysis focusing on reasoning on relocation and ageing-in-place. All participants were interviewed in their homes, by trained, national interview-teams. Grounded theory served as the analytic framework (Charmaz 2006). The recorded interviews lasted between 40 and 80 minutes and were afterwards transcribed (for further details; Haak et al. 2007a).

Study IV

The in-depth follow-up interviews were conducted in 2011 (see figure 1). Researchers representing both Swedish and German teams developed an interview schedule based on the original from 2003. Since the first interview had generated rich data on relocation as well as on ageing-in-place, only small changes were made. Specifically, prompting questions were added to each theme concerning perceived changes over the intervening 8-year period. The interviews in Sweden were conducted by me and in Germany by a German co-author. They were carried out during home visits lasting 30 to 70 minutes, and interviews were recorded and afterwards transcribed. Thus, the unit of analysis included interviews with eight Swedish and eight German participants from 2003 and 2011.

Analytic approaches

Cross-national qualitative analyses

A specific approach was developed for analysing interview data in two different languages, with English as the common language for communicating and reporting (Haak et al. 2013). The transcripts were kept in the native languages during the analysis, thus the German interviews were analysed primarily by the German co-authors and the Swedish interviews primarily by the Swedish co-authors. However, to perform a joint analysis and treat all participants as one sample, the authors translated codes, and essential quotes into English as the analysis progressed. Translation was kept to a minimum to avoid as far as possible, the problems involved with translation of qualitative data since that poses a threat to the trustworthiness of the findings (Van Nes et al. 2010). The software ATLAS.ti (version 6.2.2) was used to keep transcripts and quotes in the respective native language during the analysis process and to share each step of interpretation among the co-authors in a valid way. In addition, regular face-to-face meetings, e-mail correspondence, and telephone meetings took place between the authors during the analysis process.

Study III

Conventional qualitative content analysis (Hsieh & Shannon 2005) was used to explore reasoning on relocation and ageing-in-place. The analysis was performed as an iterative process going back and forth between data and interpretations and findings. Half of the interviews (20 in each national sample) were first read and analysed, resulting in a preliminary joint English code list. Thereafter, codes and their contents were discussed leading to an extended list. In the next step, another 10 interviews from each national sample were incorporated into the analyses. A face-to face analysing session took place, and the code list was further developed. The final agreed-upon code list was then validated against the final 10 interviews available in the respective national samples. The codes were linked and sorted into categories. I and two other co-authors, not previously involved in the analysis process, validated the categories and underlying quotes, as recommended by Lincoln and Guba (1985). Our reflections were fed into the final step of the analysis.

Study IV

A longitudinal analysis was used to analyse change over time. First impressions on the data were discussed in an analysis session and, subsequently, the Model of Residential Normalcy (Golant, 2011) and the Model of Environmental Experience (Rowles & Watkins, 2003) were chosen as sensitising concepts to facilitate the analysis. Sensitising concepts derive from the literature and are used for guidance in approaching data as well as to enhance sensitivity to nuances and stimulate

questions during the analysis process. These concepts can help the researcher to make constant comparisons between the data and the literature and thus to elaborate, revise or criticise pre-existing knowledge and extant theories (Corbin & Strauss, 2008; Thornberg, 2012).

Based on an overarching question (Corbin & Strauss 2008) —“What home-related topics occur in the interviews?”, in-vivo-codes were identified. The sensitising concepts were brought to the data by raising the questions “How does space become place (or not)?” and “How does striving for normalcy appear in the data?”. Two kinds of changes were focused upon in the longitudinal analysis (Saldana, 2003). First, by comparing the first and the second interview of each participant, changes in terms of differences or similarities in having or not having normalcy were examined. Second, by combining data from the first and second interview of each participant, changes within the process of transforming spaces into places over the eight years were examined. In this way, theoretical codes including longitudinal data were generated on a more abstract level.

The procedure was repeated three times on pairs of participants resulting in rich and fluid descriptions of findings and interpretations. The contents were compared and contrasted against data from the remaining 10 participants. This comparison allowed further elaboration on the findings.

Ethics

Ethical guidelines in each participating country were followed in accordance with the Helsinki Declaration (World Medical Association, 2008). Once the participants were enrolled in the ENABLE-AGE Project, anonymity was assured and the participants were informed that they could withdraw from the project at any time. Written informed consent was obtained at all interview occasions. The participants were assured that participating would not impact on any current or future health care intervention. The interviewers were prepared to give information and to guide in contacting health care services if an unmet need was detected. For the participants, the interviews could lead to discussions on sensitive issues, and preparing for this was an important part of interview training. Data was treated with confidentiality in accordance with the Data Protection Act (SFS 1998:204) in Sweden and data protection regulations of the state of Baden-Wuerttemberg, Germany.

For the respective national data collection, the ENABLE-AGE Project was formally approved by the local Ethics Committee at Lund University (LU 324, 2002 and LU 842, 2002), Sweden, and by the Data Protection Officer from the Federal State of Baden-Wuerttemberg, Germany.



Results

The aim of this thesis was to deepen the knowledge on relocation within the ordinary housing stock and to special housing in very old age in two Western European countries, using a P-E relations focus. In *P-E relations influencing predictors and consequences of relocation in very old age*, results from quantitative data reflecting the situation of very old people living alone in Sweden, will be presented (studies I & II). In *Reasoning on relocation and ageing-in-place in very old age*, the perspective is widened to both Sweden and Germany describing results based on qualitative data (studies III & IV).

P-E relations influencing predictors and consequences of relocation in very old age

Predicting relocation to ordinary and special housing in Sweden

After 4 years 70 participants (18%) had moved either to another dwelling within the ordinary housing stock (n = 24), or to special housing (n = 46). Of the 314 people who stayed put (82%), 69 participants died during the study-period.

The multivariate analyses for relocation to another dwelling within the ordinary housing stock resulted in a model with dependence in the IADL cleaning, perceived functional independence and type of dwelling as significant predictors. They were not influenced by the confounders sex and age. In other words, to live in a one-family house, to need help with cleaning, but to still evaluate yourself as functionally independent increased the possibility of a move to another dwelling in the ordinary housing stock (see table 4).

Table 4. Model on health and housing aspects predicting relocation within the ordinary housing stock in Sweden.

Covariate	HR	p-value	95% CI
Sex ¹	2.81	(0.067)	0.93-8.47
Age	1.10	(0.216)	0.95-1.27
Cleaning (IADL) ²	2.52	(0.041)	1.04-6.12
Perceived functional independence ³	1.53	(0.008)	1.12-2.10
Type of dwelling ⁴	7.07	(<0.001)	3.03-16.51

Note: Cox regression analyses; HR = hazard ratio; 95% CI = 95% confidence interval for hazard ratio; Statistical significance: $p < 0.05$.

¹Men (0) women (1).

²Independent (0) dependent (1) (Sonn & Hulter Åsberg 1991).

³Totally dependent (0) to totally independent (10) (Oswald 2005).

