On Meaningfulness and Control Beliefs of the Home Across Retirement and Relocation

Implications for health and quality of life in older age

Eriksson, Erik

2024

Document Version:
Publisher's PDF, also known as Version of record

On Meaningfulness and Control Beliefs of the Home Across Retirement and Relocation

Implications for health and quality of life in older age

ERIK ERIKSSON
DEPARTMENT OF HEALTH SCIENCES| FACULTY OF MEDICINE | LUND UNIVERSITY

On Meaningfulness and Control Beliefs of the Home Across Retirement and Relocation

Implications for health and quality of life in older age

Erik Eriksson

LUND
UNIVERSITY

DOCTORAL DISSERTATION

Doctoral dissertation for the degree of Doctor of Philosophy (PhD) at the Faculty of Medicine at Lund University to be publicly defended on 11th of December at 09.00 in BMCE:16003, Forum Medicum, Lund

Faculty opponent
Professor Vikki McCall, University of Stirling

Organization: LUND UNIVERSITY

Document name: Doctoral dissertation **Date of issue:** 11th December 2024

Author(s): Erik Eriksson

Title and subtitle: On meaningfulness and control beliefs of the home across retirement and relocation: implications for health and quality of life in older age.

Abstract: Introduction: Understanding of the person-environment interaction for influencing health and wellbeing in older age has been developed since the 1960's. In older age, the home environment is the environment in which older adults spend progressively more time. The last few decades have also seen an integration of perceived aspects of the environment, such as control beliefs and meaningfulness of the home environment, here referred to as the 'perceived home'. Most research, however, has cross-sectionally investigated older adults aged ≥75. Further investigation should examine whether the associations of the perceived home with health and wellbeing can be found earlier on the ageing process and whether the associations remain over time, across life transitions in younger-old age, such as retirement and relocation. Aim:The overarching aim of the thesis was to build knowledge of the importance of the perceived home for health and wellbeing among older adults around retirement age (Studies III and IV). Furthermore, the aim was to explore which life transitions (and sequences thereof) are common among younger-old adults (Study I), and how aspects of the perceived home interact with two life transitions in younger-old age, retirement and relocation (Study II). Methods: The thesis used both qualitative (Study II) and quantitative (Studies I, III and IV) study. Studies I and II used data collected via 50 interviews with older adults, aged 62–75, in Sweden and Germany. Study I explored via frequency and sequence analysis trajectories of life transitions. Study II explored the 26 interviews that had experienced both retirement and relocation. Study III investigated data from, a large Swedish cohort (N=1509), moderation effects of the meaningfulness of the home on the association between external factors of control beliefs related to the home and health-related quality of life, and whether there were any differences between ages 55– 74 ages ≥75. Study IV investigated longitudinal data from a randomised Swedish cohort (N = 371) whether the perceived home can predict changes in symptom severity or health-related quality of life over time among ages 65–76. Results: Retirement and relocation were the most frequent trajectory of life transitions found among younger-old adults (Study I). Retirement and relocation were found to be both antecedents and consequences of changes in the perceived home, and changes in the perceived home were found to be both antecedents and consequences of several life transitions. Furthermore, relocating had a positive association on control beliefs and meaningfulness of the home (Study II). Meaningfulness of the home was found to moderate the negative association between external control beliefs of the home and health-related quality of life (Study III). The overall results of the longitudinal regression analyses did not support the notion that the perceived home predict health or wellbeing over time (Study IV). Conclusions: It is important to consider that older adults around retirement age are in a position in life where the meaningfulness and control beliefs of the home can change. Being proactive in housing choices could benefit control beliefs and meaningfulness of the home, and consequently the health and wellbeing of older adults. Interventions targeting the meaningfulness of the home could be an effective pathway to prevent loss of health-related quality of life. However, the finding that there were no longitudinal associations between perceived home and health or wellbeing, merits reproduction.

Key words: Environmental Gerontology, Retirement, Relocation, Meaning of Home, Control Beliefs, Health, Health-Related Quality of Life.

Classification system and/or index terms (if any) Supplementary bibliographical information

Language English **ISSN and key title**: 1652-8220

ISBN: 978-91-8021-648-7

Recipient's notes **Number of pages**: 125

Signature Date 2024-10-31

On Meaningfulness and Control Beliefs of the Home Across Retirement and Relocation

Implications for health and quality of life in older age

Erik Eriksson

LUND
UNIVERSITY

Cover illustration by Leon Eriksson

Faculty of Medicine
Department of Health Sciences
Lund University

ISBN 978-91-8021-648-7
ISSN 1652-8220

Printed in Sweden by Media-Tryck, Lund University
Lund 2024

Media-Tryck is a Nordic Swan Ecolabel certified provider of printed material. Read more about our environmental work at www.mediatryck.lu.se
MADE IN SWEDEN

To Leon and Linnea

Table of Contents

Abstract

Introduction

Understanding of the person-environment interaction for influencing health and wellbeing in older age has been theoretically and empirically developed, and supported by research, since the 1960's. In older age, the home environment is the environment in which older adults spend progressively more time. The last few decades have also seen an integration of what is referred to as perceived aspects of the environment, such as control beliefs and meaningfulness of the home environment, which in this thesis are referred to as the 'perceived home', and their association to health and wellbeing. Most research, however, has investigated very old adults, that is, adults aged 75 and up, and have been cross-sectional in design. Further investigation is therefore warranted to examine whether the associations of the perceived home with health and wellbeing can be found earlier on the ageing process and whether the associations remain over time. Furthermore, certain life transitions which are common in younger-old age, such as retirement and relocation, could potentially be related to meaningful aspects of, and control beliefs related to, the home. However, there is a general a lack of research of such relations.

Aim

The overarching aim of the thesis was to build further knowledge of the importance of control beliefs and meaningfulness related to the home for health and wellbeing among older adults around retirement age (Studies III and IV). Furthermore, the aim was to explore which life transitions (and sequences thereof) are common among younger-old adults (Study I), and how aspects of the perceived home environment interact with two life transitions in younger-old age, retirement and relocation (Study II).

Methods

The four studies in the thesis used both qualitative (Study II) and quantitative (Studies I, III and IV) study designs to build knowledge and explore the different aims. Studies I and II used data collected via 50 interviews with older adults, aged 62–75, in Sweden and Germany. Study I quantified the life transitions that emerged in the interviews, and via frequency and sequence analysis explored trajectories of life transitions. Study II applied situational analysis to the 26 interviews that had experienced both retirement and relocation to explore the situatedness of meta-level themes, and to explore any differences in situatedness or themes depending on whether relocation happened before or after retirement. Study III investigated, using

regression analyses on cross-sectional data from a large Swedish cohort (N=1509), moderation effects of the meaningfulness of the home on the association between external factors of control beliefs related to the home and health-related quality of life. Study III also explored whether there were any differences in moderation between younger-old (ages 55– 74) and very old adults (ages 75 and up). Study IV investigated by regression analyses on longitudinal data from a randomised Swedish cohort (N = 371) whether external factors of control beliefs related to, or meaningfulness of, the home, can predict changes in symptom severity or health-related quality of life over time among younger-old adults (ages 65–76).

Results

Retirement and relocation were the most frequent trajectory of life transitions found among younger-old adults (Study I) and the only trajectory that was experienced significantly more than expected. Retirement and relocation were found to be both antecedents and consequences of changes in the perceived home, and changes in the perceived home were found to be both antecedents and consequences of several life transitions. Furthermore, relocating had a positive association on control beliefs and meaningfulness of the home (Study II). Meaningfulness of the home was found to moderate the negative association between external control beliefs of the home and health-related quality of life, in that persons perceiving higher meaningfulness of the home did not report lower health-related quality of life, despite increasing beliefs that others are in control over what happens to one's home (Study III). Even though there were some significant associations between meaningfulness of the home and gastrointestinal and metabolism symptoms, the overall results of the longitudinal regression analyses did not support the notion that the perceived home is important for health or wellbeing over time (Study IV).

Conclusions

It is important to consider that older adults around retirement age are in a position in life where the meaningfulness and control beliefs of the home can change. Being proactive regarding housing choices could benefit both control beliefs and meaningfulness of the home, and consequently the health and wellbeing of older adults, even early on the ageing process. Interventions targeting the meaningfulness of the home are potentially an effective pathway to prevent loss of health-related quality of life despite the loss of control beliefs regarding the home. However, the finding that there were no longitudinal associations between perceived home and health or wellbeing, merits reproduction via longitudinal data on control beliefs, meaningfulness of the home, and health and wellbeing.

Populärvetenskaplig sammanfattning

Omgivning och äldre personer

Som människor lever vi i både fysiska och sociala omgivningar, vilka kan, beroende på deras beskaffenhet, påverka våra beteenden, vårt välmående, och vår hälsa. En omgivning som är utformad för att utmana kan främja hälsosamma beteenden, vilket i förlängningen främjar välmående och hälsa, under förutsättningen att personens kapacitet förmår. En omgivning som utmanar för mycket, givet en persons kapacitet, kan å andra sidan bli ett hinder för hälsosamt beteende, och följaktligen för välmående och hälsa. Även själva föreställningen om vår kapacitet eller förmåga att utföra vissa beteenden givet vissa omgivningar, hur vi föreställer oss att vi kan hantera en viss omgivning, har inverkan på hur vi väljer att bete oss, vilket i sin tur påverkar våra liv genom att inskränka dem, eller berika dem. Det kan även finnas känslomässiga kopplingar mellan personer och vissa omgivningar, kopplingar som kommer genom användandet av omgivningen och över tid. Genom att använda en plats som saknar känslomässig betydelse så kan den förvandlas till en plats med känslomässig betydelse. Till exempel, en plats kan bli ett hem genom att bo, använda, och skapa minnen med den platsen. Platsen har därmed fått en betydelse, betydelsen av ett hem. Genom åldrandet blir hemmet en alltmer viktig plats, i synnerhet efter pensionen. Inom omgivningsgerontologi (*Eng*. Environmental Gerontology) så är ett huvudantagande att det finns en interaktion mellan äldre personer och dess omgivning som har effekt på hälsa och välmående. Eftersom hemmet blir en alltmer central plats genom åldrandet så är det upplevda hemmet, det vill säga upplevelser hur man kan hantera sitt hem eller betydelsefulla aspekter av hemmet, ett viktigt fokus för att förstå hur person och omgivning interagerar genom åldrandet, och vikten av denna interaktion för hälsa och välmående.

Vad syftade avhandlingen till?

Avhandlingen syftade till att undersöka hur olika livsförändringar hos yngre äldre personer, exempelvis att gå i pension eller att flytta, påverkar dels hur vi upplever att vi kan hantera hemmet, dels meningsfulla aspekter av hemmet, och hur detta i sin tur påverkar hälsa och välmående. För att undersöka denna komplexitet användes olika metoder för att samla och analysera information om livsförändringar, det upplevda hemmet, samt hälsa och välmående. Dels användes det som kallas kvalitativa ansatser, det vill säga att genom intervjuer undersöka personers egna upplevelser kring olika livsförändringar och hur det har påverkat det

upplevda hemmet, dels genom så kallade kvantitativa ansatser, det vill säga att be deltagare skatta det upplevda hemmet, hälsa och välmående.

Vad visar avhandlingen?

Avhandlingen föreslår att det finns interaktioner mellan livsförändringar och det upplevda hemmet. Till exempel kan förändringar i det upplevda hemmet, så som att hemmet får en förändrad betydelse eller förändringar i hur man tänker sig att kunna hantera sitt hem, leda till livsförändringen att byta boende. Själva livsförändringen, att byta boende, kunde i sin tur leda till ytterligare förändringar i betydelsen av hemmet eller känslan av att kunna hantera sitt hem. En rädsla av att inte kunna hantera sitt hem i framtiden var i många fall begynnelsen till tankar kring att byta boende. Denna rädsla kunde exempelvis komma från att ha personer i sin närhet som genom funktionsförändringar började få svårt att bo hemma, att hantera sin vardag. I flera fall gav det nya boendet en stärkt känsla av att kunna hantera sitt hem och sitt liv. En av studierna visade att det finns kopplingar mellan känslan av att kunna hantera sitt hem och välmående hos äldre. Om en person skattade högt på externa faktorer av känsla av kontroll, att det är andra personer eller slumpen som avgör huruvida det blir som det blir i ens hem, så fanns det en tydlig koppling till försämrad hälso-relaterad livskvalitet. Att uppleva sitt hem som mer meningsfullt visade sig däremot ändra den kopplingen så att personer, trots att de skattade högt huruvida externa faktorer är avgörande för vad som händer i ens hem, inte hade en försämrad hälso-relaterad livskvalitet. Den studien analyserade tvärsnittsdata, det vill säga en punkt i tiden, och om sådana kopplingar skulle visa sig gälla över tid skulle åtgärder för att öka betydelsen av hemmet för äldre, redan tidigt i åldrandet, kunna vara ett effektivt sätt att bibehålla hälsa och välmående trots försämrad känsla att klara av sitt hem. Den övergripande bilden av den sista studien, som följde yngre äldre personer över tid, var att det inte fanns någon tydlig koppling mellan en känsla att kunna hantera sitt hem, eller betydelsen av hemmet, till förändringar i hälsa eller välmående. Det skulle kunna betyda att kopplingen mellan det upplevda hemmet och hälsa och välmående endast är tillfällig och att den avtar över tid. För att tydligare förstå och klargöra alla dessa komplexa relationer, så behövs det ytterligare studier om hur olika livsförändringar påverkar det upplevda hemmet, och hur det upplevda hemmet påverkar hälsa och välmående över tid.

List of papers

Paper I

Slaug, B., Eriksson, E., Wanka, A., Kylén, M, Oswald, F., Iwarsson, S, Schimdt, S.M. *Life Transitions Trajectories Around Retirement Age in Sweden and Germany*. (manuscript)

Paper II

Eriksson, E., Wazinski, K., Wanka, A., Kylén, M., Oswald, F., Slaug, B., Iwarsson, S., Schmidt, S.M. (2022) Perceived Housing in Relation to Retirement and Relocation: A Qualitative Interview Study among Older Adults. *International Journal of Environmental Research and Public Health*, **19**, 13314. https://doi.org/10.3390/ijerph192013314.

Paper III

Eriksson, E., Iwarsson, S., Kylén, M., Zingmark, M., Slaug, B., Schmidt, S.M. *Meaning of Home Moderating the Association Between Housing-Related Control Beliefs and Health-Related Quality of Life: A Cross-Sectional Analysis Among 55-93 years old in Sweden*. (manuscript under review)

Paper IV

Eriksson, E., Kylén, M., Ekström, H., Slaug, B., Iwarsson, S., Elmståhl, S., & Schmidt, S. M. (2024). Associations of Meaning of Home and Housing-Related Control Beliefs with Changes in Symptoms and Quality of Life: A Prospective Study Among Younger-Old Adults in Sweden. *Journal of Aging and Environment*, 1–20. https://doi.org/10.1080/26892618.2024.2395527

Author's contribution to the papers

Paper I

Data collection, Data curation, Writing – original draft presentation. Writing – review and editing.

Paper II

Project administration, Data collection, Data curation, Formal analyses, Visualisation, Writing – original draft presentation, Writing – review and editing.

Paper III

Conceptualisation, Data curation, Methodology, Formal analyses, Visualisation, Writing – original draft presentation, Writing – review and editing.

Paper IV

Data curation, Methodology, Formal analyses, Visualisation, Writing – original draft presentation, Writing – review and editing.

Abbreviations

ADL	Activities of Daily Living
ETA	Ecological Theory of Aging
HCQ	Housing-Related Control Beliefs Questionnaire
HCQ-E	Housing-Related Control Beliefs Questionnaire, external beliefs subscales (e.g., Others, Chance, Fate, Luck)
HHT	The Home and Health in the Third Age Study
HRQoL	Health-Related Quality of Life
MCID	Minimal Clinically Important Difference
MCS	Mental Summary Score (SF-12)
MOH	Meaning of Home Questionnaire
PCS	Physical Summary Score (SF-12)
P-E	Person-Environment
RELOC-AGE	A study on the significance of housing and relocation for active and healthy ageing
SF-12	Short Form-12
SNAC-GÅS	The Swedish National Study on Aging and Care: Gott Åldrande i Skåne
SÄBO	Special housing, supporting older adults with services or care. In Swedish *Särskilt Boende*
WHO	The World Health Organization

Definitions

Perceived Home	Refers to the general phenomena of meaningfulness of the home and control beliefs related to the home.
Perceived Housing	Refers to the theoretical model authored Oswald and colleagues (2006) addressing four domains of perceived housing: housing-related control beliefs, meaning of home, usability of the home, and satisfaction of the home.