⁴Multi-dwelling (0) one-family house (1).

Turning to special housing, the following predictors for relocation were significant; cognitive deficits, the IADL cooking, and accessibility. They were not influenced by the confounders sex and age. Expressed differently, to live in a dwelling with more accessibility problems, to have indications of cognitive decline, and to no longer be able to cook independently all together increased the possibility of a move to special housing within 4 years (see table 5).

Table 5. Model on aspects of health and housing predicting relocation to special housing in Sweden.

Covariate	HR	p-value	95% CI
Sex ¹	1.58	(0.245)	0.73-3.40
Age	1.06	(0.281)	0.95-1.18
Cooking (IADL) ²	2.86	(0.002)	1.48-5.54
Cognitive deficit ³	0.18	(0.006)	0.05-0.60
Accessibility ⁴	1.27	(0.036)	1.02-1.58

Note: Cox regression analyses; HR = hazard ratio; 95% CI = 95% confidence interval for hazard ratio; Statistical significance: $p < 0.05$.

¹Men (0) women (1).

²Independent (0) dependent (1) (Sonn & Åsberg 1991).

³Proportion of correctly performed tasks, 0-100% Short version of the MMSE (Iwarsson et al. 2005).

⁴Min-max: 0-670, higher scores indicate more accessibility problems. The score is used in the analyses as the original score/100 (Iwarsson & Slaug 2001).

Consequences of relocation to ordinary housing in Sweden

During the 9-year study period of the ENABLE-AGE Project 29 participants relocated within the ordinary housing stock, out of which one third moved to senior housing. At the time of relocation, the approximate mean age was 87 years. The most common type of dwelling after the move was an apartment in a multi-dwelling block and the majority downsized to a one- or two-room dwelling. By comparing former and new dwellings it was found that the number of

environmental barriers was significantly reduced after relocation and 76% of the participants (n=22) moved to dwellings with fewer barriers. Accessibility and usability were not significantly improved (see table 6.). However, compared to the scenario of remaining in the former dwelling, the accessibility was significantly better after relocation to the new dwelling. The P-E fit^{sim} for the total sample was Md = 133 (q1-q3 = 85-173) and thus significantly worse than the actual accessibility score after relocation (p value <0.001).

Taking into account the changes in functional limitation between the pre and post data collections, the P-E function (accessibility score / barrier) changed for virtually all single environmental barriers after relocation. Environmental barriers causing significantly less accessibility problems were found indoors, in particular in the bathrooms. The environmental barriers causing significantly more accessibility problems after relocation were, for example, irregular walking surfaces in outdoor surroundings and complicated / illogical opening procedures in entrances (see figures 3 and 4). Wall-mounted cupboards and shelves placed too high in the kitchen were singled out as having the largest accessibility score both before and after relocation.

Table 6. Environmental barriers, accessibility and usability before and after relocation within the ordinary housing stock, in Sweden (N = 29).

Housing aspect	Former dwelling	New dwelling Md (q1-q3)	p-value
No. of environmental barriers ¹	31 (28-34)	25 (20-29)	<0.001
No. of functional limitations	3 (1-4)	3 (2-5)	0.046
Accessibility ²	96 (28-143)	81 (51-130)	0.681
Usability – activity aspects ³	4.7 (4.1-5.0)	4.8 (4.1-5.0)	0.441
Usability – physical environmental aspects ³	4.4 (3.9-5.0)	4.6 (4.0-4.8)	0.421

Note: Wilcoxon Signed Rank Test; Md (q1–q3): Median and (first quartile–third quartile). Due to internal drop-out n varies between 28 to 29.

¹Possible range 0-61 (Carlsson et al. 2009)

²Higher scores indicate more accessibility problems, min-max in this sample; 0-306 (Iwarsson & Slaug 2001)

³Possible range 1-5, higher scores indicate better usability (Fänge & Iwarsson 1999, 2003)

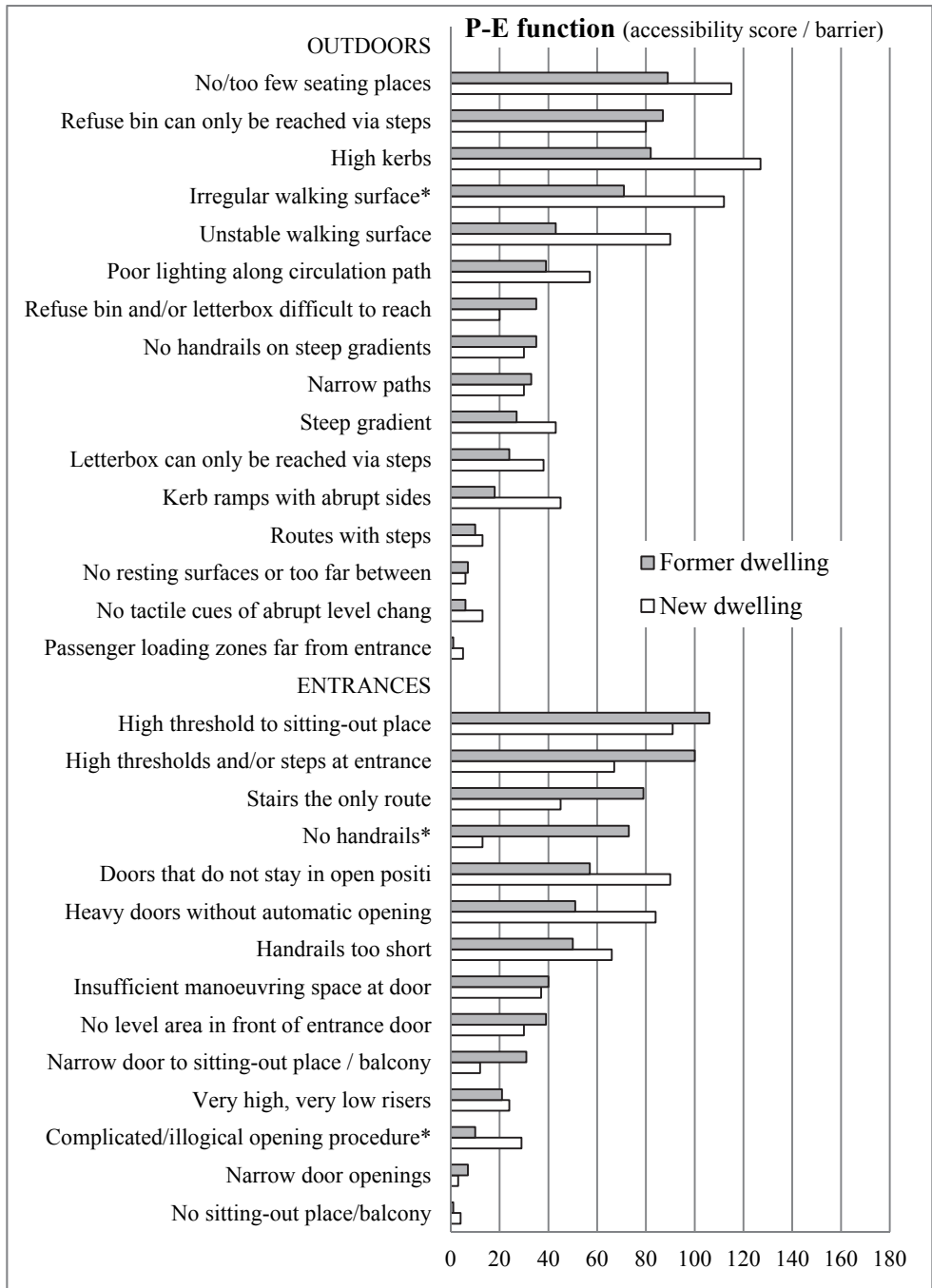


Figure 3. P-E function of single environmental barriers in outdoor surroundings and at entrances in former and new dwellings (in descending order, with the former dwelling used as reference). Significant change, * p value < 0.05

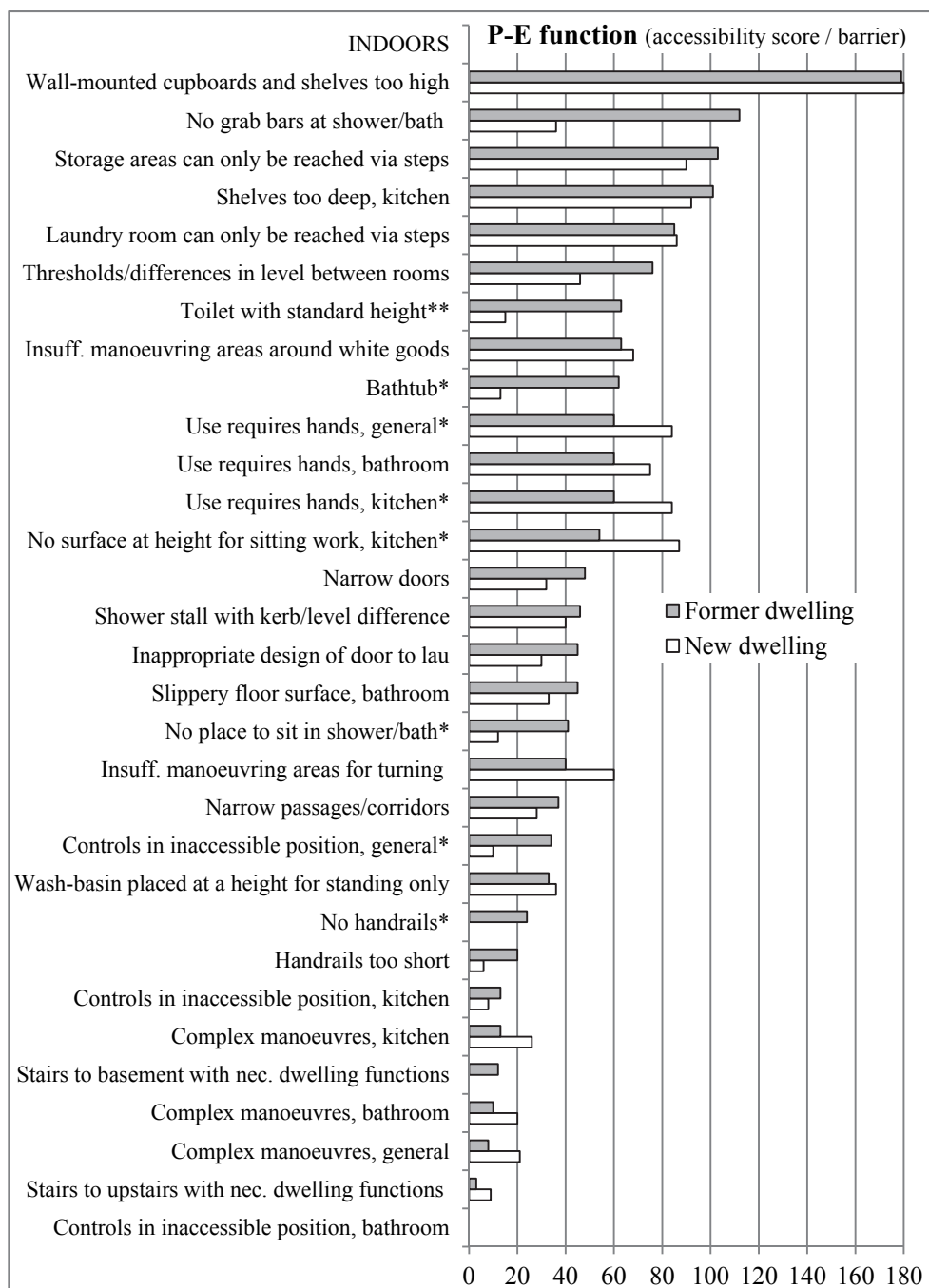


Figure 4. P-E function of single environmental barriers indoors in former and new dwellings (in descending order, with the former dwelling used as reference). Significant change, * p value < 0.05, ** p value < 0.01

Reasoning on relocation and ageing-in-place in very old age

Thinking of relocation causes ambivalence

Among the 80 participants living in ordinary housing the experience of relocation throughout life was varied. Some of the participants had experience from one or more moves over their life span, some had recently moved and other participants had lived in the same dwelling for a very long time.

When thinking of relocation and ageing-in-place a variety of reflections, emotions and behaviours were described, reflecting both being for and against a move. Some participants were totally against a move, others could see it as a likely outcome even if it was not wanted. Irrespective of which, the ambivalence was strong throughout the interviews and this ambivalence will be focused upon here.

Some participants were aware that they would probably need to move some day. Loneliness, striving to keep independence or onset of major health changes like dementia were reasons they stated for moving. Some reflected on their high age and implicit pressure from others to relocate. Although they expressed concern about not being able to bring precious items, not feeling comfortable in a new dwelling, or being afraid of not being able to live everyday life as they were used to, if a move actually happened. The contradiction between thinking in rational terms or thinking of what one actually wanted and valued resulted in ambivalence.

“I feel lonely, and that is why I think I should move, but I don’t want to, really.”

Even some participants with relocation experience thought that a new move would be too strenuous to cope with, causing contradictory opinions. A woman who long ago had put herself in line for senior housing was still not convinced that relocation would be the right choice.

“I don’t know; I’ve been a little hesitant lately about whether I should try to get a smaller flat. This place is too big with six rooms and a kitchen...I have to realise that it will be harder and harder to cope.”

The fear of not being able to maintain important life roles and not being able to carry out meaningful activities was set against the convenience of living in senior or special housing.

”Yes, I have also hesitated (to move). What if I get a small two-room flat in an old-people’s home, how would I take care of my grandchildren then?...All the noise and uproar, the screaming and shouting they can make. Here they can cause as much trouble as they like and here there is also a garden which they can play in...But

then, on the other hand, I'm getting older, it is my 81st birthday in a fortnight. So I'm not so young anymore."