Thesis at a glance

Study I. Life transition trajectories	
Aim	To explore life transition trajectories during a 20-year period around retirement age.
Method	This study quantified the data from a qualitative study (Study II) and used sequential and configural frequence analyses to explore common life transition trajectories among younger-old adults in Sweden and Germany.
Results	The participants described a total of 229 life transitions categorised into five different main types: work-related, relocation-related, relationship-loss, relationship-gain, and disease-related. Of the participants, 74 % had experienced up to 5 life transitions during a 20-year period. Four different clusters of life transition trajectories were identified: (i) common retirement trajectory, (ii) relationship-gain trajectory, (iii) moving-dominated trajectory, and (iv) disease and loss trajectory.
Conclusion	By employing a novel approach to analyse life transitions, different categories of common life transition trajectories among younger-old adults in Sweden and Germany were identified.
Study II. Life transitions and the perceived home	
Aim	To explore how different aspects of perceived housing relate to having experienced both relocation and retirement as two particular transitions in later life.
Method	This study used a qualitative approach using individual interviews to collect data from older adults around retirement age in Sweden and Germany. Analyses inspired by situational analysis were used to construct situational maps and meta-level themes around retirement and relocation.
Results	The maps and themes suggested complex bi-directional interactions between perceived housing, relocation and retirement. There were similarities and differences in the emergent themes depending on whether relocation happened before or after retirement.
Conclusion	Changes in perceived housing can be both antecedent to and consequences of a life transition, and life transitions can be antecedents and consequences of changes in perceived housing.
Study III. Meaningfulness of the home moderating association of control beliefs and quality of life	
Aim	To investigate whether Meaning of Home (MOH) moderates the association between Housing-Related Control Beliefs, External Factors, (HCQ-E), and Health-Related Quality of Life (HRQoL), and whether there are differences in moderation between younger-old (i.e., ages 55–74) and very old (i.e. ages 75 and up) individuals.
Method	Regression analyses with MOH, HCQ-E, and an interaction term of MOH*HCQ-E as independent variables, and HRQoL (EQ-5D-5L Index) as dependent variable. Different regression analyses for three levels of mean-centred MOH; mean MOH, below mean MOH, and above mean MOH. Regression was controlled for demographic characteristics in stepwise models.
Results	MOH significantly moderated the association between HCQ-E and HRQoL; reporting higher MOH reduced the negative association between HCQ-E and HRQoL. There was no apparent difference among younger-old and very old adults.
Conclusion	Interventions that target the meaningfulness of the home are potentially effective pathways to prevent loss of HRQoL, even among younger-old adults.
Study IV. Perceived home predicting health or quality of life	
Aim	To investigate whether HCQ-E or MOH can predict changes in either symptom severity or HRQoL over time among a cohort of younger-old adults (ages 66–76).
Method	Regression analyses using baseline data of MOH and HCQ-E as independent variables and change scores of symptom severity or HRQoL (Short Form-12) as dependent variables. Regressions were controlled for demographic and housing-characteristics in stepwise models.
Results	No significant association between HCQ-E and any outcome was found. Even though there were some significant associations between MOH and changes in gastrointestinal and metabolism symptoms, the overall assessment was that there were no support for baseline values of MOH or HCQ-E predicting changes in symptoms or HRQoL.
Conclusion	Even though previous research has found significant cross-sectional associations between MOH or HCQ-E, and health and wellbeing, whether such associations remain over time is put in question.

Prologue

The purpose of the prologue section is to serve as a short description of the underlying biopsychosocial links (e.g., Myers & Hwang, 2004) between stress mechanisms, ways of coping with stress, and the phenomenon studied in the thesis; that is, control beliefs and meaningfulness related to the home, and to health and quality of life, particularly during older age.

Stress – precursor of illness and functional decline

All situations and events are perceived and experienced, and as such they are interpreted and evaluated. For instance, they can be evaluated as a threat, an opportunity, as both, or perhaps neither (Yancura & Aldwin, 2008). Depending on how situations and events are evaluated, these experiences can affect people via multiple stress reaction mechanisms: as emotional reactions such as anxiety or depression; as cognitive reactions such as reduced memory function, concentration, or ability to learn; as behavioural reactions like alcohol or tobacco consumption and self-destructive behaviour; or as physiological stress reactions like the activation of cortisol and the sympathetic nervous system (Ekman & Arnetz, 2013). Stress mechanisms enable the person to handle a stressful situation and as such are beneficial in the short term. However, if stress mechanisms are maintained over longer periods, or become chronic, they can have lasting damaging effects on organ structures in the body, such as, but not limited to, the cardiovascular system or musculoskeletal function (Lu, Wei, & Li, 2021). Consequently, stress mechanisms can become precursors for mental or somatic dysfunction. Different stress mechanisms can also add to, potentiate, or counteract, each other. Therefore, how a person perceives, interprets, and reacts to both their external and internal worlds, are important etiological factors for illness and dysfunction (e.g., Bektas, Schurman, Sen, & Ferrucci, 2018; Ekman & Arnetz, 2013; Pardon, 2007).

Environmental stressors

Among the more influential situational stressors is the so-called "poor fit" between the person and their environment (Ekman & Arnetz, 2013). The environment refers to any external situational stressor, such as physical structures or social situations. An environment can be over or under stimulating for a person. The demands of the environment can be either too few, too many, both, or be of the wrong kind to fit a person and their capabilities. However, it is not only the objective composition of the external stressor that affects the person, as a person's internal psychological stressors can also activate stress mechanisms, and as such can have both somatic and mental effects in the long term. To have the belief, or to suspect, that one is under threat is enough to activate stress mechanisms and, consequently, to become ill. That belief mechanisms can have harmful effects on the health and wellbeing of the person is similar to 'nocebo' effects of experimental research (e.g., Bagarić, Jokić-Begić, & Sangster Jokić, 2022; Colloca & Barsky, 2020; Isawa et al., 2020). Nocebo effects are similar to placebo effects, the belief that one is under the influence of something beneficial (such as a mock treatment) yielding beneficial outcomes. Nocebo, coming from Latin meaning "I will hurt", is an effect in which the belief, or expectation, that one is under the influence of something harmful, yields worse outcomes. A common environmental stressor is a person's feeling of powerlessness regarding their environment, of not being in control over one's daily life, one's environment, or over oneself. Furthermore, having access to, and being able to utilise, social networks can protect against stress by acting as a buffer in stressful situations (Lu et al., 2021). Therefore, in order to maintain wellbeing and a healthy life, people need, among other things, to feel in control and to socialise. If their environment obstructs these needs, stress appears, and if the stress continues for longer periods of time, it can lead to feeling a lack of purpose, a lack of meaningfulness in life, or the feeling that nothing supports one's identity or self-esteem. For this reason, a poor fit, whether objective or perceived, between a person and their environment or situation can express itself as a threat to one's self esteem, wellbeing, health, and ultimately, one's life (Ekman & Arnetz, 2013).

Coping – Ways of handling stress

'Coping' refers to a broad range of adaptive responses to stress and ways of handling a stressful situation. Coping can either refer to how a person solves a stressful situation, or how the person believes they have the capabilities to handle a stressful

situation, of which the later has been argued to be the most important aspect in mitigating the effects of stress (Ekman & Arnetz, 2013). When there are adequate coping strategies for a stressful situation, stress reactions are reduced or mitigated. However, if there is a lack of adequate, or successful, coping strategies, stress reactions are maintained and can consequently negatively influence health and wellbeing negatively. In addition, people who are not capable of developing positive adaptive responses can utilise other defence mechanisms instead, such as alcohol and tobacco consumption, isolation, and inactivity, which in themselves can become unhealthy behaviours contributing to worsened health and wellbeing (e.g., Courtin & Knapp, 2017; Dhuli et al., 2022; Moss, 2013). Certain coping strategies have been suggested to be associated with catecholamine reactions, while defence mechanisms have been associated with sustained cortisol reactions (Ekman & Arnetz, 2013). People who take a longer time, utilise several defence mechanisms, and who have trouble bringing order to a stressful situation, are more likely to have long term reactions where cortisol activation is longer and is the dominant response. Among people who develop a more adequate response, the catecholamine reaction happens faster, leading to a quicker reduction of cortisol, which lessens the harmful effects of cortisol on bodily structures and organs. Without conductive an exhaustive summary of the research literature on the topic of coping, and since there are several different concepts being used to describe the phenomenon of coping, it is important to lay out some distinctions and similarities between some different concepts: *active* or *passive* coping; *problem-oriented* or *emotional-based* coping; and *primary* or *secondary control*.

Active coping refers to strategies challenging the external sources of stress, such as taking action and planning; while *passive coping* refers to strategies that avoid addressing the stressors, such as denial or self-distraction (e.g., Carver, 1997; Levy, Chung, Slade, Van Ness, & Pietrzak, 2019). *Problem- and action-focused coping* involve employing strategies to alter the environment that is causing the stress; while *emotion-based coping* means utilising psychological strategies to perceive the situation as more beneficial, and as such, to perceive the situation as less stressful (e.g., Baker & Berenbaum, 2007). Heckhausen & Shultz (1995) use the concepts of *primary* and *secondary control*. Primary control involves strategies meant to influence the external environment through direct or instrumental actions, while secondary control strategies influence the internal world of the individual by controlling the psychological consequences of a stressful situation. An important aspect of secondary control strategies is that they allow a person to minimise a loss of primary control strategies. That is, when one's abilities to change the external

environment (primary control) diminish, internal responses (secondary control) become more important when handling a stressful situation.

These concepts and distinctions can be categorised as either: (i) recognising a problem, believing that it can be dealt with, and consequently dealing with it; or (ii) avoiding conflict by changing one's values, attitudes, or goals. Active coping, problem- and action-focused coping, and primary control, refer to the first category (i); while passive coping, emotion-based coping, and secondary control, refer to the second category (ii). For the purposes of this thesis, (i) will be referred to as 'primary coping strategies', and (ii) will be referred to as 'secondary coping strategies'. Primary coping strategies are more often associated with positive response expectations, and as such are associated with more positive health outcomes compared to secondary coping strategies (e.g., Ekman & Arnetz, 2013; Yancura & Aldwin, 2008).

The idea that believing one is able to handle one's environment affects health and wellbeing is coherent with several theories of person-environment interaction. For instance, Lawton and Simon (Lawton & Simon, 1968) docility hypothesis, in which 'docility' refers to older adults becoming passive agents due to declining functional ability. According to the docility hypothesis, the more competence to actively use, adapt, and create one's environment a person has, later referred to as 'proactivity' (e.g., Wahl & Oswald, 2010), the less variance in a person's behaviour will be attributable to the composition of their environment. Conversely, the more a person's competence declines, the more the environment becomes a determinant of their ability to adapt, and the more a person becomes subdued by their physical environmental demands (Ibid.). Karasek's Job-Demand-Control model (Karasek, 1979) described a similar relationship between harmful or beneficial characteristics of a work environment and health outcomes. The model emphasised that being exposed to high (job) demands while having low decision latitude becomes a risk for strain, which, if maintained, has negative effects on health. With decision latitude, Karasek meant the ability to control and manage job demands. In continuation, Karasek and Theorell (Karasek & Theorell, 1990) found that experiencing and feeling support for instance, from supervisors or co-workers, had a protective effect on the demand-strain relationship and the model was therefore revised to the Job-Demand-Control-Support model.

Stress and coping during older age

Older adults are believed to be more vulnerable to stress than younger adults due to changes in physiological systems; for instance, the endocrine, immune, and cardiovascular systems (Yancura & Aldwin, 2008). There are also indications of age differences in the effectiveness of different coping styles (Ibid.). While several types of coping strategies are commonly used, either consequently or concurrently, to handle stressful situations (Ekman & Arnetz, 2013), in older age and with functional decline, it has been suggested that there is a tendency to shift from primary coping strategies to secondary coping strategies (Myers & Hwang, 2004). Adaptation to the environment is "increasingly achieved through changes in perceptions of the self in relationship to the environment" (Andrews & Phillips, 2005). Even though primary coping strategies are more beneficial and efficient than secondary coping strategies for older adults when it comes to handling stressful situations, and therefore may be more beneficial for health outcomes (e.g., Levy et al., 2019), secondary coping strategies are more readily available than primary coping strategies because of functional decline leading to lessened agency in older age. When confronted with stressful situations, older adults more often utilise secondary coping strategies, such as changing the meaningfulness of the situation or suppressing negative emotions, than primary coping strategies, such as taking direct action to change the characteristics of their environment (e.g. Blanchard-Fields, Jahnke, & Camp, 1995; Wister, 1989). Findings from the Berlin Ageing Study supported the notion that older adults use secondary coping to shape or redefine the meaning and importance of environmental challenges in order to maintain their sense of wellbeing, life satisfaction and sense of control (Baltes & Mayer, 2001). Also, Brandtstädter & Renner (1990) found that older adults tend to change their goals, a secondary coping strategy, in relation to stressful situations rather than actively change their environment, a primary coping strategy. Birditt et al. (2020) found that secondary coping strategies among older adults suppressed the effects of interpersonal tensions on emotional wellbeing, particularly among individuals with poorer self-reported health.

Whether such a shift from primary to secondary coping strategies in older age is due to preference (stemming from having a choice) or functional decline (stemming from having less or no choice), the shift is consistent with the socioemotional selectivity theory (Carstensen, 1995), which stipulates that as the time horison shrinks with age, the perceived time left in life gets shorter, and people become increasingly more selective of more emotionally meaningful goals and activities.

The socioemotional selectivity theory posits that in older age (c.f. younger age), strategies pertaining to emotional regulation, avoidance of emotional conflicts, and striving for emotional homeostasis, becomes more prominent (Ibid.). The strength and vulnerability integration model also describes such a shift in coping strategies; in that older age is associated with a greater use of emotion regulation strategies and a stronger focus on emotional wellbeing, and when older adults use emotional regulation strategies (secondary coping) they tend to be more successful than younger adults. Therefore, older adults often report higher wellbeing when compared to younger adults. However, the model also posits that when older adults are unsuccessful in avoiding negative experiences connected to emotionally charged situations, older adults will have more difficulties modulating that experience (Charles, 2010).

Summary of the prologue

Environments and situations can be perceived as stressful, and as such may activate stress mechanisms. Different coping mechanisms address the stressful situation through either primary (changing the environment or situation) or secondary (changing one's own values or expectations) coping strategies. Depending on how the situation is handled, or not handled, there can be different effects on mental and physical health, especially in the long term. Older adults, when facing reduced capabilities to engage in primary coping strategies to actively change a situation, tend to utilise secondary coping strategies by changing their values or expectations.

Introduction – Environmental Gerontology

This thesis is conducted within the discipline of environmental gerontology, a branch of gerontology that studies the interactions between older adults and their socio-physical environments. A fundamental assumption in environmental gerontology is that the interaction between the person and their environment affects a person's behaviour, quality of life, and health; and that the person, in turn, affects the environment to the best of their ability. Also, the person-environment interaction becomes more important for behaviour, quality of life, and health, the older a person becomes, or as functional decline obstructs a person's abilities (e.g., Hoh et al., 2020; Wahl, Iwarsson, & Oswald, 2012).

Ecological Theory of Aging

The idea of interaction between the person and their environment stems from Kurt Lewin's (1939) work in social psychology, which conceptualised a person's behaviour as a function of the person and their environment. Arguably, one of the more influential developments of the person-environment (P-E) interaction in older age has been The Ecological Theory of Aging (ETA) developed by Lawton and Nahemow (1973). The ETA theorises that a person's behaviour, as well as the ability to age well, are the results of an interaction between the person's functional capabilities and environmental pressure. By 'environment', the ETA refers to the objective environment, the built environment, or technology. If the environmental pressure is greater than the person's functional capabilities, then the environment becomes a hindrance for (healthy) behaviour as well as for the possibility to age well. If the person has enough functional capabilities to handle the environmental pressure, then the environmental pressure would constitute a positive challenge and thus constitute a resource for the person and consequently enrich the person's health and quality of life. However, if the person's functional capabilities are greater than

the environmental pressure, then there would be no challenge for the person, and therefore no enriching of, or perhaps no maintaining of, current functional capabilities. Therefore, the ETA introduced the notion of P-E fit, referring to what extent an environment fits a persons' capabilities, or vice-versa.

Ageing successfully, healthy, or well

When the P-E interaction hinders or supports possibilities of ageing well, how is ageing well to be understood? Without delving too deep into theoretical and conceptual developments in ageing research, some understanding of the latest developments are beneficial for this thesis, referring to important concepts and models developed within the last few decades: Successful Aging, Healthy Ageing, and the Integrative Model of Aging Well.

Successful Aging

The MacArthur model of Successful Aging, or simply *Successful Aging*, has been influential in Gerontology (Rowe & Kahn, 1997). According to this model, 'successful aging', as opposed to 'usual aging', has three components: (1) low probability of disease and disease-related disability (also the absence, presence, or severity of risk factors for disease); (2) high cognitive and physical functional capacity (what a person can do, not what they actually do); and (3) active engagement with life, interpersonal relationships (e.g., contacts and exchanges with others, exchange of information, emotional support, and direct assistance) and productive activities (that create societal value) (Rowe & Kahn, 1997). In 2007, the MacArthur Network continued their work on the model of Successful Aging and highlighted additional factors important to consider: productivity and engagement through labour force and volunteering, cohesion (between generations and socio-economical groups), resilience (defined as an efficient response to stress), and sustainability (defined as the capacity to maintain high functioning) (Martin et al., 2014).