That the actual move would be too demanding was mentioned as a reason for not moving, even if the present home was not ideal.

"Actually, I would (move)...if it was not such hard work or so expensive to move...I would do it. It is too big here...I do not need such a big flat for one person."

Changes in the process of residential reasoning

At the time of the in-depth follow-up interview the 16 participants were 89–97 years old. Two men were no longer living alone. Four participants had moved since the first interview; two German women had moved to special housing, one Swedish woman had moved to senior housing and a Swedish man had moved within the ordinary housing stock. The participants' reasoning on the home and everyday life in relation to relocation / ageing-in-place (residential reasoning) showed both stability and change in the 8 years. Some important aspects of change will be described by using parts of the terminology from the Model of Residential Normalcy and the Model of Environmental Experience described earlier.

Maintaining residential normalcy and remaining at home

Over the years, along with increasing health problems, concerns were expressed more persistently about the struggle to be able to stay put and manage to age-in-place. A range of assimilative and accommodative strategies were used to cope with everyday hassles and to fulfill needs and goals; that is, to be able to stay in comfort and mastery zones. A commonly used assimilative strategy was the acceptance and use of help during activities related to the home and everyday life. Such assistance could include home care services from the municipality, paid help or help from friends and family. Accommodative strategies were also common. One strategy was merely to not want to do things that had once been enjoyed. Participants supported such strategies with justifications such as that they appreciated being on their own or enjoyed their own company (attitudes which changed over time). Another strategy was to prioritise the activities they used to do. Several coping strategies seemed to be used subconsciously. The fact that health changed gradually, and the persistent striving of the participants to cope with everyday life, might have led to an unawareness of all adaptive strategies they made use of.

Moving to regain residential normalcy

Even if a move can be planned, wanted and feasible - that is, could meet the conditions for relocation as a coping strategy, residential normalcy might still not

be regained after a move. By the time of the first interview, one man had advanced plans about moving to a smaller dwelling closer to his daughter. He felt lonely and the garden and dwelling had become a burden. His plans seemed reasonable and realistic and he looked forward to moving:

“Well, I would love to stay here but I'm starting to feel that it is, well it is not possible forever, then you rather have to make plans while you still can. That's a fact.” (2003)

He moved shortly afterwards to a smaller two-story house, 75m from his daughter's home. His health had changed rapidly over the last couple of years, and he was limited because of poor eyesight, poor hearing, diabetes and mobility problems. In the second interview he explained that the house did not feel like home. He felt lonely and bored.

“I have the newspaper in the mornings ... and then I usually listen to the radio. Otherwise, I just sit and wait. That's the worst part. It's pretty tiring.” (2011)

Making use of environmental experience when transforming the new dwelling into a home

The participants who had previous experience of moving described how attachment to the new home had developed by making use of their environmental experiences - i.e., using their place-making skills in a variety of ways. They brought belongings that were meaningful to them, which symbolised important life events. In this way attachment and bonding to one home was transferred to the other. One woman had moved three times after the age of 70. With the latest move she was nearer to the senior citizen centre which she used to be very active at. Living closer made it possible to attend activities, despite the fact that she now needed a wheeled walker when being outside. She was very fond of her new home and had furnished it in a similar way to the former, enabling her to keep her daily habits. The very centre of her home was an armchair which she mentioned several times in both interviews. She started every morning, took daily naps, watched television and listened to the radio in the chair.

“... I get up and put my robe on and then I sit down over there and I get some coffee, I turn the radio on then I sit there and listen.” (2003)

“That armchair over there is my little nest. My nest that I use in the mornings.” (2011)

If the move was to special housing then it was not always possible to make use of environmental experience. Special housing was not perceived as somewhere to make a home. One woman who had moved to special housing explained that she was stuck in her wheelchair, stuck in the building and that she felt as if she was

imprisoned. She had moved three years prior to the second interview and had the financial means to keep her old apartment. Keeping the idea of her old home, and even visiting it occasionally, seemed to relieve her from the struggle of adjusting to her new place of living.

The opinion that special housing was not supposed to be a home was expressed by others as well. Participants struggling for a long time trying to cope with health problems resigned themselves and actually expressed the opinion that a move could be acceptable. This shift in opinion was justified by their reasoning that they would not have to live in special housing for long. It was merely a place in which to die.

Discussion

With the overarching aim to expand and deepen the knowledge on relocation in very old age through the theoretical lens of P-E relations this thesis contributes with new knowledge on predictors and consequences of relocation and the complexity of residential decision-making. Important contributions of the thesis are the identification of different patterns of housing and health related predictors for relocation to special and ordinary housing, and also identifying that very old people moving within the ordinary housing stock seem to move to dwellings with less environmental barriers. Most important, the studies support the development of a new concept – residential reasoning – which reveals that reasoning on relocation and ageing-in-place is a process filled with ambivalence and in most cases a strong wish to remain at home. The decision-making process evolves together with the struggle to keep residential normalcy. Also, the ability to feel at home in a new dwelling after relocation is dependent on previous environmental experiences gained throughout life.

P-E relations influencing predictors and consequences of relocation in very old age

To be living in a one-family house and starting to have trouble cleaning the dwelling but still perceiving oneself as functionally independent predicted relocation within the ordinary housing stock. Since most research has focused on younger old or has been based on retrospective interviews, this kind of result represents new knowledge. The combination of factors reflecting both dependence and independence mirrors the ambivalence towards decision-making seen in the qualitative results and suggest that relocation within the ordinary housing stock is an issue of optimal timing. That is, when health declines to a certain level, the older person can perceived it as too late to move. The results are in accordance with previous research describing that upkeep and maintenance of a large garden or dwelling were reasons for moving (Hansen & Gottschalk 2006; Sergeant & Ekerdt 2008).

The predictors for relocation to special housing identified are not surprising, as ADL dependence and cognitive decline are well established predictors for relocation (Miller & Weissert 2000; Gaugler et al. 2007). Accordingly, in Sweden

ADL and cognitive decline are considered in the needs assessment granting special housing. Adding to this, the findings show that ADL-dependence and cognitive decline in combination with accessibility problems predicted relocation to special housing more strongly than health aspects alone. While previous research mainly has focused on health-related predictors of relocation (Oswald & Rowles 2007; Northcott & Petruik 2011) these findings contribute by showing the physical home environment to be influential as well. These findings as well as the findings of Stineman et al. (2012), that environmental barriers restricting mobility predict relocation to special housing, emphasise the need for a P-E-related focus when studying relocation in very old age. To my knowledge, the study of Stineman et al. (2012) is the only study, up until now, on the physical home environment and relocation to special housing. The study was population based but used self-reported data. By the use of objectively assessed data on environmental barriers and accessibility this thesis contributes with important knowledge. That can be used to further develop proactive housing interventions both on an individual level and on a societal level (Iwarsson et al. 2014, submitted). Whether relocation to an accessible dwelling at an early stage can postpone or avoid relocation to special housing is an intriguing issue that deserves further research attention.

The results showing that very old people seem to move to dwellings with less environmental barriers and stable levels of accessibility and usability, is in congruence with the results of Oswald et al. (2002) and Stoeckel (2011). The fact that accessibility was stable despite the increasing complexity of the functional profiles of the movers supports the ideas of Lawton (1989) that relocation can be a proactive action to adapt the environment. These findings are strengthened by the fact that accessibility was improved when comparing to the scenario of remaining in their former dwellings. Since accessibility problems are known to be related to dependence in ADL, falls and life satisfaction (Iwarsson, 1997; Iwarsson 2005; Wahl et al. 2009) improvement in accessibility are of particular interest to occupational therapists doing housing-related interventions. However, for older people to relocate to dwellings with not only stable but actually better accessibility require that they are well informed about the likelihood of successive functional decline in very old age and how this, in combination with certain environmental barriers, generates accessibility problems.

In accordance with Stockel (2011) the results show that environmental barriers in entrances and bathrooms are those most often avoided by relocation. Even if environmental barriers in entrances and bathrooms are common (Choi 2004; Iwarsson et al. 2006) additional but most likely less well-known environmental barriers are of equal importance. The list of 61 environmental barriers used (Carlsson et al. 2009) in study II is the result of many years of research and has the capacity to validly identify the environmental barriers that cause the most accessibility problems for older people and people with disabilities (Carlsson et al. 2009). For older people to make informed housing choices, this kind of knowledge needs to be translated to senior citizens as well as the actors at

the societal level. Building constructors, municipalities and policy makers are all important in providing accessible dwellings for older people. In a recent survey, two thirds of the Swedish municipalities estimate that it is difficult for the inhabitants to get access to an accessible dwelling on the regular housing market (Boverkets, 2014). A Swedish government committee is presently investigating how to stimulate older people to adjust their physical environments or to relocate to more appropriate dwellings within the ordinary housing stock (Socialdepartementet 2014). This indicates an awareness of the issue on a national level. However, incentives must be made for all 290 independent municipalities in Sweden to work in the same direction (Socialdepartementet 2014), and research findings could be used to support such developments. Even if this thesis did not have a financial perspective, it must be noted that availability of appropriate housing is also a matter of affordable housing. This perspective is maybe getting more attention in U.S and European level, but is important for all ageing societies.

Residential reasoning

The findings show that residential reasoning is filled with ambivalence, and very old people struggle to balance rational thoughts on future needs with strong feelings of attachment to the home. As supported by others concerning very old people (Carstensen 2006; Wahl, Iwarsson, & Oswald 2012), attachment to the home seems to grow stronger over time. In accordance with Golant (2011), very old people seem to use relocation as the very last coping strategy when other adaptive efforts have not been sufficient in order to regain residential normalcy in the present home. However, even if the majority at the time of the interviews had a desire to remain living in their homes, the heterogeneity in relocation experience and reasoning must not be neglected.

The findings showing that the reasoning changed over time, highlights the need to consider residential reasoning as a process. That age-related changes in health and social network impact on the meaning of home (Dahlin Ivanoff et al. 2007) and the ability to perform everyday activities (Haak et al. 2007a, 2007b), were seen to influencing residential reasoning. The findings emphasise that residential reasoning is intertwined with the considerations of and struggling with everyday life at home. As also described by others (Nygren & Iwarsson 2009), the decision-making sometimes seems to be extended over many years. This is important knowledge for occupational therapists and other health care or social care professionals working with very old people in their homes. To help very old people to deal with ambivalence, fears, worries and practical considerations about the future, in their decision-making process, is important. Noteworthy is, that this kind of help can be needed regardless of a move will be undertaken or not. Residential reasoning is not solely related to relocation.

The findings describing, that that very old people are negative towards relocation to special housing and that they express worries and fears is well confirmed in other studies (Johnson & Bibbo 2014; Pinquart & Sörensen 2002; Shippiee 2009). Also, the findings show, that for some very old people, reluctance to move to special housing decreases when they realise that end of life is approaching. To die at special housing is as acceptable as long as they do not have to live there for long. That special housing is not considered as a place to live, merely a place to die is described also by Johnson & Bibbo (2014), and it reveals important changes in residential reasoning towards the end of life. Changes previously not well studied and which deserve further attention.

Theoretical reflections on residential reasoning

The findings support the relevance of using the concept residential reasoning to study relocation and ageing-in-place as one intertwined process including a P-E relations perspective as well as a life course perspective. To be able to determine whether residential reasoning can contribute to the conceptual and theoretical development, future research needs to acknowledge and take the complexity of residential reasoning into account.

The models share a theoretical base in meaning-making P-E relations and a life course perspective, and the findings support the fact that the models can be applied and used in combination when exploring residential reasoning. Even if the Model of Residential Normalcy (Golant 2011) has a focus on decision-making and the Model of Environmental Experience (Rowles & Watkins 2003) focuses on adjustment after relocation, the findings highlight that the different stages in the process impact on each other.

As put forward in the models, the findings confirm the relevance of using a life-course perspective when it comes to residential reasoning. Also, the findings reveal the need for a temporal perspective that includes more than past experience. As described in study IV, the view very old people hold on their future impacts on how they reason and decide for their present situation. Since residential normalcy and residential reasoning includes decision-making, it would be beneficial to further elaborate on “the future life course” even in the last stage of life. This has to some extent been done but it would probably be beneficial for further development of the models and residential reasoning to incorporate such ideas (e.g., Carstensen 2006; Cutchin 2001; Cutchin, Owen & Chang 2003).

Based on empirical data from people 80 years and older, the findings shed light on a stage of life often involving moves to special housing, involuntary moves as well as moves made in the realisation of impending death. These situations impact strongly on decision-making and adjustment but were not highlighted in the two models as presented by the authors (Golant 2011; Rowles & Watkins 2003). In

future theoretical development of the models these situations deserve consideration.

That residential normalcy exists when older people live in home environments that are congruent with their goals and needs was to some extent seen in the findings (Golant 2011). In contrast, the findings show that some very old people seem to have such strong emotional bonds to their home that their only goal is to keep on living in their present home, regardless of other needs. A move is not likely a part of the coping repertoire in such scenario. How conflicts in needs and goals impact the residential normalcy of older people need to be further explored.

Overall, the Model of Residential Normalcy (Golant, 2011), the Model of Environmental Experience (Rowles & Watkins, 2003) and the findings of this thesis highlight that ageing people develop bonds to the places in which they live and experience life. A house becomes a home, having a specific meaning. This meaning of the home influences how very old people act in relation to their home and reason concerning residential decision-making. To incorporate this perspective in occupational therapy theory would probably be beneficial. So far, in P-E-O theory, the focus has been on what occupations mean, what kind of value occupations have for the individual, and how these individual preferences impact on the occupational performance (see e.g., Erlandsson, Eklund & Persson 2011; Kielhofner 2008). The findings of this thesis can be used to complement our understanding of individual preferences impacting on occupational performance and everyday life in the home.