Healthy Ageing

In 2015, the World Health Organization (WHO) adopted a new focus in their work on ageing coined *Healthy Ageing*, which replaced their previous framework *Active*

Ageing from 2002. 'Healthy Ageing' is defined as "[…] the process of developing and maintaining the functional ability that enables wellbeing in older age." (World Health Organization, web resource). Wellbeing, according to WHO, is a positive state and encompasses quality of life and having a sense of meaning and purpose (World Health Organization, 2021). Being free of disease or infirmity is no longer a requirement. Rather, a person's functional ability refers to having the capability to be and do what they value, such as basic needs, to be autonomous and mobile, to maintain and grow relationships, and to feel they contribute to society. A person's functional ability, in turn, is constituted by the interaction of the person's intrinsic capabilities and the characteristics of the environment. Therefore, having environments, such as the home, community, and society, which support the person's capabilities, are key aspects for healthy ageing. WHO point out that *Healthy Ageing* is about creating the "[…] environments and opportunities that enable people to be and do what they value throughout their lives." (Ibid.). As such, this theoretical definition could also be regarded as a policy, where policy is defined as "a law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions." (Center for Disease Control and Prevention, web resource). To ascertain whether the concept of Healthy Ageing as defined by WHO is a theoretical development or policy definition is beyond the scope of this thesis. In any case, the definition emphasises that aspects of being able to handle or control one's environment, and evaluative aspects thereof, are important during the ageing process.

Integrative Model of Aging Well – integrating essential elements and connections

A person does not only live or exist in an objective environment, certain aspects of how a person perceives their environment are also important when considering the P-E interaction and becomes perhaps even more important as we age (Bengtson & Settersten, 2016, Chapter 31). The Integrative Model of Aging Well incorporated additional P-E processes important for being able to age well, such as *agency* and *belonging* (Wahl et al., 2012). In the model, 'agency' refers to processes of becoming a change agent, that is, using intentional and proactive behaviours. 'Belonging' refers to having a sense of positive emotional or cognitive connections with either other people, or one's environment, connections that come from one's experiences. Furthermore, the model suggests that the relationship between belonging and agency develops across a life-course perspective and that aspects of

belonging becomes increasingly more important when agency decreases, in order to age well. The authors compare the shift from agency to belonging in older age, to the shift from primary to secondary coping strategies (Ibid., p. 313). The model also wanted to broaden the concept of what it means by ageing well. Referring, among others, to Rowe & Kahn's (1997) conceptualisation of Successful Aging, the Integrative Model of Aging Well defined what it means to age well: to preserve autonomy, wellbeing, and identity throughout the ageing process. However, in opposition to Successful Aging, the model posited that preserving autonomy, wellbeing, and identity, even in the face of severe competence loss, is what constitutes the ability to age well.

Moving the theory of person-environment interaction forward

Chaudhury and Oswald (Chaudhury & Oswald, 2019) elaborated further on the components of the Integrated Model of Aging Well in order to develop the theory of P-E interaction. Specifically, Chaudhury and Oswald disentangled the concepts of individual and environmental resources, expanded on agency-belonging dynamics, and framed the outcomes in which the exchange process of agency-belonging could be considered. Individual and environmental resources, according to Chaudhury and Oswald, consist of several components. Individual resources are a person's physical and psychological health; sensory, motor, and functional capacities; gender; age; ethnicity; class; and psychosocial characteristics. Environmental resources are characteristics of the physical environment, social factors, and technological systems. The physical environment includes for instance, the home, neighbourhoods, parks, special housing, or care facilities. Social factors are different levels of social contacts or relationships, as well as the quantity and quality of those relations, which shape a person's behaviour through, for example, social norms. Technological systems refer to technology which influences the quality of life of older adults. In the following, technological systems will not be further discussed or included for two reasons: the authors did not particularly expand on that aspect of environmental resources, and such resources are not of direct relevance for the current thesis.

P-E components, as well as the interaction between them, affect agency-belonging dynamics. Similar to Wahl et al. (2012), agency is referred to as "[…] goal-directed behaviors related to making use of the objective physical-social environment, such as environment-related cognition and perceived control over the environment […]." and belonging "[…] incorporates all non-goal-directed cognitive and emotional

aspects that make a space a place […].” (Chaudhury & Oswald, 2019, p. 4). ‘Belonging’ includes experiential connections of attachment and bonding with both physical and social environments. An optimal socio-physical environment, according to the authors, would support both agency and belonging. Furthermore, the dynamic interplay between agency and belonging changes as a person’s physical and cognitive functioning declines. Declining health, such as decreasing physical and cognitive functioning, negatively affects a person’s agency. Just like the Integrative Model of Ageing Well, as agency declines, the affective aspect of belonging becomes more important to be able to age well.

The outcomes of the agency-belonging dynamic, what it means to age well, can be captured by the two broad concepts of autonomy and identity. The concept of autonomy includes, for instance, maintaining one’s personal independence, mobility, and social and community engagement. The concept of identity is “[…] a fundamental developmental component that contributes towards personal wellbeing.” (Ibid., p. 5) and is the bridge between social structures and the attitudes and behaviours of the individual. The authors state that identity is “[…] particularly strong in the context of home environment […]” (Ibid.); one’s home becomes an extension of oneself, and can be manifested by means of personalising the home, fulfilling daily activities, and having social interactions. According to the authors there is an interrelated nature between autonomy and identity. For instance, identifying with, or strengthening one’s identity would positively impact autonomy and self-esteem. Also, having autonomy, to be able to age in place, maintains or enhances the person’s identification and attachment with that place. When compared to the Integrative Model of Aging Well (Wahl et al., 2012), wellbeing is no longer an explicit outcome of the person-environment exchange. According to Chaudhury and Oswald (2019), wellbeing is not an irrelevant part of ageing well, but is captured along with other potential important aspects, by the broad concepts of autonomy and identity.

Summary of theoretical developments in environmental gerontology

From a theory-/development perspective, the idea of P-E interaction has shifted throughout the decades. First, by positing that the important concepts would include a person’s capabilities and the objective environment. Then, to also include other conceptualisations of the environment that had become considered as important, such as the psychological and social environments. Also, important exchanges underlying the possibilities of ageing well have shifted focus from personal

functional capacities and objective characteristics of the environment, to include, perhaps more importantly, aspects of agency and belonging related to the environment, and their interaction. In addition, the outcome in question, the underlying understanding of what it means to age well, has also shifted from behaviour (healthy behaviour inferred), to the notion of P-E fit and beneficial aspects of environmental pressure of the Ecological Theory of Aging; to preserving autonomy, wellbeing, and one's identity, which recently have been rationalized into two concepts, autonomy and identity.

Certain aspects of agency and belonging are of interest for this thesis, that is, control beliefs (an aspect of agency) and meaningfulness related to the home (an aspect of belonging), how they relate to common life transitions in older age, and whether such aspects relate to health and wellbeing early in the ageing process. Therefore, in the following, agency, control beliefs, belonging, meaningfulness related to the home, and common life transitions, will be further described.

Agency – Control beliefs

Bandura (2006) posited that being an agent is to "[…] influence intentionally one's functioning and life circumstances" (p. 164), and that the psychological function of *agency* not only consists of planning, forethought, and regulation of action, but also self-reflectiveness, or being aware of one's own functioning and harbouring beliefs about the efficacy of one's competencies. The notion of agency is strongly related to the notion of control beliefs. Being and feeling in control, being and feeling proactive, and utilising intentional behaviours, are core aspects of a person's agency (Bandura, 2006; Chaudhury & Oswald, 2019). Even though there is no collective definition of control beliefs, many definitions share similar descriptions, such as beliefs about how a person perceive they can take charge of what happens in their life (Lachman & Burack, 1993), the "[…] ability to influence, control, and shape one's life circumstances" (Drewelies, Wagner, Tesch-Römer, Heckhausen, & Gerstorf, 2017), or, as "[…] subjective beliefs about [one's] ability to apply effective coping strategies (Koffer et al., 2019).

Research has suggested that harbouring higher levels of control beliefs serves as a protector for health and wellbeing. For instance, having higher control beliefs has been found to be associated with reduced cortisol responses in stressful situations (Bollini, Walker, Hamann, & Kestler, 2004). Other research has suggested that

situations that are perceived as difficult to control were associated with greater cortisol response among persons with higher levels of control beliefs compared to person with lower levels of control beliefs (Agrigoroaei et al., 2013). However, rather than these findings being contradictory, the authors point out that a heightened cortisol response could indicate either heightened stress, or the mobilisation of primary coping resources to take control of a situation. In addition, older adults managed stressful situations more effectively since they showed higher levels of cortisol response when compared to younger persons, suggesting there is an age component to handling stress (Ibid.). It has also been suggested that control beliefs buffer the effects that stressors have on wellbeing, particularly among older ages (Koffer et al., 2019). Furthermore, control beliefs have also been suggested to be a key component of Successful Aging and have been proposed to serve as protective factor against age-related declines in function (Drewelies et al., 2017).

Control beliefs can be conceptualised as either general or situational (Robinson & Lachman, 2018). 'General' control beliefs refer to the perceived ability to handle demands and reach one's goals in life, while 'situational' beliefs refer to control beliefs related to specific situations or environments and have been suggested to supplement general control beliefs. Therefore, a person can, for instance, perceive their general control beliefs as high, while at the same time, perceive a certain situational control beliefs as low, or vice versa (Koffer et al., 2019). General control beliefs have been suggested to be useful in general situations but less so in particular situations (Oswald, Wahl, Martin, & Mollenkopf, 2003).

General control beliefs and health and wellbeing

General control beliefs, also referred to as 'locus of control', 'sense of control', 'personal mastery', or 'perceived control', have been suggested to be associated with both mental and physical health, as well as wellbeing (e.g., Hong et al., 2021; Nowicki, Iles-Caven, Kalechstein, & Golding, 2021; Robinson & Lachman, 2017). Control beliefs are influenced by the meaning people assign to positive or negative changes in their environment, and in turn to how they respond to those changes. Appropriate levels of control beliefs can result in positive responses to negative events, while inappropriate levels of control beliefs can result in negative responses which can consequently have negative influences on health and wellbeing (Andrews & Phillips, 2005). For instance, high levels of control beliefs have been suggested to serve as a protective factor for psychological and emotional wellbeing and promote health and longevity (Robinson & Lachman, 2017). Furthermore, it has

been suggested that control beliefs are positively associated with memory function (Zahodne, Schupf, & Brickman, 2018), and are negatively associated with dementia (Yang, Tng, Ng, & Yang, 2021) and depression (Dulin, Hanson, & King, 2013; Lachman, 2004). Other research has suggested that control beliefs are positively associated with self-rated health (Lachman, 2004; Schüz, Wurm, Schöllgen, & Tesch-Römer, 2011), and negatively associated with chronic conditions, functional limitations and mortality (Duan-Porter, Hastings, Neelon, & Van Houtven, 2017; Lachman, 2004). Furthermore, control beliefs have been found to be positively associated with life satisfaction (Ferreira & Sherman, 2006; Wiest, Schüz, & Wurm, 2013), social cohesion and activity (Curtis, Huxhold, & Windsor, 2018; S. Lee, 2021).

Control beliefs in older age

It has been suggested that having stronger control beliefs is particularly important for older people to preserve their psychological wellbeing (Andrews & Phillips, 2005), especially when facing declining health and other losses (Lachman, Neupert, & Agrigoroaei, 2011). Furthermore, age-related changes in biological and social resources, such as mental and physical functioning, or bereavement and social status, have been suggested to be associated with a decline in control beliefs (Robinson & Lachman, 2017). Higher rates of psychological distress and depression have been found among older persons who perceive little control or autonomy over their circumstances, and among older adults who fail to adapt or successfully use coping strategies (Myers & Hwang, 2004). Whether control beliefs tend to decline during older age, as suggested by developmental theories (Cerino et al., 2024; Koffer et al., 2019; Robinson & Lachman, 2017), should perhaps be regarded as inconclusive since some studies report a decline, other studies report stable levels, and some even report an increase in control beliefs during older age (Drewelies et al., 2017). Drewelies et al. (2017) suggested that this inconclusiveness is due to differences in study design or measurement. For instance, studies reporting stability in older age primarily measure situational control beliefs, while studies that report declines are primarily based on measures of general control beliefs. Drewelies et al. (Ibid.) also suggested that since older adults tend to change strategies to exert control (i.e., coping strategies) when facing functional decline and declining agency, the focus is on utilizing strategies that appear more likely to succeed (secondary coping strategies) rather than the ones that appear less likely (primary coping strategies), thereby maintaining their overall sense of control. A consequence of this shift in

coping strategies would be that general control beliefs could appear to remain stable through older age.

Situational control beliefs – the home environment

In older age, the home environment becomes increasingly more important and is the environment in which the person spends more and more of their time and activities (Oswald & Wahl, 2004; Rowles & Bernard, 2013). Thus, the home environment is an important environmental context of ageing, and as such, is a key research field for environmental gerontology (Oswald et al., 2006). Oswald et al. (2006) used the concept *perceived housing* to refer to four domains of phenomena related to the home environment. They defined perceived housing as the "[…] the totality of subjective phenomena of experiences and symbolic representations related to living at home" (Ibid., p. 188). To operationalise and quantify each domain, they developed different questionnaire-instruments. One of the domains was situational control beliefs relating to the home environment for older adults, for which they constructed an instrument called *housing-related control beliefs* (HCQ). HCQ separates control beliefs related to the home as either *internal* beliefs, beliefs as to whether events in the home environment are believed to be contingent on oneself, or as *external* beliefs, whether events in the home environment are believed to be contingent on powerful others, or on chance, luck, or fate. Internal and external beliefs are assessed separately, which, at least in theory, offers the possibility of independently scoring the two phenomena, such as having high beliefs in oneself while at the same time having high beliefs in others or in chance, in handling events in the home environment, or vice versa. The HCQ instrument is further described on pages 58-59.

Since the construction of the HCQ instrument there have been a handful of studies utilising HCQ to assess the association between control beliefs related to the home environment and health or wellbeing in older age. For instance, Tomsone et al. (2013) investigated whether the external subscales of HCQ (HCQ-E) were related to perceived health status among single living older adults, aged 75-89, in three countries; Germany, Latvia, and Sweden. They found that there was a negative association between HCQ-E and self-reported health. However, the association varied between the national study samples. In Germany, the association was found among participants that self-reported as being independent in activities of daily living (ADL); in Sweden, the association only applied to participants who self-reported as being dependent in ADL; while in Latvia, no significant association was

found. Haak et al. (2015) investigated a cross-sectional relationship between HCQ-E and the presence of different symptom categories among younger-old adults (aged 65-68). They found that reporting high HCQ-E was related to reporting more head-, gastrointestinal-, and tension symptoms, but not to heart-lung, musculoskeletal, or depression symptoms. Kylén et al (2017) investigated whether HCQ-E was cross-sectionally related to psychological wellbeing (i.e., depressive mood, autonomy, and purpose in life), using the same study population as Haak et al. (2015). They found that lower HCQ-E was associated with fewer reports of depressive mood and decreased purpose in life, but not with autonomy. Finally, Gefenaite et al. (2020), using the same study population as Haak et al. (2015), investigated the role of HCQ-E in the relationship between housing accessibility and ADL. Contrary to existing theories of control beliefs and agency, they did not find support for HCQ-E moderating the association between housing accessibility and ADL. Instead, they found partial mediating effects of HCQ-E on the association. Even though there is empirical research supporting the idea that control beliefs, including situational control beliefs related to the home, are associated with health and wellbeing in older age, at the same time there are inconsistent empirical results which could indicate that the associations are more complex and contextual, and that there are other factors that can affect the strength of these associations.