Methodological considerations

The data collection in the ENABLE-AGE Project was preceded by thorough and comprehensive work to collect high quality data with high validity and reliability. Substantial efforts were made to agree upon definitions of core concepts and find the best possible way to operationalise them in five European countries (Iwarsson et al. 2005). The positive implications these efforts had for the methodological quality on this thesis project should not be underestimated. During the study period methodological development based on the ENABLE-AGE Project data led to recommendations that were followed as far as possible in this thesis. For example, recommendations on how to improve the internal consistency of assessments on perceived aspects of housing were followed (Oswald et al. 2006).

Studies I & II

In study I, several housing and health aspects were of interest to explore. In order not to over-fit the analytic models the number of variables was reduced by first testing them in bivariate analyses. Choosing variables based on statistical procedures has been criticised for the risk of excluding theoretically relevant variables (Walter & Tiemeier 2009). However, considering its exploratory nature such a procedure was chosen for this study.

When interpreting the results on predictors for relocation some methodological issues have to be considered. First, a 4-year follow-up period was chosen as, with a longer period with a sample aged 80-89 years at inclusion, many life events and changes may occur that would potentially threaten the validity of a study on home and health changes related to a move. Unfortunately, it was not possible to use the repeated data collections in the ENABLE-AGE Project in order to extend the study period as the number of moves was based on registry data which also included participants who later on dropped out of the project. Second, it was not possible to account for the fact that in Sweden a needs-based decision made by a municipality official is required prior to a move into special housing. In future studies the extent to which this factor influences the relations studied deserves attention.

In study II, all the 61 environmental barriers assessed with the reduced version of the Housing Enabler (Carlsson et al. 2009) were tested for change in P-E function following relocation, leading to a risk for mass significance. Still, for exploratory reasons the level of significance was kept at a p -value < 0.05 . A Bonferroni corrected level of significance would not be instrumental for the interpretation of the results (in this situation, p -value < 0.0008) and would also imply an increased risk for false negative results (Altman 1991).

The fact that changes in accessibility could be due to either changes in the environmental component or in the personal component meant that a simulated accessibility score was explored. To be able to compare P-E relations outcomes of dwellings before and after relocation regardless of changes in health, paves the way for further studies that could generate important knowledge in supporting older people in their residential decision-making processes.

In terms of the generalisability of studies I and II it should be noted that the sample in study II was small, and results based on a sample of very old people, living alone in urban districts cannot be generalised to other populations or contexts. Overall the participants were relatively healthy and perceived their economic situation as satisfactory and the drop-out analysis performed in the ENABLE-AGE Project on the Swedish baseline sample showed that the frailest group declined to participate. (Nygren, Johannisson & Iwarsson 2004). Also, the studies were based on data collected in Sweden where close to 100% of the housing stock fulfils basic housing standard requirements. Still, a high housing standard is not equal to barrier-free housing design (Helle, Iwarsson & Brandt

2013), and many older people in Sweden are living in dwellings with inaccessible entrances and other obvious challenges (Iwarsson et al. 2006).

Studies III & IV

In a time with increasing European cross-national research collaborations on ageing and health, studies using qualitative data are important but rare. One reason for the scarcity is due to language and translation difficulties that appear in research projects with researchers and participants from more than one country. The specific approach developed and used for studies III and IV contributes to the arsenal of methods on cross-national research (Haak et al. 2013).

In study III a secondary analysis was performed on data collected in the ENABLE-AGE In-depth Study, from a different angle than originally planned. Such an approach comes with challenges, but the fact that several of the authors had been involved in the original data collection and analyses is considered an asset, since they were well acquainted with data and questions that had not been addressed in prior research (van den Berg 2005). The data was analysed according to the procedures of a conventional content analysis (Hsieh & Shannon 2005) to reduce the risk of interpreting the data beyond what was possible in a secondary analysis. That is, final content was of more descriptive character than interpretive.

To increase the trustworthiness of the study, a validation (Lincoln & Guba 1985) was performed in a later stage of the analysis process. The three co-authors involved in the validation represented different disciplines and had different clinical and research experience.

Early in the analysis process in study IV, the Model of Residential Normalcy (Golant 2011) and the Model of Environmental Experience (Rowles & Watkins 2003) were chosen as sensitising concepts. The models were operationalised in terms of questions that were posed to the data. To increase the trustworthiness of the study the questions and preliminary interpretations of the data were discussed in a meeting with authors of the models. In addition, Dr. Golant gave feedback on the findings at a later stage. In the written paper, the findings were contextualised by using five of the participants as examples.

Although it was not the intention to make any cross-national comparisons, it is worth noticing that the residential reasoning of very old people in Sweden and Germany seem to share many similarities, pointing to the universality of this kind of process. This is also supported from other studies on older people concerning housing and health (Oswald et al. 2007; Pinquart & Sörensen 2002), still more knowledge is needed comparing similarities and differences among older people in different countries.

The use of both qualitative and quantitative methods gave the opportunity to explore the research questions from different but complementing perspectives which is an overall methodological strength of this thesis.

Conclusions

The results of this thesis in health science specialising in occupational therapy deepen the knowledge on relocation within the ordinary housing stock and to special housing in very old age. The main conclusions of this thesis are:

- Housing and P-E related aspects play an important role in the relocation process, thus is a relevant complement to the prominent health focus in research on relocation in very old age.
- Even in very old age, relocation within the ordinary housing stock and relocation to special housing is fundamentally different kinds of moves, which is reflected in the different patterns of predictors and the reasoning of very old people.
- As an initial step, the concept of residential reasoning seems to be useful in describing and treating the issue of relocation and the issue of ageing-in-place as one concept, which evolves as a process and changes over time.
- In very old age, a strong ambivalence is expressed in the residential reasoning, even if the desire to remain in the present home is strong. Nevertheless, different experiences, preferences and needs in housing issues reflect the heterogeneity of the group.
- Thoughts on relocation can trigger worries and fear about not being able to feel at home in a new dwelling, losing independence or not being able to keep on performing the habits of daily life. These negative expressions are more pronounced concerning relocation to special housing.
- Very old people relocating within the ordinary housing seem to move to dwellings with less environmental barriers, especially in entrances and bathrooms.
- Very old people relocating within the ordinary housing stock seem to move to dwellings with stable usability, and in terms of accessibility, improved conditions when considering changes in functional limitations.
- Regarding residential reasoning in very old age, the Model of Residential Normalcy and the Model of Environmental Experience could be further

developed to be relevant also in situations of relocation to special housing, involuntary moves and moves made in the realisation of impending death.

Implications

The findings of this thesis have implications for practice and future research targeting relocation in very old age. Knowledge translation that reaches very old people and their families, health care professionals in general and occupational therapists in particular as well as policy-makers is needed in order to increase awareness of relocation and the complexity of residential decision-making in very old age.