Belonging – meaningfulness of, and attachment to, the home

The notion of belonging has been argued to be a central concept in basic and applied research on psychological wellbeing and adjustment among different populations, contexts, and environments (Mellinger, Fritzson, Park, & Dimidjian, 2024). 'Belonging' in this context, refers to feeling accepted or valued, and being able to relate to, and have close bonds with, or attachments to, other people (Hirsch & Clark, 2019). Belonging has been stipulated as a fundamental human need and desire that influences health and wellbeing due to its strong effects on emotional and cognitive processes (Baumeister & Leary, 1995). Feeling that one belongs activates internal mechanisms linked to experiencing pleasure or positive affect, while experiencing that one does not belong, or experiencing a loss of belonging, activates affective distress (Ibid.). Belonging is not only conceptualised as cognitive and emotional links towards other people. Within the discipline of environmental gerontology, belonging is commonly conceptualised as having cognitive and

emotional links, such as attachments to, or meaningful aspects of, a particular environment or place (Altman & Low, 1992; Rowles & Bernard, 2013). 'Place attachment' refers to several similar notions such as place identity, sense of place, rootedness, and insidedness, which all refer to different aspects of person-place bonding and involve an interplay of affect, emotions, beliefs, and behaviours, in reference to a place (Altman & Low, 1992). Feeling attached to a place can provide feelings of security and stimulation, contribute to forming or maintaining one's identity, and support self-esteem and self-worth (Ibid.). While a loss of attachment towards a place for instance if there are changes in the environment or the person is relocating, threatens a person's sense of being in the world (Rowles & Bernard, 2013). Belonging also refers to the notion of *being at home*: what it means to be at home, or what the meanings of a home are (Ibid.). A common depiction is that space (a physical environment without any meaning) becomes a place (the same physical environment but now with meaning) through the usage and handling of the environment, for instance via daily routines (Ibid., p. 11). The meaning of place which develops over time, results in a sense of familiarity and comfort, and is closely related to wellbeing (Ibid.). It has been suggested that the different notions of belonging, place attachment and the meaningfulness of a place are related, and support health and wellbeing through complex pathways (Sun, Ng, Chao, He, & Mok, 2022). For instance, identifying with a place promotes positive self-identity. The memories, emotions, and values associated with a place are enablers of place attachment, which in turn creates a sense of continuity and rootedness. Self-identity and having emotional ties to a place, in turn, contributes to wellbeing (Ibid.).

In the Integrative Model of Aging Well, *belonging* refers to positive connections to either the physical or the social environment. Furthermore, belonging includes non-goal oriented cognitive, emotional, behavioural, and physical aspects of bonding (Wahl et al., 2012). Belonging in this model thereby incorporates both aspects of place attachment and meaningfulness of the place. The authors states that the meaningfulness of the place (such as a home) directly relates to place attachment. For instance, reflecting on experiences associated with a place creates social, cognitive, and emotional links to that place. Therefore, the process of creating belonging comes from experiences of, and with, the place, such as familiarity and routines. As previously mentioned, belonging becomes increasingly more important in older age, particularly when people move from young old to very old age, when agency tends to decrease. This change between agency and belonging would explain, according to the authors, why older adults value their home or their neighbourhood even when they constitute a lack of P-E fit. Also, it would explain

the increase in secondary coping strategies to support the loss of primary coping strategies in older age (Ibid.). Similarly to Wahl et al. (2012), Chaudhury & Oswald (2019) describe, in their continuation of the model, belonging is experience driven and incorporates non-goal-oriented attachment and meaningful aspects of place such as subjective evaluations, interpretations, and cognitive-emotional representations. Furthermore, Chaudhury & Oswald (Ibid.) describes the similar shift between agency and belonging, that belonging becomes increasingly more important to uphold identity and autonomy, when agency declines. A key feature of both these models is that belonging can promote, when there is a presence of belonging, or obstruct, when there is a lack of belonging, the processes of agency, meaning that belonging can be a resource when coping with stressful environments.

Oswald & Wahl (2005), while reviewing and synthesising major conceptualizations of meaningfulness of the home environment, created the concept *meaning of home*, which includes a wide range of symbolic representations and personal meanings linked to one's home environment. As such, the meaning of home covers habits, social contacts, evaluations, goals, values, cognitions, and emotions of a person in relation to their home; that is, a range of place attachment processes when people form emotional and cognitive, behavioural, and social bonds to the home environment (Ibid.). Oswald et al. (2006) operationalised the meaning of home concept with the instrument *Meaning of Home Questionnaire* (MOH), which quantifies meaningfulness related to the home and neighbourhood, or what it means to be at home, in physical, behavioural, cognitive-emotional, and social aspects. The MOH instrument is further described on page 59.

The notion that the different definitions or aspects of place attachment and meaningfulness related to the home are connected, or at least similar, phenomena, is supported in both quantitative and qualitative empirical research, such as literature reflection studies, qualitative interviews, and cross-sectional survey studies (e.g., Aliakbarzadeh Arani, Zanjari, Delbari, Foroughan, & Ghaedamini Harouni, 2022; Alidoust & Khalaj, 2021; Bigonnesse, Beaulieu, & Garon, 2014; Mahler et al., 2014; Raymond, Brown, & Weber, 2010). Similarities of definitions and categorisations can be summarized into the following categories: *social* (including social security, social participation, social cohesion, togetherness, social roles, and privacy), *physical* (including safe home and neighbourhood, aesthetics, age-friendly environment, accessibility, adaptability, and bonding to nature), *autobiographical* and *psychological* (including individual memories, historical bonding, place identity, emotional bonding, familiarity, recognition, control over the environment, and place dependence) and, *economic* aspects (including

affordable housing and capital assets). Apart from the economic category, these categories are similar to the aspects covered in the meaning of home concept by Oswald & Wahl (2005), and are also similar to the different subscales of the MOH instrument (Oswald et al., 2006). Empirical research has also supported the idea that belonging is associated with health or wellbeing in older age. For instance, cross-sectional research on place attachment among community-dwelling older adults in different countries (e.g., the USA, Iran, Taiwan, China, New Zealand, and Japan) has suggested that place attachment is associated with wellbeing (Afshar, Foroughan, Vedadhir, & Tabatabaei, 2017; Chang, Tsou, & Li, 2020; Chen, Liu, Lin, & Lin, 2022; Evans, Kantrowitz, & Eshelman, 2002; Sawada & Toyosato, 2021; Yuan & Wu, 2021) and health (Wiles et al., 2017; Zhang, Van Dijk, Tang, & Berg, 2015) in older age. Furthermore, a cross-sectional study among community dwelling older adults in Belgium has suggested that place attachment is positively associated with odds of a more active neighbourhood life, such as going for walks (Van Cauwenberg et al., 2014), which can be considered a proxy for health and wellbeing. Another cross-sectional study among community-dwelling older adults in Germany suggested that place attachment is negatively associated with fear of crime (Hanslmaier, Peter, & Kaiser, 2018), which could be considered a proxy of psychological wellbeing.

In the following, the notion *meaningfulness of the home* will be used to include both place attachment and the meaning of the home. Such a notion is used instead of 'meaning of home' to avoid confusion with the concept or the instrument developed by Oswald and colleagues (Oswald et al., 2006; Oswald & Wahl, 2005). Furthermore, the term *perceived home* is used in the thesis when referring to both, and only, the concepts of control beliefs and the meaningfulness of the home environment. This term was created solely for pragmatic purposes and should not be confused with, or seen as an effort toward the conceptual development of, the aforementioned term *perceived housing* constructed by Oswald et al. (2006), which contains, in addition to control beliefs and meaningfulness of the home, perceived usability and satisfaction with the home environment.

Interaction between control beliefs and meaningfulness of the home

As already briefly described, recent theoretical advances of the P-E interaction (Chaudhury & Oswald, 2019; Wahl et al., 2012) posit that there are interactions

between control beliefs and meaningfulness of the home. As people age and move from middle age to older age, and in particular move from young-old to very old age, control beliefs tend to decrease, and aspects related to the meaningfulness of the home become increasingly important in being able to age well. As primary coping strategies decline, due to, but not limited to, functional decline, secondary coping strategies become more prominent in handling stressful situations and environments. Other theories of ageing also describe interactions between control beliefs and meaningfulness; however, these are not particularly confined to the home environment. For instance, the socioemotional selectivity theory posits that in older age (c.f. younger age), day-to-day choices (control beliefs) become more influenced by affective dimensions (meaningfulness) than by having future-oriented goals (Carstensen, 1995, p. 154). As was also previously described, identifying with a place has been argued to stem from transforming or maintaining that place. Transforming a space (a physical location having no meaning) into a place (a physical location having meaning) involves agency; acting on and using the environment (Altman & Low, 1992). Therefore, meaningfulness of the home would, to some extent, come from the actual or perceived possibilities of handling the home, and being able to feel at home stems to some extent from being able to exercise control over the home environment (Ibid.). This interaction can be exemplified in the tendency of older adults, when relocating to a new home, to set up the home in a way that replicates the previous home (Rowles & Bernard, 2013). It has also been suggested that control beliefs and meaningfulness of the home should be regarded as a two-way interaction, that place attachment comes from a sense of control over the home environment; place attachment in turn provides a sense of being in control over aspects in one's life (Altman & Low, 1992). Empirical research on the exchange between control beliefs and belonging is, however, limited. Oswald et al. (2006), when constructing the instruments to quantify control beliefs and meaningfulness to the home, that is, HCQ and MOH, found that HCQ influenced MOH (Ibid.). Specifically, having stronger feelings that oneself can influence the events in one's home (internal aspects of HCQ) positively influences feelings of meaningfulness of one's home environment (MOH). A cross-sectional study among older adults in Spain suggested that when there were stronger feelings of events in the home environment as being contingent on external factors such as other persons, chance, or fate (external factors of HCQ), there was a negative association with feelings of meaningfulness of one's home environment (MOH) (Amián, Alarcón, Fernández-Portero, & Sánchez-Medina, 2021).

Life transitions

Certain events in life, due to their stressful nature, have been suggested to impact health and wellbeing more than others. These events, sometimes also referred to as 'transitions' (e.g., Urbaniak & Walsh, 2019), threaten a person's sense of competence or status, or threaten a person's identity (Bifulco et al., 2019; Cohen, Murphy, & Prather, 2019). Holmes and Rahe (1967) constructed a scale to rank relative stress from 43 common events (later expanded to 55 events) in people's lives which evoke psychophysiological reactions. According to Holmes and Rahe, the stress from such stressful life events plays a causative role in disease. The scale was based on self-rated relative readjustment levels from 394 persons of all ages in the USA, to offer a generalized weight of required readjustment for several life events, anchored around the transition of getting married. Marriage was stipulated as having a readjustment value of 50 on a 100-rating scale, and other transitions were then assessed as requiring either more or less readjustment in comparison to marriage. For example, the mean readjustment value of 'personal illness' was 53, meaning that personal illness requires slightly more readjustment than marriage. The mean readjustment value of divorce was 73, meaning that divorce requires much greater readjustment than marriage. The mean readjustment value of retirement was 45, slightly less than marriage, and changing residence had a mean value of 20, indicating much less readjustment required when compared to marriage. Later research has recalculated the readjustment values, arguing that changes in values are needed to reflect shifts in cultural life and values. Some events were more or less confirming the relative readjustment values, while the values of other events were changed (Scully, Tosi, & Banning, 2000). For instance, retirement was adjusted from 45 to 18, indicating that retirement has changed over time to be perceived as requiring much less adjustment, and as such is perceived as less stressful, while readjustment for personal illness and changing residence remained more or less the same. Other scales of life events, containing both desirable and undesirable events, have been developed to quantify consequential adjustment, change, or stress, many of which have been found to more or less correlate with perceived adjustability (Kale & Stenmark, 1983). Furthermore, it has been suggested that undesirable life events have a stronger influence on predicting adjustment levels than do desirable events, indicating that undesirable events have stronger impact on consequential stress levels and psychological adjustment thereof (Ibid., p. 455).

Life transitions in older age

While certain life events can be considered general life experiences, other events are more or less age specific. For example, starting and finishing school are events that happen during childhood and adolescence. Job-related events, such as getting a new job or being fired from a job, are events that happen in adulthood. Becoming a parent normally happens in adulthood, while becoming a grandparent normally happens in older age. Retirement normally happens in older age, while chronic illnesses, even though they can occur throughout the life course, are more common in older age compared to younger age (Shanahan, Mortimer, & Kirkpatrick Johnson, 2016). Relocating to a new residence can occur throughout the life course, but older adults tend to relocate less than younger adults (Statistics Sweden, 2022). Also, the longer a person has been living in a home, which is more common among older adults (Ibid.), has been found to be negatively correlating with the probability of relocating (Abramsson & Nord, 2012). Since the list of life events in any given population is likely inexhaustive, it is only possible to study some of them (Kale & Stenmark, 1983). The following section will describe the research setting: the Swedish housing context for older adults. After that, research regarding life events in older age which concern the aim, research questions, and the results of the studies that constitute the thesis, pertaining to *relocation* and *retirement* will be briefly delineated.

Swedish housing context for older adults

Living together with other people

In Sweden, 60 % of older adults ages 60 and above live together with a partner, 35 % live alone, and 5 % live with neither a partner or alone, such as in a collective living, living with a child, or having a lodger. However, it is more common to live with a partner among younger-old adults, and there are differences between men and women. For women, living with a partner is more common until age 78, when living alone becomes more prevalent. For men, living with a partner is more common until age 90, after which living alone becomes more prevalent. Such age differences are explained by the tendency of men in a the partnership to be older, and the fact that women live longer than men (Statistics Sweden, 2022).

Type of housing

For older adults aged 60–79, living in a house is the most common. Among ages 60–69, 58 % live in a house and 39 % live in an apartment; and among ages 70–79, 56 % live in a house and 39 % live in an apartment. After the age of 80, living in

apartments becomes more common (46 % of ages 80–89), compared to living in houses (44 % of ages 80–89). The differences in the type of housing are seen whether one is living with a partner or alone. Among older adults living with a partner, 68 % live in houses, and 30 % live in apartments. Among older adults living alone, 32 % live in a house, and 57 % live in apartments. Until age 78, it is more common for women to live in houses, while for men it is more common to live in houses at all ages. The differences in type of housing between ages and sex could be explained by the increased workload required to live in a house compared to living in an apartment, and that men tend to live with a partner at higher ages than women (Statistics Sweden, 2022). In addition, older adults tend to live in larger housing (square meter per person) compared to the population as a whole, since they mostly remain in the home in which they have lived in for a long time. The differences in housing type among older adults are therefore indicative of changes in functional abilities, and life events, such as the loss of a partner or children moving out.

Special housing and homecare

In Sweden, each municipality is responsible for arranging for dependent living for older adults who need help with services or care, often around-the-clock, to help the person live as independently as possible. Such living is collectively referred to as *special housing* (In Swedish, *Särskilt Boende, SÄBO*) (Boverket, 2024). In Sweden, SÄBO is rare among older adults, though it is more common among very old adults. Among ages 60–79, 1 % report living in SÄBO, which then increases to 6 % among ages 80–89, and to 19 % among ages ≥90 (Statistics Sweden, 2022). From a societal standpoint, policy has been focusing on homecare as a form of support for older adults to help them live independently while enabling ageing in place (Boverket, 2024), and about 17 % of older adults ages ≥65 have been receiving some form of homecare (Socialstyrelsen, 2022). However, there is an age difference, where around 5 % of older adults aged 65–79, and around 28 % of older adults ages ≥80, receive homecare (Boverket, 2024). Even though the proportion of older adults ages ≥65 receiving homecare has been reducing over the last decade, homecare is currently twice as common as moving to SÄBO (Socialstyrelsen, 2023). This implies that most older adults in Sweden lives on their own within ordinary housing stock throughout the ageing process.

Changing housing among older adults in Sweden

It is more common among older adults to have lived a long time in their current housing, and almost 25 % of older adults (i.e., ages 60 and above) have lived in their

current housing for more than 50 years. However, there is a higher proportion of older adults up to the age of 65 who have lived in their current housing for less than 5 years, indicating that older adults relocate more often before retirement than after. After the age of 90, there is again a larger proportion of older adults living in their current housing for less than 5 years. Such relocations would be explained by the increase in dependent living among the very old. There is a difference between women and men, where a higher proportion of women have been living in their current housing for less than 5 years, when compared to men. Between the years 2015 and 2020, 17 % of older adults ages ≥60 relocated. Of the older adults who did relocate, about 67 % relocated to different housing within the same municipality, about 17 % relocated to a different municipality within the same county, and about 11 % relocated to a different county. A larger portion of men remain in their current housing, that is, a larger portion of men do not relocate, while a larger portion of women tend to relocate to different housing within the same municipality. Also, older adults living in apartments tended to relocate to a larger extent when compared to older adults living in houses (Statistics Sweden, 2022).

The housing statistics among older adults in Sweden indicate a low tendency to relocate. Rather, there is a tendency to focus on ageing in place in their own home in which they have lived a long time. The relocation that happens in older age is indicative of either proactive relocations happening before retirement, or of reactive relocations resulting from consequences of a change in the family constellation (such as a bereavement or separation) or due to personal health issues, such as no longer being able to take care of themselves in their current housing.

Relocating as a life event in older age

Relocation can constitute a disruption in one's familiar environment, and feeling at home, requires remaking a new being-in-place, a new being 'at home'. Such a transformation and recreation of being at home can be associated with significant stress, which is increased for older adults due to their decreased abilities to handle environmental change (Rowles & Bernard, 2013). Research on the association between relocation and health or wellbeing among older adults has largely focused on relocation from independent living to non-independent living; that is, from the ordinary housing stock to special housing (Gilbert, Amella, Edlund, & Nemeth, 2015). When it comes to research on relocation to independent living among older adults, a recent German study of a small sample (N = 427) of older adults (ages 60 and up) in Berlin showed two peaks in relocations to independent living in older age; one at age 67 and another at 70. After age 70, relocation rates dropped, and

after age 80, very few tended to relocate (Haacke, Enßle, Haase, Helbrecht, & Lakes, 2019). A study on 2424 older adults, ages ≥65 in the UK, showed that one third of older adults relocate after age 65 and that older age, low education, low social class, living in a rural area, and living in a more economically deprived area, all increased the likelihood of relocating in later life (Wu et al., 2015). These results can be compared to the relocation statistics of older adults in Sweden who tend to have a larger relocation proportion before retirement; that is, before age 65.

People relocate for different reasons, reasons which can be foreseen, planned, or desired, and can differ from the actual reasons for relocating. Haacke et al. (2019) found in their study that the most common reasons for relocating were wanting to downsize; to move to a smaller living space, an obstacle-free living, or a cheaper living. However, for foreseen relocations, the goal of having an obstacle free living was more common, and for the actual relocations, the goal of having a smaller living were more common (Ibid.). A qualitative study of 80 older adults aged 80–89 in Sweden and Germany found that perceived relocation needs included maintaining one's identity, remaining in control, and avoiding loneliness (Löfqvist et al., 2013). Reasons for relocating can also be construed as factors affecting moving from a previous living (push factors) and factors affecting moving to a specific living (pull factors). A study of push and pull factors among older adults (aged 55–92) in the USA showed that the most common push factors for relocating to a smaller living were declining health, wanting a less maintenance-intensive home, and not liking the location in which they were living. The most common pull factors were an attractive or familiar location, proximity to amenities and family and friends (Costlow, Parmelee, Choi, & Roskos, 2020). Bereavement is another factor that has been found to be linked to increased chances of relocation at older ages (Bonnet, Gobillon, & Laferrère, 2010). Even though there are policy, cultural, or contextual differences affecting relocation patterns among older adults, there are also more universally common reasons for relocating, such as being able to manage one's home and supporting social life.

Whether relocating influences the health and wellbeing of older adults varies depending on different factors and types of housing. Results from an integrative review of relocation to special housing, including both qualitative and quantitative study designs, showed that feeling that one is control of the decision-making process of the relocation, and the quality of that control, were directly related to outcomes, such as having less depression, and the ability to adjust to the new living environment. In contrast, persons who experienced a forced relocation suffered from emotional distress, loss of self-worth, and an inability to adapt or integrate into

the new community (Gilbert et al., 2015). A cohort study of persons aged 69–97 in the USA (N = 5294) showed that relocation to special housing predicted positive longitudinal changes for comorbidity, while relocations within ordinary housing stock were associated with the initial health statuses but not with longitudinal changes. The authors concluded that for persons relocating to special housing, the move maximised the P-E fit and therefore improved health and functional status longitudinally. For older adults relocating within the ordinary housing stock, any association between relocation, health, and disabilities has been suggested to be short term in a longitudinal study of older adults in the USA (Hong & Chen, 2009). Similarly, a longitudinal study of associations between relocation and ADL among older adults living in ordinary housing (N= 7512, ages 70 and above) in the USA found that relocating for health reasons was associated with short term increases in ADL limitations, but there were no associations over the long term when compared to persons who had not relocated (Chen & Wilmoth, 2004).

Relocating in older age is therefore a widely heterogeneous phenomenon with varying reasons for, and consequently, ways of, relocating. Depending on the many factors influencing the relocation, and ways in which the relocation happens, there are varying effects on the lives, health, and wellbeing of older people.

Retirement as a life event

Just like relocating, retirement is influenced by several factors and happens in several ways. Whether a person perceives that they can or should retire, whether there should be early or postponed retirement, and how to exit working life, are all factors that impact what retirement is, and becomes, for a person (Zhan, Wang, & Daniel, 2019). To construe a definition for research exploring such a varied phenomenon, Zhan et al. (2019) concluded that retirement could be regarded as "[…] the transition from focusing on the work role to nonwork role, such as family and community roles, after a long-term career employment." (Ibid., p. 582). Research on the effects of retirement on health and wellbeing has shown varying results. Longitudinal research among retirees in Germany (N = 1456) and the USA (N = 2060) on the associations between retirement and psychological wellbeing has suggested that retirement relates to positive changes in psychological wellbeing for some people and relates to negative changes in wellbeing for others. The authors concluded that the difference might be attributable to individual and contextual characteristics, such as retirement age, gender, socioeconomic status, marital status, the spousal status, health, and employment situation before and during retirement (Pinquart & Schindler, 2007; Wang, 2007). A recent meta-analysis of 41 studies (N

= 557,111) on the association between retirement and depressive symptoms suggested that, despite a high heterogeneity in study designs, settings, populations, and definitions of retirement, retirement reduced the risk of depression by 17 % (Odone et al., 2021). However, another recent meta-analysis on the bidirectional association between involuntary retirement (defined as being forced to retire due to either business closure, layoff, and family or health problems) and depression suggested the possibility of a mutually causal relationship. Compared to working, the relative risk for depression was 1.31 for involuntary retirement, and depression was an independent predictor of involuntary retirement (relative risk 1.70) (Zhai, Wang, Liu, & Zhang, 2022). Yet another meta-analysis of 25 studies on the relationship between different kinds of retirement and depression suggested that retirement was associated with depressive symptoms, that the association was stronger with involuntary than voluntary or regulatory retirement, and that the association was stronger in Eastern developed countries compared to Western developed countries (Li, Ye, Zhu, & He, 2021). A meta-analysis of 23 studies on the effect of retirement on cognitive function found no or slight negative associations (effect size -0.01 to -0.09) (Celia et al., 2021). The results are therefore indicative of a more complex associational pattern, in which several factors, such as demographic differences or feeling in control of the retirement transition, play a role in how retirement suits an individual, and how the retirement affects the lives, health, and wellbeing of older people.

Summary of the introduction

The core concepts in the theoretical models of environmental gerontology, agency (control beliefs related to a place), and belonging (meaningfulness related to a place), play an important part in older adults' possibilities of ageing well and have been found to be associated with both health and wellbeing. Older adults progressively spend more time at home, particularly after retirement. In Sweden, while some older adults, usually very old adults, move to special housing, most older adults remain in their own home or live in ordinary housing stock throughout the ageing process. Therefore, the home becomes an important environment for research regarding control beliefs and meaningfulness, and their associations with health and wellbeing. Furthermore, the interaction between control beliefs and meaningfulness related to the home develops through a life course perspective, and as such are influenced by life transitions. Most research has focused either on special

housing or has focused on very old adults, and there is lack of research on the importance of control beliefs and meaningfulness related to the home among younger-old adults. While research has focused on the relationship between relocation or retirement, and health or wellbeing, there is a lack of research studying the interactions between life transitions and the perceived home. To further build knowledge and to find patterns of the person-environment interaction earlier in the ageing process, it is important to study common life transitions trajectories in older age, to study how life transitions interact with the perceived home, and how the perceived home relates to health or wellbeing among younger-old adults.

Aims of the doctoral project

The overall aim of the thesis was to investigate how and which life transitions interacts with the perceived home, that is control beliefs and meaningfulness of the home, and how the perceived home is associated with health and health-related quality of life among younger-old adults. The included studies and their relation to the overall topics are presented in figure 1.

Specific aims of each study

Study I: To explore life transition trajectories during a 20-year period around retirement age.

Study II: To explore how different aspects of perceived housing relate to the experiences of relocation and retirement as two particular transitions in later life.

Study III: To investigate whether perceiving one's home as more meaningful moderates the association between external housing-related control beliefs and health-related quality of life. A secondary aim was to investigate whether the strength of the moderating effect differed between younger-old and older adults.

Study IV: To investigate whether control beliefs towards, or feelings of attachment and meaningfulness of, one's home environment are associated with health or quality of life over time among older adults around retirement age.

Figure 1. Overview of Studies I–IV, topics, research questions, study designs, and data sources.

Ethical considerations and reflections

All studies had ethical approval from the Swedish Ethical Review Authority, registration 2020-04068 (Studies I and II), 2020-0276 (Study IV). Studies I and II, since they used data from German participants, was also approved by the institutional review board of the Department of Educational Science, Goethe University, Germany (no formal registration number). Study III used data from the RELOC-AGE study, which was approved by the Swedish Ethical Review Authority, registration 2020-03457. Study IV used data from *The Swedish National Study on Aging and Care: Gott Åldrande i Skåne* (SNAC-GÅS) Project and *The Home and Health in the Third Age* (HHT) study, which were approved by the Ethical Board in Lund (2010/431) and the Ethical Committee at Lund University (2002-2012 LU 744-00), respectively.

Since all the studies were conducted on human subjects, specific ethical considerations were taken (World Medical Association, 2013). For Study I, II, and III, written informed consent was obtained from each participant. The informed consent contained information about the project and purpose of the study; how the study would be conducted; what kind of questions would be asked; that it is up to the participant to decide what information to share with the interviewer; the estimated length of an interview; that the interview would be recorded; that participation is voluntary, and that consent could be withdrawn at any time during the study without having to give a reason; how to proceed to withdraw consent, and that the data would be handled in accordance with EU General Data Protection Regulation (GDPR), and what this entails for the participant. The interview was deemed to infer minimal risk of injury or discomfort for participants. However, since the interview could potentially be emotionally taxing, at the end of each interview, the interviewer was sensitive as to whether the participant expressed indications of depression, suicidal thoughts, or similar. If this were the case, the interviewer would guide the participant to different telephone support numbers (listed in the interview guide, see Appendix II). Study IV used data from SNAC-GÅS, which is an ongoing study of older adults in Sweden to which researchers

must apply for both ethical approval for each study and to receive data from the data handler.

For Studies I and II, identification at the personal level was pseudomised by using identification numbers at the transcription phase. Only the doctoral student had the key linking participants to their identification numbers, and this key was stored on a secure computer which only the doctoral student had access to. Furthermore, any identifying information, such as city, area, or other people's names, were anonymised to avoid potential identification. All data, that is, transcripts, codes, and analytical maps, for Studies I and II were kept on secure computers to hinder unauthorized access. For study III, data from the RELOC-AGE study was stored on Lund University's security servers to hinder unauthorised access. Data from SNAC-GÅS had been anonymised when it was received. A randomised participation identification number was given for the dataset, and names and personal identification numbers were removed. The dataset was password-locked to hinder unauthorised access. The dataset and password were stored separately and on secure computers.

Even though the risk of participating in any of these four studies was deemed minimal for participants, the benefit of the research for individual participants was deemed similarly minimal. The results of the studies as such are likely to benefit society, policy- and decision-makers, and the research community, rather than any of the participating persons. However, even though there is likely no direct benefit for participants, there is a benefit for older adults as a group. Older adults are commonly an underrepresented group in medical research, and since these studies address this particular population, this thesis provides access to participation in research (World Medical Association, 2013, § 13).

The final ethical consideration regards adhering to principles of transparency in research. Transparency refers to the process of conducting studies, presenting the results, and pointing out potential risks or biases that make the results of the studies uncertain. In order to potentially benefit society, policy-/decision-makers, and the research community, it is important to be clear about what conclusions can be drawn from the results of the studies. It has been imperative for the current thesis to uphold transparency, be clear about potential biases that could make the results uncertain, and the thesis is therefore particularly critical of the research process of each study.

General methodology

Overall study design

The current thesis is built on four studies which utilised different study designs, both qualitative (Study II) and quantitative (Studies I, III, and IV) in design. All studies rely on primary data sources and excepting Studies I and II, all studies used different study samples. Except for the older age group in Study III (ages 75–93), each study sample consisted of older adults between 62 and 77 years old. Apart from some of the participants in Studies I and II who were community-living in Germany (n = 16), all participants were community-living in Sweden.

Study I and II – Life transitions & perceived home

To explore life transition trajectories during a 20-year period around retirement age (Study I)

To explore how different aspects of perceived housing relate to the experiences of relocation and retirement as two particular transitions in later life. (Study II)

Recruitment

Participants for Study I and II were recruited in Germany and Sweden. In Sweden, participants were recruited via advertisement through two retirement organisations in the regions of Skåne and Stockholm. The advertisement (Appendix I) was an open call for interviews related to how aspects of perceived housing and healthy ageing have been influenced by significant life transitions. Participants were eligible if they were between 60 and 75 years of age, were able to be interviewed for 1.5 hours, and had experienced at least one significant life transition during the last 10 years. The assessment as to which life transitions were significant, or not, was given

to the interviewee. However, in the advertisement there were some examples of life transitions: retirement, relocating, a change in family constellation, having a chronic illness, or becoming a grandparent. The advertisement was sent out to members of retirement organisations through their monthly newsletter and was listed on each organisational website. In Sweden, snowball recruitment was performed for the first 10 interviews but was discontinued due to a high interest in participating in the study. In total, 83 people contacted the recruiters with an interest in participating; 67 in Sweden, and 16 in Germany.

Recruitment aimed for a balanced group in regard to sex and age. In Germany, recruitment also strived for diversity in socioeconomic background and life transition. A total of 50 participants were interviewed; 34 in Sweden and 16 in Germany. In Sweden, people who were interested in participating contacted the recruiter either by email or by phone. A telephone call was consequently scheduled in which the potential participant was informed in more detail about the aim of the study, what kind of questions that would be asked during the interview, how the interview would be conducted, that participation was voluntary, that any participation could be withdrawn at any time. If the person was still interested in participating, all information, together with a consent form and a return envelope, was sent to the participant for signing. After attaining signed informed consent from the participant, an interview was scheduled. Since the interview took place during the SARS-Covid-19 Pandemic, most interviews had to be held via a video-link (n = 36) or by telephone (n = 9). The only exception was five of the German interviews, which were held in person.

Data collection and interview guide

The interview guide for Studies I and II was developed jointly by the authors, and tested in four pilot-interviews, after which it was amended (Appendix II). In total, the interview guide consisted of 29 probing questions, and 9 demographic questions (age, sex, education, country of birth, marital status, how long the participant had lived in their current home, how many were currently living in their home, whom they currently live with, and current self-rated health status). At the beginning of the interview, the participant was asked to speak freely about any life transitions they had experienced, and how these transitions had affected their lives. If the participant had not already talked about the topics covered in the interview guide, specific questions from the guide were asked; that is, regarding daily life, social participation, perceived aspects of the home and neighbourhood, health and quality

of life, any changes the participant would like to make in their current home, and what the participant regards as important for the future. The interviews lasted between 48 minutes and 2 hours and 21 minutes, with a mean of 1 hour and 26 minutes. Interviews were conducted between November 2020 and May 2021.

Analyses Study I

For Study I, first, a configural frequency analysis was used to explore whether combinations of life transitions were significantly higher or lower than expected, relatively to the individual occurrences. Secondly, sequence analysis was used to explore the temporal sequences of the life transitions, that is, the order and distances between the transitions, and thereby identifying patterns of life transitions trajectories. For the sequence analysis, the reported life transitions were assigned a year between the year 2000 until 2020. The person was deemed as remaining in a life transitional state until a new life transition occurred. For instance, if a person relocated in 2004 and divorced in 2010, then the person was deemed to remain in the transitional state of relocating between 2004 and 2010. If there were two or more life events occurring in the same year, the person was deemed to remain in the "strongest" life transition of that year. The strength of the life transition was judged based on a psychological assumption that life events with negative associations have stronger effects on the person than life events with positive associations (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Thus, disease-related transitions were deemed strongest (i.e., as having the most negative associations): transitions related to a loss of a relationship were deemed second strongest (i.e. having the second-most negative associations); retirement-related transitions were deemed the third strongest; relocating-related the fourth strongest; and transitions related to a relationship gain as the fifth strongest. To identify common patterns of life transition trajectories, individuals were clustered in terms of predominant trajectories by computing distances between sequences of life transitions, resulting in trajectory-matrices with distinct clusters and distances of life transitions.

Analyses Study II

After transcribing the interviews, and after realising that the initial plans for data exploration would yield too large and complex analyses, a change of aim and research question for Study II in October 2021 was jointly decided upon by the authors. Thus, the new aim became to only include the participants who had

experienced both retirement and relocation (n= 26) and to analyse their experiences of other life transitions and different aspects of perceived housing around these two transitions. As the sequence of these life transitions was deemed to potentially influence the experience, participants were divided into two sequences; as either having relocated before retirement (n = 16) or having relocated after retirement (n = 10).

Situational analysis

Guided by one of the authors, Dr Anna Wanka, Study II developed an analytical approach inspired by situational analysis (Clarke, 2003), which in turn is an analytical approach that builds upon grounded theory (Charmaz, 2006). Such an analysis aims to capture phenomena in their situations by connecting the themes that emerged through the interviews to any of the experienced life transitions (i.e., not only the life transitions of relocation or retirement), or to other themes. Such linkages were then visualised in a figure which represented situational maps. The creation of themes and maps followed a specific analytical flow (see Figure 2).