Occupational Therapy practice

The results of this thesis should be added to the knowledge base of housing-related occupational therapy interventions with the following implications:

- Occupational therapists providing housing-related interventions can use knowledge on residential reasoning to increase the sensitivity on individual experiences, preferences and needs regarding very old peoples' housing situation.
- Widen the scope of housing-related interventions and services to a more general form of housing counselling to support and optimise the residential decision-making of very old people.
- When possible, occupational therapists can work more proactively on housing issues and offer relocation counselling. Possibly it could be incorporated in already offered services such as preventive home visits for very old people. Considering that residential decision-making extended over many years, relocation counselling could also be offered as a preventive group intervention targeting younger old people.
- In Germany and several municipalities in Sweden, the occupational therapist hopefully could use the knowledge from this thesis as an argument to advocate for a stronger preventive focus on housing-related interventions to very old people.

Policy-making and implementation

The knowledge of this thesis could be used of different actors on a societal level with the overall intention to make the relocation process easier for very old people,

making sure that very old people who want to move when they still can and have appropriate housing options to choose between. Hopefully this thesis could be used in efforts promoting age-friendly housing and neighbourhoods.

- Efforts need to be made for countries to provide a broad range of housing options to meet the growing group of very old people having varied needs and preferences regarding housing.
- There is a need for proactive housing interventions targeting older people, with a shift in focus from ageing-in-place to ageing-in-the-best-possible-place.
- Promote that housing-related policies and services are able to take the heterogeneity of very old people and their health and housing situation into account.

Future research

The results of this thesis have several implications for further research, empirical as well as theoretical.

- Confirm the influence on housing, activities and P-E-related aspects on relocation in larger samples, including younger cohorts.
- Further investigate housing- and activity-related consequences of relocation within the ordinary housing stock (another dwelling or to senior housing) on a larger scale, also including perceived aspects of the home.
- Investigate whether good accessibility, or housing interventions making dwellings more accessible, can postpone relocation to special housing.
- Validate the simulated accessibility score (P-E fit^{sim}) and its relevance as an outcome measure of housing interventions.
- Further theoretically develop the concept of residential reasoning and empirically test it on larger samples of older people. Among the first steps focus could be on:
 - the “future life course” and its relevance for decision-making .
 - how the decision-making phase before relocation and the adjustment phase after relocation influence on each other.
 - how striving for residential normalcy and previous life experience evolve related over time.
- Further develop the Model of Residential Normalcy and the Model of Environmental Experience when it comes to the situations of relocation to special housing, involuntary moves and moves made in the realisation of impending death.

Svensk sammanfattning (Summary in Swedish)

Att flytta och tankar kring flytt bland de allra äldsta – Boende, hälsa och vardagsliv

Avsikten med denna avhandling i hälsovetenskap, inriktning arbetsterapi var att undersöka flytt bland personer över 80 år. Vad utlöser en flytt? Hur resonerar man kring att flytta eller att bo kvar? Till vilken typ av bostäder flyttar man?

I denna sammanfattning används
De allra äldsta: för personer 80 år och äldre
Ordinärt boende: Vanliga bostäder
Särskilt boende: Ett samlingsbegrepp för olika typer
av bostäder för äldre. Samtliga tillhandahålls av
kommunerna, men först efter biståndsbedömning.
Regleras enligt socialtjänstlagen.

Bakgrund

Att flytta kan vara stressande. För äldre, som ofta bott länge i sina hem, kan det innebära en stor omställning i livet. Det är vanligare att man flyttar i yngre år och i arbetsför ålder än efter pensionering. Enligt flera stora undersökningar vill de flesta äldre heller inte flytta utan bo kvar i sin bostad. Trots det sker flyttar bland personer i väldigt hög ålder. En del behöver flytta, andra önskar att göra så. Studier visar att många äldre bor i bostäder som har många miljöhinder och är otillgängliga. Det kan leda till att man behöver extra mycket hjälp från anhöriga och samhället. Regeringen har därför, under 2014, startat en utredning kring hur man kan underlätta för äldre personer att flytta eller att kunna anpassa sin bostad. Det finns indikationer på att flyttbenägenhet ökar efterhand som nya generationer bli äldre.

Den forskning som finns idag, kring äldre som flyttar, har till stor del fokuserat på personens hälsotillstånd. Exempelvis vet vi att demenssjukdom ofta utlöser en flytt till särskilt boende. Att behöva hjälp med dagliga livets aktiviteter (ADL) är också en anledning. Det är vanligare att personer som lever själva flyttar till särskilt boende jämfört med samboende. Däremot vet vi knappt något om

bostadens utformning spelar någon roll för flytt. Ur ett teoretiskt perspektiv borde det spela roll. Funktionshinder kan beskrivas som något som uppstår när gapet är för stort mellan individens förmågor och miljöns krav. Vid god matchning mellan personen och boendemiljön (så kallad Person-Environment Fit) finns inget sådant gap. Vilken roll bostadens utformning spelar vid flytt har studerats ytterst lite, framförallt när det gäller de allra äldsta. Studier gjorda på yngre äldre personer visar att man flyttar av många olika sammanflätade anledningar. Det kan vara oro om den egna hälsan, tankar på kommande hjälpbehov men också sådant som hemmiljöns utformning t.ex. att hemmet eller trädgården är för stora och betungande att sköta.

Tidigare forskning visar att beslutsprocessen kring när, var och om man ska flytta kan pågå under väldigt många år. En ytterligare fördjupning av vår förståelse kring hur de allra äldsta tänker kring sitt hem, kring att flytta och kring att bo kvar är viktig. Då kan vi lära oss mer om att stödja kvarboende men också att underlätta för de allra äldsta som vill eller behöver flytta.

I avhandlingen har jag haft möjlighet att använda data från ENABLE-AGE-projektet. Det var ett europeiskt multidisciplinärt projekt om hur boendet kan stödja självständighet, delaktighet och hälsa bland personer över 80 år som bor i ensamhushåll. Fem länder ingick i projektet (Sverige, Tyskland, Storbritannien, Ungern och Lettland) och data samlades in från sammanlagt 1913 personer. I avhandlingen har jag utgått från de svenska och tyska undersökningsgrupperna. ENABLE-AGE-projektet samlade in både kvantitativ och kvalitativ data genom hemsbesök som upprepades 4 gånger under 9 års tid. För mitt avhandlingsarbete har det inneburit att jag kunnat använda många olika metoder och både kvantitativ och kvalitativ data. Därmed har jag kunnat undersöka beslutsprocessen, vad som utlöser flytt och anpassningsfasen efter en flytt.

Studie I

Syftet med första delarbetet var att undersöka vilka boende- och hälsoaspekter som utlöser flytt till särskilt och ordinärt boende bland ensamboende personer över 80 år i Sverige. Kvantitativ data från första undersökningstillfället användes från 384 personer. Tack vare information från nationella register kunde alla som flyttade till särskilt och ordinärt boende under en 4-års period registreras. Deltagarna delades in i 3 grupper: flyttare till annat ordinärt boende (24 personer), flyttare till särskilt boende (46 personer) och de som bodde kvar under studieperioden (314 personer). Genom att jämföra olika aspekter av hälsa och boendesituation före flytt mellan grupperna kom vi fram till vilken kombination av faktorer som utlöste flytt.