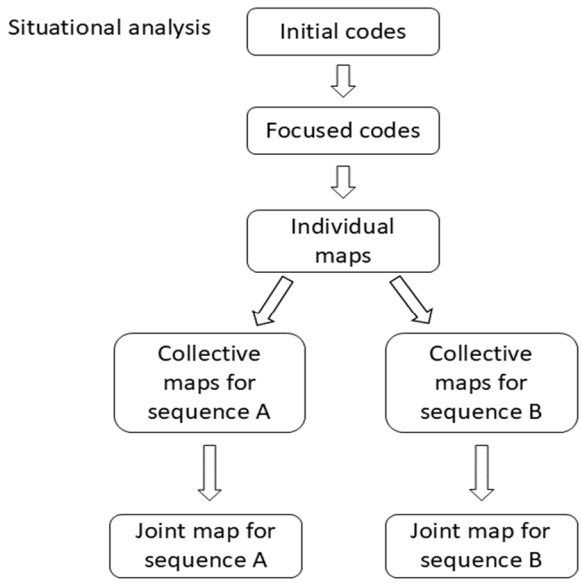

Figure 2. Analytical process of Study 1. Sequence A = participants relocating before retirement, Sequence B = participants relocating after retirement.

The first step of the analysis was to create *initial codes* close to the wording of the participant. Secondly, *focused codes* were created through an abductive approach based on both the initial codes and the theoretical framework of the project. The focused codes were then organised in relation to other codes and to the experienced life transitions, thereby creating individual situational maps for each participant. Each focused code was colour-coded with a main colour representing whether the code regarded a life transition, social relationships, control beliefs, plans for the future, daily activities, health, or was housing-related. Housing-related codes were given a secondary colour code, visualised on the edge of the focused theme in each map (see Figure 3). The second colour represented whether the housing-related theme referred to aspects of control beliefs, meaningfulness, practices, plans for the future, objects, usability, safety, social activities, neighbourhood, mobility, or finances. See Figure 3 for an example of an individual map.

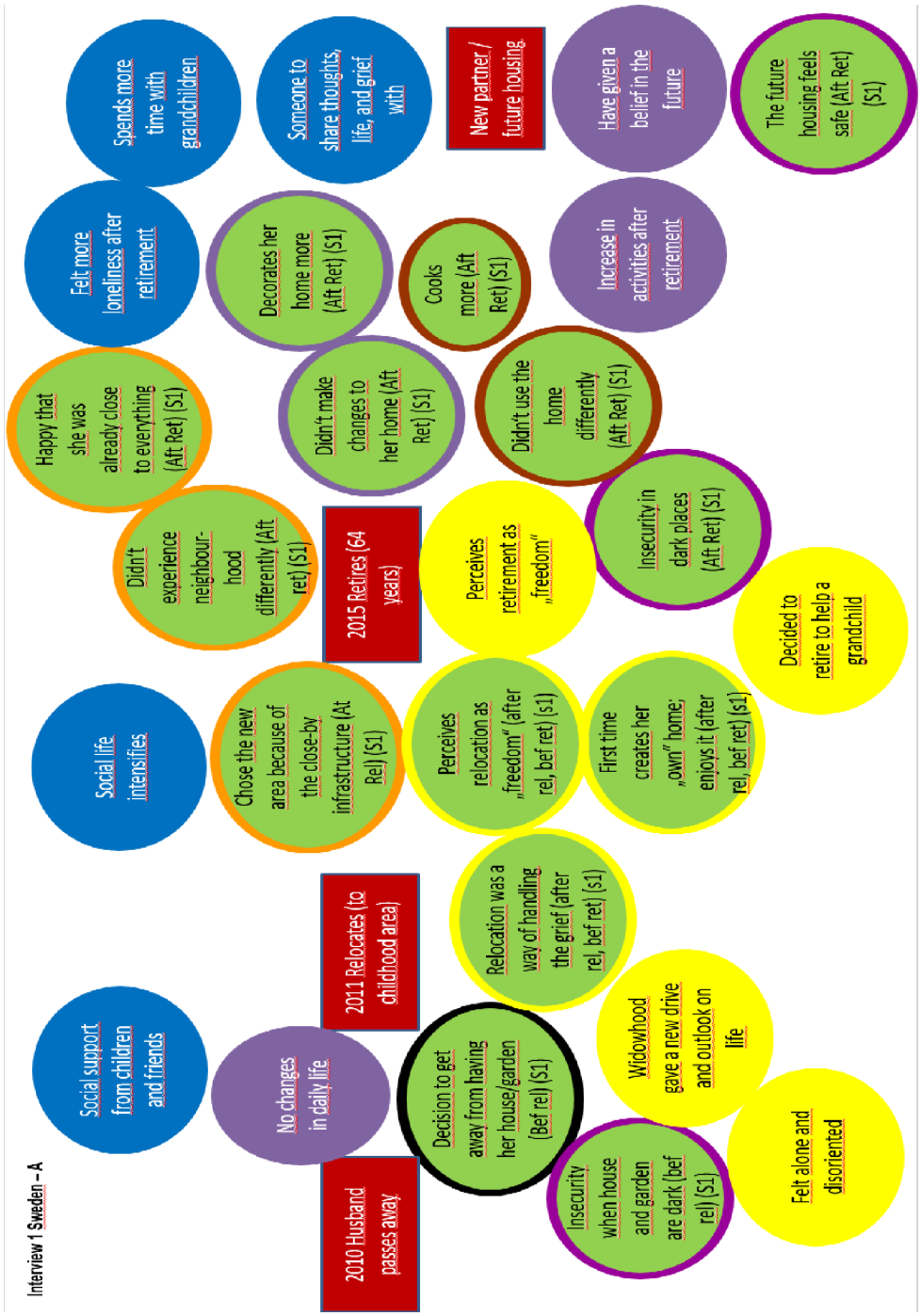

Figure 3. Example of an individual situational map. The colour on the outlines of the green bubbles represent different housing-related themes.

The next analytical step was to combine all the focused codes with the same colour code from all the individual maps into collective situational maps. The focus codes from participants who had relocated before retirement were combined into one collective map (Map A), and focus codes from participants who had relocated after retirement were combined into another collective map (Map B). By having such an overview of collective themes and their situatedness, patterns of experiences for each sequence (A or B) could be discerned, and meta-level themes could then be created. See Figure 4 for an example of a collective map.

The last step was to put the meta level themes and their situatedness into a joint map for each sequence; A and B. See Figure 5 for an example of one of the joint maps. The developed analytical approach thus yielded meta-level patterns of themes, their situatedness to each other, or to the experienced life transitions, for participants who either relocated before retirement, or after.

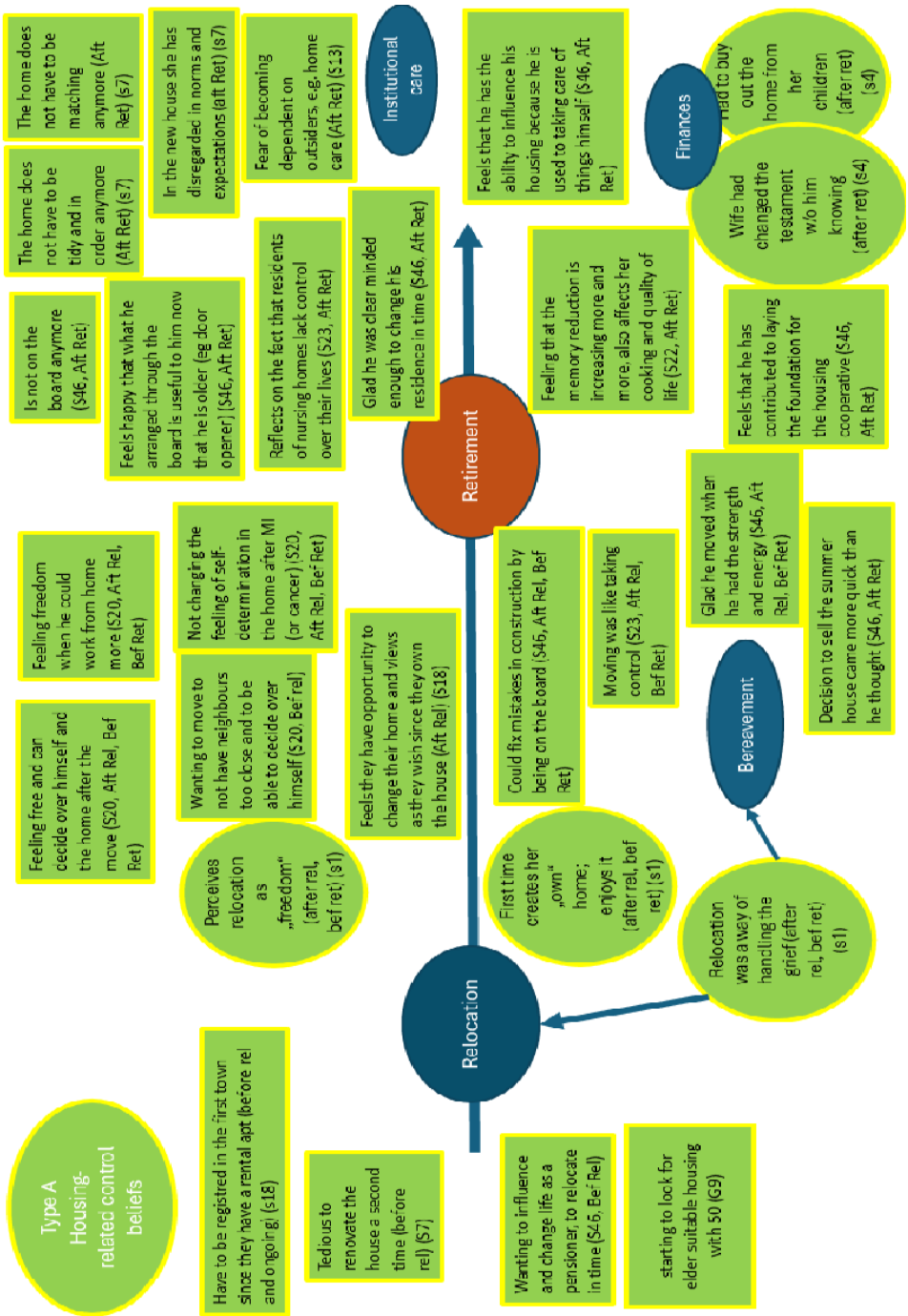

Figure 4. Example of a collective map of housing-related control beliefs themes (green with yellow edges) for participants who had relocated before retirement (sequence A).

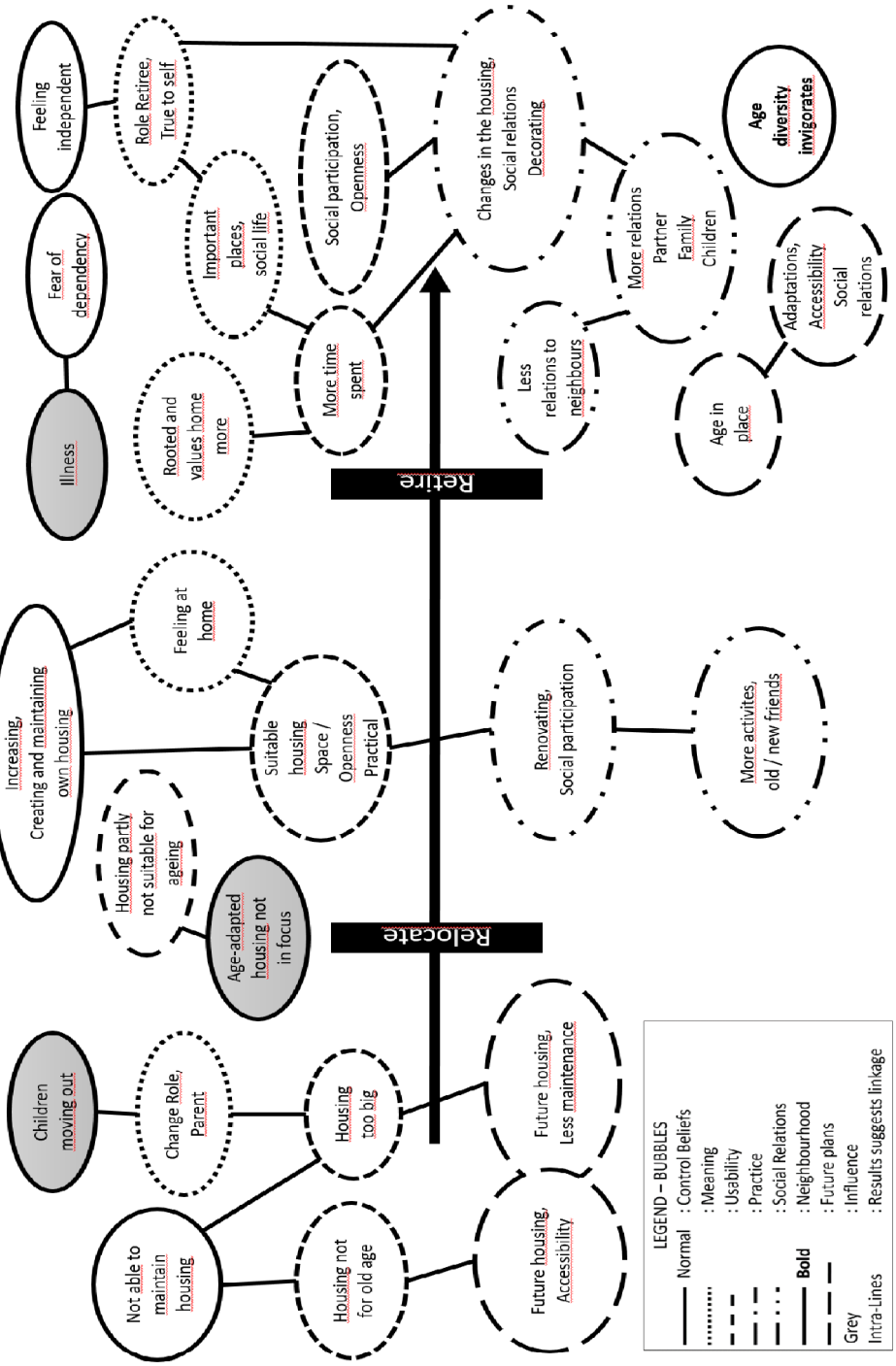

Figure 4. The joint map of Sequence A.

Study III – Perceived home & health-related quality of life

To investigate whether perceiving one's home as more meaningful moderates the association between external housing-related control beliefs and health-related quality of life. A secondary aim was to investigate whether strength of the moderating effect differed between younger old and older adults.

Recruitment & data collection

The third study used data from the RELOC-AGE study, which is a longitudinal study of housing choices, relocation, and effects on active and healthy ageing among community living older adults aged 55–93 in Sweden (Zingmark et al., 2021). Participants were recruited via interest lists from housing companies that represent local public housing providers. The first data collection point (N = 1964) was conducted in 2021, and the second data collection point (n= 1509) was conducted in 2022. The analyses consisted of data from the second collection point. In the second survey, responders had a mean age of 68.9, 68.4 % were younger-old (ages 55–74), 55.7 % were women, 67.9 % had a university education, and 2.1 % were not financially stable.

Control beliefs of the home

To estimate the control beliefs of the home environment, the Housing-Related Control Beliefs Questionnaire (HCQ) was used. The HCQ was created to quantify environmental proactivity in older age (Oswald et al., 2003), and specifically assesses beliefs as to what degree events in, tasks at, or managing, the home or one's neighbourhood, depends on one's own capabilities; on other persons; or on luck, chance, or fate. HCQ consists of 24 items; 8 reflecting whether events depend on one's own actions (internal control), 8 reflecting whether events depend on other people (external control – others), and 8 reflecting whether events depend on luck, fate, or chance (external control – chance). Each item in the questionnaire is rated on a five-point scale reflecting whether a participant agrees with a statement, 1 = not at all, to 5 = very much. Even though all subscales have showed satisfactory levels of internal consistency and re-test stability (Ibid.), later studies have found the reliability and validity for the internal control subscale to be below acceptable

levels (Boonyaratana, Hansson, Granbom, & Schmidt, 2021; Oswald et al., 2006). For that reason, only the two external subscales (HCQ-E) were used in the study. HCQ-E was calculated as a total summary score of the mean scores of both external subscales (ranging from 2–10), thereby reflecting a total score of external control beliefs rather than scores in different external subscales. Thus, a higher score in the external subscales indicates that control beliefs over the home and neighbourhood environments depend to a larger extent on an external factor; either on other people, or on chance, fate, or luck. Combining the two external subscales into one summary score has been previously used in research (Gefenaite et al., 2020; Haak et al., 2015; Kylén et al., 2017; Nygren et al., 2007; Tomsone et al., 2013; Wahl, Schilling, Oswald, & Iwarsson, 2009).

Perceived meaningfulness of the home

In order to estimate the meaningfulness of the home, the Meaning of Home Questionnaire (MOH) (Oswald et al., 2006; Oswald & Wahl, 2005) was used. The MOH instrument consists of 28 items divided into four different domains regarding what it means to be at home: *physical* aspects, such as the experience of the residential design and conditions; i.e., having a nice view or tastefully furnished, a base for activities, or a burden (7 items); *behavioural* aspects, such as housework, changing or handling the home environment, or following one's own wishes (6 items), *cognitive and emotional* aspects, such as familiarity, identity, safety, privacy, or how the home will be in the future (10 items); and *social* aspects such as relationships with cohabitants, neighbours, or visitors (5 items). Items are rated on an 11-point scale from 0 = Strongly disagree to 10 = Strongly agree. MOH was calculated as a total summary score of all four subscales reflecting a total score related to meaningfulness of the home. A higher score in total MOH therefore reflected a higher total meaning of the home, or a stronger total bonding with, and attachment to, the home. Combining the subscales into one summary score has been previously used in research (Haak et al., 2015).

Health-related quality of life (HRQoL)

The EQ-5D instrument is widely used instrument meant to assess health status or health-related quality of life (HRQoL) (The EuroQol Group, 1990). The EQ-5D instrument consists of two parts, a descriptive system questionnaire and visual analogue scale (VAS) and has been developed and validated for different populations and in multiple languages. Both parts of the instrument measures self-reported health status. The descriptive system was coded and derived into a summary index score using a Swedish value set (Burström et al., 2020). Value sets

represent national or regional values and preferences and are therefore country/region specific. The index score as such is considered to reflect the evaluation of health status or HRQoL aligned to a population rather than the values and preferences of the individual person. The VAS score, on the other hand, represents the individual person's direct evaluation of their health status or HRQoL. However, the VAS portion of the instrument was not collected in the RELOC-AGE study. The RELOC-AGE study used the EQ-5D-5L instrument which is construed for adults and is a further development of the EQ-5D-3L instrument meant to increase reliability and sensitivity, and to reduce potential ceiling effects. EQ-5D-5L has five levels of severity response options (no problems, slight problems, moderate problems, severe problems, unable to/extreme problems) instead of the previous three levels of EQ-5D-3L, for the five health-related dimensions of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The Index score ranges from less than 0 to 1, where 0 represents a health status of dead, and 1 represents full health. Due to the value set, the score can become less than 0, thus representing a state less (worse) than death.

Covariates

Certain characteristics were considered to potentially effect the investigated outcome. However, the results of study IV showed that only education and financial situation had statistically significant impacts (however small) on the association between either HCQ or MOH with change in symptom severity, and therefor only those variables, together with sex, were collected as potential covariates for the regression analyses. Educational levels were elementary school, secondary school two years, secondary school three years, university less than three years, or university three or more years. Financial situation was dichotomised based on two items: whether the participant would be able to handle an unexpected expense of 12,000 SEK without external help, and whether the participant, within the last 12 months, had any problems paying for rent, food, loans, etc. Having problems in both these items was classified as 'not financially stable', otherwise it was classified as 'financially stable'.

Regression analyses

Since the aim was to test potential moderation effects of MOH on the association between HCQ-E and EQ-5D-5L Index, a mean centred variable for three levels of MOH were created, (i) mean centred MOH; (ii) mean centred MOH plus 1 standard deviation (representing a mean centred value below mean MOH); and (iii) mean

centred MOH minus 1 standard deviation (representing a mean centred value above mean MOH). By calculating these three levels of mean centred MOH, it would be possible to discern the associations between HCQ-E and EQ-5D-5L Index at different mean levels of MOH. The general linear model was chosen as a mode of statistical testing since the age groups, educational levels and financial situations did not have a clear linear relationship among the responses. Regression analyses were modelled stepwise. Independent variables were mean centred MOH and mean centred HCQ-E, an interaction term between mean centred HCQ-E and mean centred MOH. The dependent variable was the EQ-5D-5L Index. The second model adjusted the first model for potential effects of age, sex, educational level, and financial situation. These analyses were performed for each level of the mean centred MOH. To answer the second aim, participants were divided into either age groups of 55–74, or ≥75. Such dichotomisation represented younger-old and older adults (Nygren et al., 2007; Rowles, 1983). The same unadjusted regression analyses were performed for each of the age groups, and in a second step, the model was adjusted for sex, educational level, and financial situation.

Study IV – Perceived home, health & health-related quality of life

---

To investigate whether control beliefs towards, or feelings of attachment and meaningfulness of, one's home environment are associated with health or quality of life over time among older adults around retirement age.

Recruitment

The study sample for the fourth study was drawn from the SNAC-GÅS cohort study (Ekström & Elmståhl, 2006; Lagergren et al., 2004), a study that has been following a random sample of older adults, ages 60 to 93, in the Skåne region since 2001. The study collected a comprehensive list of data through questionnaires and physical tests, including, among others, health-related quality of life, and a symptom check list. Data collection was done approximately every six years if participants were between 60 and 72 years old, or approximately every third year if participants were older. In 2010 to 2011, which was in-between two ordinary data collection points,

a subsample of the cohort was invited to participate in an additional data collection in the Health and Home in the Third Age study (HHT) (Ekström, Schmidt, & Iwarsson, 2016; Kylén, Ekström, Haak, Elmståhl, & Iwarsson, 2014), in which two interviewers came to the homes of the participants to ask questions about, inter alia, different aspects of perceived housing, wellbeing and health. Of 673 invited to participate in the HHT study, 55.1 % agreed to participate, resulting in a total of 371 participants. Of those who participated in HHT, 88.7 % continued to participate in SNAC-GÅS follow-ups, providing longitudinal data for 329 participants.

Data collection

Health problems – symptom severity

The Complaint Score of the Gothenburg Quality of Life instrument was used to estimate health problems (Tibblin, Bengtsson, Furunes, & Lapidus, 1990). The Complaint Score consists of a checklist of 31 different symptoms which were divided into 7 categories representing depression, tension, gastrointestinal, musculoskeletal, metabolism, heart or lung, or head-based symptoms. While not a widely used checklist, it has been used among a variance of populations for studies such as prevalence studies of symptoms and associative cross-sectional and longitudinal studies (e.g., Bardel et al., 2019; Bardel, Wallander, Wedel, & Svärdsudd, 2009; Furunes, Bengtsson, & Lapidus, 1996; Jakobsson, Hallberg, & Westergren, 2004; Kristensson, Modig, Midlöv, Hallberg, & Jakobsson, 2010). For each symptom, participants reported a severity level, whether they had for the last three months experienced ‘no’, ‘a little’, ‘a fair amount’, or ‘a lot’ of symptoms. For each of the 7 categories, a mean summary score was calculated ranging from 1 to 4, where a higher mean score represented more severe symptoms for each category. As symptom severity was collected at both baseline and follow-up, a change in symptom severity score was calculated.

Health-related quality of life

To assess HRQoL, the Short Form 12 (SF-12) was used (Ware, Kosinski, & Keller, 1995; Ware, Kosinski, & Keller, 1996). While SF-12 was constructed as a measure of general health status (Ware et al., 1996) it is commonly used for measuring HRQoL similar to other instruments such as the SF-36 (Ware, Snow, Kosinski, & Gandek, 1993), the EQ-5D (The EuroQol Group, 1990), and The World Health Organization Quality of Life (The Whoqol, 1998) (Pemau, González-Palacios, & Kerr, 2024). SF-12 consists of 12 questions which are summed in two different

components of HRQoL: physical and mental HRQoL. The instrument therefore yields two different scores, the Physical Component Summary (PCS) and the Mental Component Summary (MCS). Both summary scores range from 0–100, and a higher score indicates better physical or mental HRQoL, respectively. As SF-12 was collected at two time points, changes in both physical and mental HRQoL were calculated.

Perceived meaningfulness of the home

In order to assess the perceived meaningfulness of the home, the Meaning of Home Questionnaire (MOH) (Oswald et al., 2006; Oswald & Wahl, 2005) was used. The MOH instrument was described in more detail on page 59. For this study, a mean score for each subscale was calculated, ranging from 0–10. Due to missing data, each of the four subscale's scores were imputed for those who answered at least two thirds of the items of that subscale. The subscale scores were therefore calculated based on the mean of items answered using a 2/3 rule to account for missing items. The reliability for all subscales in the very same study sample has been found to be acceptable, and the construct validity was found to be good (Boonyaratana et al., 2021). Only one MOH collection point existed in the data, which was close to, but not the same point, as the collection of baseline data for symptom severity and HRQoL.

Perceived control of the home

To estimate the perceived control of the home environment, the External Housing-Related Control Beliefs Questionnaire (HCQ-E) was used. The HCQ-E instrument was described in more detail on pages 58–59. Similar to MOH, and for the same reasons, each of the external subscale's scores were calculated based on the mean of items answered using a 2/3 rule to account for missing items. Scores were therefore imputed for those who answered at least five of the eight items in each external subscale (Gefenaite et al., 2020). Like MOH, only one collection point (taken approximately at baseline) of HCQ existed in the data.

Covariates

In previous research of the association between perceived aspects of the home environment and health and wellbeing, certain demographic and housing characteristics were considered to potentially effect the dependent variables (Haak et al., 2015; Kylén et al., 2017). Therefore, baseline data on sex, education, marital status, financial situation, housing type, housing area, and years spent living in present housing were collected and controlled for. Age has previously been

considered a potential covariate to the outcomes (e.g. Oswald et al., 2003); however, the age variance at the data collection points was at most three and a half years at each collection point, and therefore was not considered to have much impact on the association. Instead, the number of years between the two collection points was used as a potential confounder, since it could potentially vary from 4 to 10 years.

Analyses

The analyses consisted of stepwise modelling of regression analyses with separate analyses for MOH and HCQ-E for each outcome. For the MOH models, the dependent variables were the mean score of each subscale (four independent variables) and for the HCQ-E models, the dependent variables were the mean score of each subscale (two independent variables). The dependent variables for the MOH and HCQ-E analyses were the change score of symptom severity, PCS, or MCS, respectively. The first model estimated the total association (unadjusted model) between the dependent and independent variables. The second model, with the purpose of controlling for potential effects of the covariates, added the demographic characteristics (years between data collection points, sex, education, marital status, and financial situation), and the third model, in addition to demographic characteristics also added housing characteristics (housing type, housing area, years living in present housing). A general linear model was used, since it allows for both continuous and categorical data to be included as independent variables in regression analyses.

Principal results related to the topics of the thesis

The results of the different studies will be presented according to how they relate to the topics of the dissertation; that is, *life transitions*, *perceived home* (i.e., control beliefs and meaningfulness of the home), *HRQoL*, and *health* (see Figure 1).

Life transitions and the perceived home

In Study I, participants had experienced on average 4.6 life transitions. The most common life transition was retirement (96 % of participants), which was to be expected since the aim was to explore life transitions around retirement age. About two thirds of the participants had relocated (68 % of participants). Other life transitions that were common included becoming grandparents (40 % of participants), experiencing a separation or divorce (26 % of participants), or becoming an informal carer (20 % of participants). The life transitions were divided into five main types, retirement, moving, relationship loss, relationship gain, and disease requiring informal care. The configural frequency analysis showed that only the combination of retirement and relocation, without other life transitions, occurred significantly more often relative to the occurrence of each individual transition. The sequence analysis resulted in four distinct clusters of life transitions, which in order of frequency were: (i) *common retirement trajectory*, a trajectory characterised by a long pre-transition state, after which retirement, alternating with moving, becomes the dominant state (42 % of participants); (ii) *relationship gain trajectory*, characterised by increasing dominance of a relationship gain, and where retirement and losses occurs at the end of the trajectory (30 % of participants); (iii) *moving trajectory*, characterised by life transitions (retirement-, relationship-, or disease-related) preceding the moving-transition, which then remained dominant for a time, and the occurrence of retirement and disease at the end of the trajectory (14 % of participants); and (iv) *disease and loss trajectory*, characterised by disease and loss-

related events which become dominant throughout the trajectory (14 % of participants). Notably, participants belonging to the common-retirement trajectory experienced fewer life transitions compared to the other trajectories (on average, 3.8 life transitions), while participants belonging to the relationship-gain trajectory experienced the most life transitions (on average 5.3 transitions).

The joint maps and meta themes of Study II suggested that certain life transitions impacted how participant's homes were perceived, and that some aspects of the perceived home interacted with other aspects. For example, feelings of control (control beliefs) and feelings of being at home (meaningfulness of the home) were important for perceiving oneself to age well, and in being able to age at home. Furthermore, the changes in control beliefs and meaningfulness related to the home, which affected how the home was perceived, were a starting point, albeit not always sufficient, for a new life transition: relocation. In addition, the joint maps suggested both similarities and differences in aspects of control beliefs and meaningfulness related to the home between participants who had relocated before retirement (sequence A) and those who had relocated after retirement (sequence B).

Similarities between sequences

For both sequences, becoming a retiree meant spending more time at home. Spending more time at home in turn meant that the home and neighbourhood environments came into focus for activities such as fixing, changing, and maintaining the home.

> *I saw things that needed to be fixed at home. […] But… because we were in this situation that we would possibly move and so on, so for me was… I did a lot at home, on the property at home, but it still did not feel really meaningful, because I felt no, but this is… it's probably doubtful that we will and stay here.*
>
> (Swedish participant, sequence B, male, age 68)

Managing the home offered an increased sense of agency (control beliefs) by feeling autonomous, independent, or managing responsibilities.

> *[About retirement] That's a different life. That's a free life, no more dependency anymore.*
>
> (German participant, sequence A, female, age 64)

Meaningful social relationships shifted after retirement to focus more on one's partner, family, and grandchildren. There was also a shift to not having to follow societal norms anymore, to be able to be truer to oneself.

> *It is very nice as a pensioner not to have to do that. To not have to be on top all the time and try to look representative. So, because you do not have to wear the work uniform. Very nice.*
>
> (Swedish participant, Sequence A, Woman, age 68)

An increase in agency was also described by both sequences after relocation. Creating a (new) home, a new life, was experienced as an increase in freedom and control over one's own life.

> *But. . . it's just that it's quite nice to feel this, this is mine. […] I do not need to… ask anyone about anything, I do not need to do anything, I do not need to say anything […] so I decide for myself.*
>
> (Swedish participant, sequence A, male, age 68)

> *The [old] house had, I'll say about 260 square metres and they have to be taken care of. It took me over an hour just to water the flowers outside in the evening when [husband] wasn't there, so from that point of view it's a liberation.*
>
> (German participant, sequence B, female, age 66)

Differences between sequences

Participants in both sequences expressed concerns about the home being suitable for ageing, expressing a fear of not being able to take care of the home in the future; that is, that the environmental pressure would become greater than the person's functional capabilities, and consequently a fear of becoming dependent on others in their own home, of losing one's autonomy. However, these concerns and fears were more pronounced among the participants in sequence A; those who had relocated before retirement, and as such might have contributed to the earlier relocation.

> *And then we started thinking, because we were just the two of us, who were left at home looking at each other between the floors, and then we had several floors that were not being used. And then [the husband] got a new knee and then I just realized that, no, we cannot age here, we cannot live*

here. We have to do something. And then you are faced with that situation, […], move, sell, or tear down and rebuild.

(Swedish participant, sequence A, female, age 68)

People in sequence B expressed to a larger extent meaningful places in the home as being ones related to social life.

It was probably the recreation room, I think, because that was where we gathered, it was like someone could sit at the computer and someone could watch TV and that was where…. It was like where we lived, you could almost say.

(Swedish participant, sequence B, female, age 62)

Social life was also suggested to be an important factor for feeling at home, for aspects of belonging. Some participants in sequence B described how negative aspects of social life, either with neighbours or with people with whom they lived, contributed to ambiguous feelings of being at home.

Summary of the topic of life transitions and the perceived home

- The most common trajectory of life transitions was 'common retirement', characterised by retirement gradually becoming the dominant state, alternating with relocating.
- The moving-dominated trajectory was characterised by several life transitions preceding the relocation, such as retirement or the onset of a relative's illness.
- Changes in control beliefs and meaningfulness related to the home can, sometimes together with other life transitions, lead to subsequent life transitions (relocation).
- Relocating or retirement can lead to feelings of increased control beliefs and meaningfulness related to the home.
- Control-beliefs and meaningfulness related to the home were found to be connected and intertwined phenomena, suggesting that the phenomena can reinforce or weaken each other.

Perceived home, health-related quality of life and health

Meaning of home, external housing-related control beliefs, and HRQoL

In Study III, the regression analyses showed that there were statistically significant negative associations between HCQ-E and EQ-5D-5L indices, as well as statistically significant interactions between MOH and HCQ-E on the association with the EQ-5D-5L index across the unadjusted and adjusted models. Furthermore, different mean centred MOH levels yielded different unstandardised beta values and intercepts, indicating that MOH moderated the association between HCQ-E and EQ-5D-5L. To help visualise the moderating effect, a graph with the different levels of MOH (mean, below mean, and above mean) was created from the unstandardised beta values and intercepts (see Figure 6). It is therefore suggested by Study III that perceiving more meaningfulness related to one's home positively moderates any negative association between HCQ-E and EQ-5D-5L indices, so despite increasingly perceiving that events in the home are contingent on external factors, a higher HRQoL is upheld if one perceives a higher meaningfulness of the home. Study III could not support, however, that there were any differences in such moderating effects between younger-old (i.e., 55–74) and older adults (i.e., ≥75).