Resultaten visade att flytt till annat ordinärt boende utlöstes av att inte längre klara av städning hos relativt självständiga äldre som bodde i villa. En flytt till särskilt boende utlöstes av att personen börjat få kognitiva problem, inte längre klarade av sin matlagning, i kombination med att de bodde i en otillgänglig bostad.

Studie II

I andra delarbetet var syftet att jämföra miljöhinder, tillgänglighet och användbarhet i bostäderna före och efter en flytt bland personer som flyttade mellan två bostäder i det ordinära bostadsbeståndet. Passade utformningen av den nya boendemiljön personernas funktionella begräsningar bättre än den gamla? Jag ville också göra en datasimulering för att undersöka hur situationen skulle sett ut om man hade bott kvar istället. Alla flyttare i den svenska gruppen från ENABLE-AGE-projektet ingick i studien. Det blev en liten grupp (29 personer) beroende på att det är ovanligt att personer i 80-89 års ålder flyttar till en annan ordinär bostad. Det var drygt två år mellan datainsamlingen före och efter flytt

Resultatet visade att man flyttade till bostäder med signifikant lägre antal miljöhinder. Tillgängligheten var däremot oförändrad. Detta berodde på att personerna fick fler funktionella begräsningar under tiden. Personerna fick skatta användbarheten, dvs. hur användbar boendemiljön var för att kunna utföra sina vardagliga aktiviteter. Personerna ansåg att användbarheten var bra redan i bostaden före flytt och den var lika bra i den nya bostaden efter flytt. Vilka av den gamla bostadens miljöhinder undvek de då genom att flytta till en ny bostad? -De flesta fanns tidigare i entréerna och i badrummen, exempelvis innebar det att ytterst få personer flyttade till bostäder med trappa som enda väg in i bostaden eller till bostäder med badkar. En slutsats av resultatet är att den nya fysiska boendemiljön passade flyttarnas funktionella begräsningar bättre än den förra. Om den var tillräckligt bra, med tanke på att hälsan kommer fortsätta att förändras är dock tveksamt.

Studie III

I delarbete tre var syftet att på ett djupare plan förstå hur de allra äldsta tänker om sitt hem, om flytt och kvarboende. Vi gjorde en ny analys av intervjumaterial som samlats in med 80 personer från Sverige och Tyskland 2003. Utgångspunkten då var att få veta mer om hur personerna tänkte kring hemmets betydelse, delaktighet, självständighet och hälsa. När intervjuerna analyserades fann man mycket material kring just flytt, vilket vi kunde dra nytta av. Hälften av intervjuerna var på svenska och hälften på tyska. För att undvika att förlora språkliga nyanser analyserades de tyska intervjuerna av en tysk medförfattare och de svenska av svenska medförfattare. Det preliminära resultatet granskades sedan av övriga medförfattare.

Resultatet visade hur ambivalenta personerna kände sig när de tänkte kring flytt och kvarboende. Några hade stor erfarenhet av att flytta, andra hade bott i sin bostad i nästan hela sitt vuxna liv och någon enstaka planerade för en flytt. Oavsett om de kunde tänka sig att flytta eller inte så uttryckte de ambivalenta tankar och känslor. Det fanns en motsättning mellan realistiska tankar kring hälsan och den

känslomässiga betydelsen att få vara kvar i sitt hem. En del var oroliga för vad en flytt kunde innebära. Oro över att inte få med sig viktiga föremål; oro över att inte kunna känna sig som hemma någon annan stans; oro över att inte kunna fortsätta göra vardagliga aktiviteter som de värdesatte. En del kunde inte se en flytt som ett alternativ över huvud taget och dessa hade ofta starka känslomässiga band till sitt hem. Särskilt boende uttrycktes som den sista utposten. Några personer ville inte prata så mycket om att eventuellt flytta så de sköt hela tiden upp tankarna till en annan dag, eller önskade att deras barn skulle bestämma.

Studie IV

I fjärde delarbetet var syftet att fördjupa förståelsen av ambivalensen som uttrycktes i förra studien. Syftet var också att undersöka om inställningen till flytt och kvarboende förändras när man blir ännu äldre samt göra en teoretisk beskrivning. 16 av deltagarna från studie III (8 från Sverige och 8 Tyskland) kunde och ville delta i en uppföljning 8 år efter första intervjun. Då hade deltagarna blivit 88-97 år gamla. I analysarbetet användes två miljögerontologiska modeller som så kallade sensitising concepts i analysen.

Resultatet visade att möjligheten att känna sig hemmastadd efter en flytt verkade bero på om man kunde fortsätta med sitt vardagliga liv i den nya miljön. Då krävdes det att man fick med sig betydelsefulla saker men också att kunna fortsätta med sina vardagliga vanor och intressen. För de som flyttade till särskilt boende eller som fått mycket sämre hälsa blev det svårt. Miljömässiga eller hälsorelaterade förändringar gjorde att de inte kunde fortsätta med det som var viktigt för dem i vardagslivet. De kände sig heller inte hemmastadda. Resultaten visade också att de känslomässiga banden till hemmet blev allt starkare med åren. Tankar kring att flytta kunde just därför förändras.

En slutsats av studien är att det är viktigt att man studera tankar om flytt och kvarboende som två sidor av samma mynt, och för det föreslås begreppet *boenderesonemang*. Det är då viktigt att ta hänsyn till den äldre personens tidigare erfarenheter men också tankar inför framtiden och att resonemanget verkar förändras med tiden.

Avslutningsvis

För de allra äldsta spelar både hälsan och boendet roll vid flytt. Det påverkar vad som utlöser en flytt, men också hur de allra äldsta resonerar och beslutar kring sitt boende och sitt hem. När de allra äldsta flyttar till en annan ordinär bostad flyttar de till bostäder med färre miljöhinder. Tillgängligheten i den nya bostaden blir bättre än om de hade bott kvar i sin gamla bostad. Det finns många miljöhinder som orsakar tillgänglighetsproblem när hälsan försämras. Kunskap om dessa

behöver nå både äldre och deras familjer men också politiker och lagstiftare. Det måste finnas ett gott utbud av lämpliga lägenheter. Avhandlingen visar också att det inte bara är den byggda miljön som är viktig för hur äldre tänker kring att byta bostad. De känslomässiga banden till det hem man bott i under många år är viktiga. De äldstas resonemang kring boende förändras hela tiden utifrån förändringar i förutsättningarna. Min forskning kan användas såväl för att utveckla rådgivande insatser som för arbetsterapeuter som möter äldre i deras hem. hemmet. Begreppet boenderesonemang bör studeras vidare och förhoppningsvis kan begreppet bidra till den teoretiska utvecklingen kring flytt bland äldre.

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