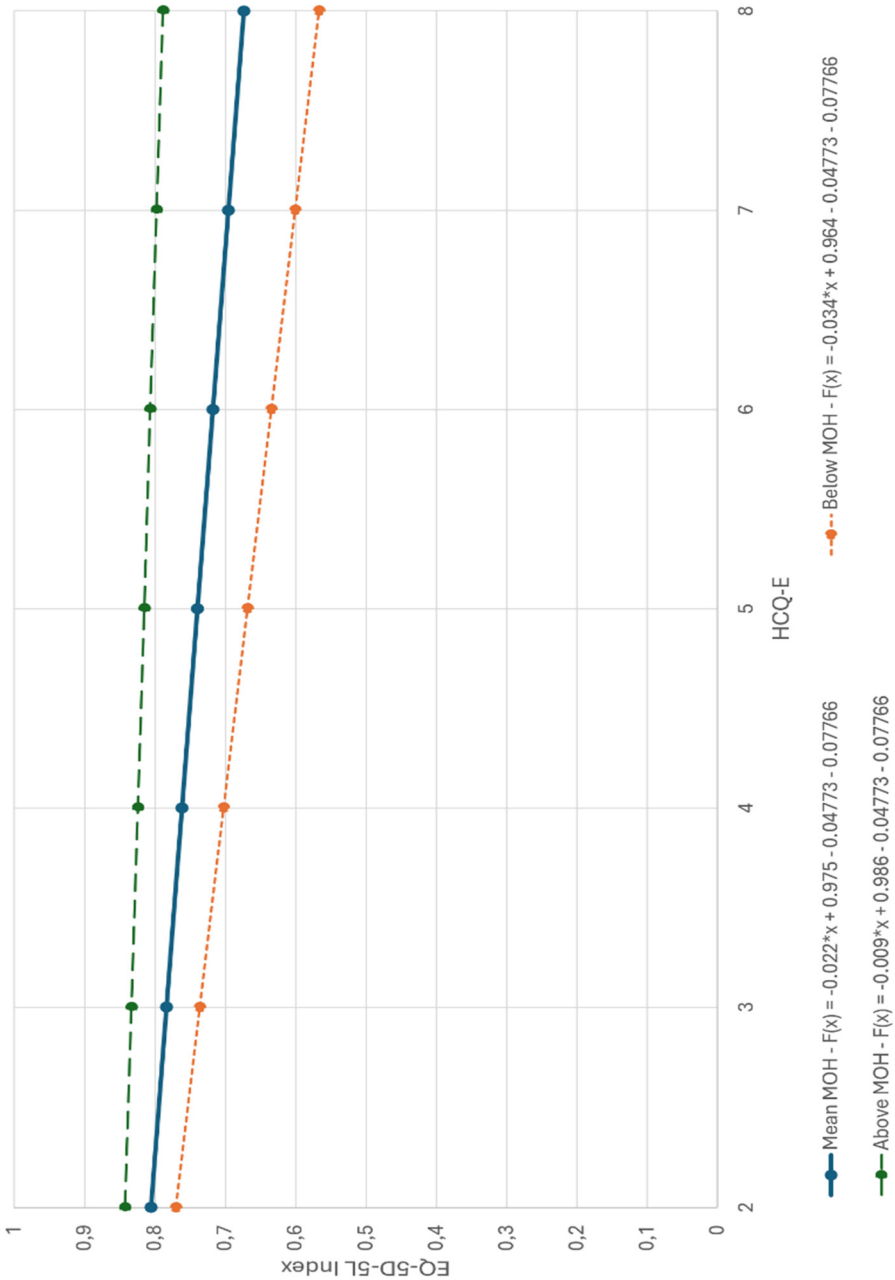

Figure 6. Association between HCQ-E and EQ-5D-5L indices for three levels of MOH, adjusted for age, sex, education, and financial situation. HCQ-E = total mean score of both external subscales of Housing-Related Control Beliefs Questionnaire. MOH = Meaning of Home Questionnaire. Mean MOH = mean centred MOH. Below MOH = mean centred MOH plus one standard deviation. Above MOH = mean centred MOH minus one standard deviation.

External housing-related control beliefs, HRQoL, and health

In Study IV, the unadjusted model showed no statistically significant associations between a baseline measurement of HCQ-E and longitudinal changes in any of the symptom categories or in HRQoL components. After adjusting for demographic characteristics, the association with change in metabolism-related symptom severity was statistically significant, which remained significant when also adjusting for housing characteristics (model 3). See Table 1 for an overview of association between HCQ-E and change in metabolism severity across the models. For complete results, see Paper IV.

Table 1. Associations of External Housing-Related Control Beliefs with changes in metabolism-related symptom severity across three regression models. Model 1= unadjusted model. Model 2= adjusted for demographic characteristics. Model 3= adjusted for demographic and housing characteristics.

			Model 1	Model 2	Model 3
			n= 320	n= 295	n= 290
			B (SE)	B (SE)	B (SE)
HCQ – E	Others		-0.052 (0.036)	-0.065 (0.037)	-0.052 (0.038)
	Chance		0.021 (0.027)	0.010 (0.028)	0.005 (0.029)
Demographic characteristics	Years, baseline to follow-up			-0.002 (0.018)	0.001 (0.018)
	Sex	Men		0.011 (0.037)	0.002 (0.037)
		Women		Ref.	Ref.
	Education	Primary		**0.116** (0.046)	**0.124** (0.047)
		Secondary		0.076 (0.045)	0.073 (0.157)
		University		Ref.	Ref.
	Marital situation	Couple		0.008 (0.039)	-0.008 (0.042)
		Alone		Ref.	Ref.
	Financial situation	Poor		**-0.675*** (0.156)	**-0.660*** (0.157)
		Good		Ref.	Ref.
Housing characteristics	Type of housing	Multi			-0.034 (0.042)
		Single			Ref.

	Type of Area	Rural			0.048 (0.060)
		Urban			Ref.
	Years, present housing	≤ 20			-0.023 (0.039)
		>20			Ref.
Adjusted R^2			0.001	**0.066***	**0.066**

B = Unstandardised coefficient. SE = Standard Error. Bold values = p-value <0.05. * indicates p-value ≤0.001. HCQ = Housing-Related Control Belief. Couple = married/cohabiting. Alone = unmarried/divorced/widowed/living apart. Multi = multifamily. Single = single family.

Meaning of home, HRQoL, and health

There was no statistically significant association between MOH and any of the HRQoL components in any of the regression models. The unadjusted model showed a statistically significant association between MOH and changes in gastrointestinal symptom severity, which remained significant across the models. After adjusting for demographic characteristics, the association with change in metabolism-related symptom severity became statistically significant and remained significant when adjusting for the housing characteristics (Model 3). See Table 2 for an overview of the associations between MOH and change in gastrointestinal and metabolism-related symptom severity across the models. For complete results, see Paper IV. The models explained only between 3.0 % and 8.4 % of the variation, indicating small explanatory power. Therefore, together with the disparate beta coefficients (some positive and some negative), the non-significant results of associations to other symptom categories, and to HRQoL, the associations with gastrointestinal- and metabolism-related symptoms should be carefully interpreted and may be due to multiple statistical tests rather than to any actual association. Therefore, Study IV concludes to not having found significant support for either MOH or HCQ-E predicting changes in symptom severity or in HRQoL.

Table 2. Associations of Meaning of Home with changes in gastrointestinal- and metabolism-related symptom severity across three regression models. Model 1= unadjusted model. Model 2= adjusted for demographic characteristics. Model 3= adjusted for demographic and housing characteristics.

			Change in Gastrointestinal symptom severity			Change in Metabolism symptom severity		
			Model 1 n= 322	Model 2 n= 295	Model 3 n= 290	Model 1 n= 321	Model 2 n= 294	Model 3 n= 289
			B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
MOH	Physical		-0.008 (0.013)	-0.010 (0.014)	-0.013 (0.015)	0.041 (0.020)	**0.045** (0.021)	**0.046** (0.021)
	Behavioural		**-0.030** (0.011)	**-0.031** (0.013)	**-0.030** (0.013)	-0.015 (0.017)	-0.005 (0.018)	0.002 (0.018)
	Cognitive-Emotional		**0.036** (0.014)	**0.036** (0.016)	**0.040** (0.016)	0.031 (0.022)	0.023 (0.023)	0.021 (0.023)
	Social		-0.021 (0.011)	-0.025 (0.013)	**-0.032** (0.013)	-0.042 (0.018)	-0.035 (0.020)	**-0.046** (0.020)
Demographic characteristic	Years, T1 to T2			-0.004 (0.012)	-0.003 (0.013)		0.002 (0.018)	-0.005 (0.018)
	Sex	Men		-0.013 (0.026)	-0.017 (0.026)		0.013 (0.037)	0.003 (0.037)
		Women		Ref.	Ref.		Ref.	Ref.
	Education	Primary		0.001 (0.031)	0.000 (0.031)		**0.120** (0.022)	**0.129** (0.045)
		Secondary		0.001 (0.031)	-0.002 (0.032)		0.086 (0.045)	0.084 (0.045)
		University		Ref.	Ref.		Ref.	Ref.

	Marital situation	Couple		-0.001 (0.029)	0.002 (0.031)		0.009 (0.042)	0.001 (0.044)
		Alone		Ref.	Ref.		Ref.	Ref.
	Financial situation	Poor		-0.188 (0.100)	**-0.207** (0.100)		**-0.677*** (0.155)	**-0.676*** (0.155)
		Good		Ref.	Ref.		Ref.	Ref.
Housing characteristics	Type of housing	Multi			-0.011 (0.029)			-0.042 (0.042)
		Single			Ref.			Ref.
	Type of Area	Rural			-0.070 (0.041)			0.048 (0.059)
		Urban			Ref.			Ref.
	Years, present housing	≤ 20			-0.012 (0.027)			-0.022 (0.039)
		>20			Ref.			Ref.
Adjusted R^2			**0.037**	**0.030**	**0.039**	0.016	**0.076***	**0.084***

B = Unstandardised coefficient. SE = Standard Error. Bold values = p-value <0.05. * indicates p-value ≤0.001. Couple = married/cohabiting. Alone = unmarried/divorced/widowed/ living apart. Multi = multifamily. Single = single family. T1 = baseline. T2 = follow-up.

Summary of the topic of perceived home, HRQoL and health

- Strong support for a negative cross-sectional association between housing-related control beliefs and HRQoL.
- Strong support for a moderating effect of meaning of home on the association between housing-related control beliefs and HRQoL.
- No support for differences in moderation strength when comparing younger-old (55–74 years) and older adults (75+).
- Little or no support that HCQ-E or MOH predicts changes in symptom severity or HRQoL (SF-12) over time.

Discussion of the main results

The investigated interactions between common life transitions and the perceived home, that is, control beliefs and meaningfulness related to the home, among younger-old adults. Furthermore, the thesis investigated associations between the perceived home, and health or quality of life. The findings of this thesis suggest: (a) that changes in control beliefs and meaningfulness related to the home are intertwined, and can be both precursors and consequences of common life transitions among younger-old adults (Study II); (b) that meaningfulness related to the home moderates the association between external control beliefs related to the home and HRQoL (Study III); and (c) that there was little or no support for neither control beliefs nor meaningfulness related to the home predicting changes in either symptom severity or HRQoL (Study IV).

Some of the results support, while others are in contrast to, recent theories of person-environment interaction in older age. Furthermore, some of the results on associations between control beliefs and meaningfulness related to the home among older adults are, in some respects contrasting themselves, as well as previous research. In the following section, the results of the studies will be discussed, compared to each other, and compared to the theoretical underpinnings of environmental gerontology as well as to previous empirical research.

The interaction between life transitions and perceived home in older age

Study I found that life transitions seldom come alone in older age. Rather, there is a multitude of connected life transitions occurring around retirement age, which could suggest that instead of being a period in life in which things settle down, life in younger-old adulthood is characterised by transitions and changes. However, studying life transitions is a very complex endeavour and it is not possible to study all possible life transitions and combinations thereof (Kale & Stenmark, 1983). Therefore, the trajectories found in Study I could suggest groups of life transitions

that are important to study in tandem. Furthermore, the results of Studies I and II supports links between certain life transitions, and between certain life transitions and the perceived home.

The most common trajectory of life transitions was common retirement, which could be considered a more traditional trajectory around retirement age. In this trajectory, relocation and retirement happened close in time, and relocation happened before retirement more often than after retirement. Such result would suggest that most persons were relatively proactive in their housing choices, rather than reactive. Comparing to Study II, there were descriptions of anticipating retirement, that participants described perceiving their needs in relation to the home as changing, leading to thoughts of, and consequentially actual, relocation. In those cases, relocation could be considered as proactive in relation to the anticipation of retirement.

However, Study I also found that the moving-dominated trajectory was distinguishable from other trajectories in that the trajectory was initially triggered by other life transitions, in particular relationships-gains or losses, or the onset of disease. Such an onset of trajectory would rather indicate relocations as reactions to unplanned events or situations. Furthermore, in study I, a distinct aspect of the disease-related trajectory was that a disease-related life transition was always the first transition of the trajectory. When comparing to the descriptions in Study II, experiencing losing a relationship, whether this was due to separation or a death of a partner, or experiencing chronic diseases, own or that of significant others, were both precursors of consequential relocations. In those cases, relocation could be reactive to illness or the loss of a relationship.

Both reactive and proactive behaviour among older adults has been described in models of person-environment interaction as being part of agency. The ETA (Lawton & Nahemow, 1973) describes how reactive behaviours are commonplace in older adulthood, since older adults need to react to environmental press in order to remain independent. Agency in the Integrative Model of Aging Well (Wahl et al., 2012) refers to proactive behaviours and should therefore lead to more positive outcomes (identity, autonomy, and wellbeing) than reactive agency. Scully et al. (2000) suggested that experiencing retirement or a relocation to a new home requires relatively low levels of adaptation, implicating that such life transitions lead to low levels of activated stress, and therefore would have a low (negative) impact on health and wellbeing. However, Scully et al. (Ibid.) did not differentiate whether the event was considered proactive or reactive, or whether there are age differences in

adaptability. The notion that relocation and retirement have relatively low negative effects on people's lives, requiring low levels of adaptation, is supported by the results of Study II. Often descriptions of relocation and retirement demonstrated improved feelings of being in control and feeling 'at home', which would indicate improved possibilities for healthy behaviour or wellbeing, as denoted in the person-environment models. Previous research on older adults on what influences relocations to special housing has indicated that proactive relocation, or acting proactively, yields fewer negative outcomes and more positive adaptation, compared to reactive relocation, or to acting reactively (e.g. Gilbert et al., 2015). However, the results of Study II suggested that there were no large differences between relocating before or after retirement on the meta level themes of control beliefs and meaningfulness of the home, possibly indicating that younger-old adults successfully utilise coping strategies to adapt to changes in their life. Furthermore, the themes of control beliefs and meaningfulness could suggest the use of both primary and secondary coping skills across the transition. However, a better understanding of which coping skills are used across life transitions would require future research.

The importance of control beliefs of the home in older age

For health

Study IV investigated the association between control beliefs (HCQ-E) and health (changes in symptom severity) and found little or no support for such associations. Such a finding is surprising given the vast number of studies suggesting that control beliefs are particularly important for different health aspects among older adults (see Duan-Porter et al., 2017; Hong et al., 2021; Robinson & Lachman, 2017). In addition, research which has specifically studied control beliefs related to the home have found associations with different health aspects (Haak et al., 2015; Tomsone et al., 2013). The findings from Study IV, therefore, seem to deviate from previous research, a deviation which could be explained by several possibilities. For instance, since Study IV did not find any associations between control beliefs related to the home and health outcomes, this could indicate that the previously identified associations are limited in time, and therefore cannot predict future health statuses or changes. If this were the case, control beliefs related to the home are potentially

not causes of health or health changes. Rather, there are other factor(s) which affect both control beliefs related to the home and the health; that is, confounding factor(s) (e.g., Tulchinsky & Varavikova, 2014).

Another possibility is that the associations found in previous research are to be considered arbitrary. For instance, Haak et al. (2015) found associations with headaches but not depression, two conditions that have strong associations, or can even be considered comorbidities, in varying populations (e.g., Lampl et al., 2016; Lee, Kim, & Chang, 2023). Furthermore, Tomsone et al. (2013) found disparate associations in a cross-sectional study of single living persons aged 75–89 in three European countries. Participants were dichotomised into being either independent or dependent in activities of daily living. The association between control beliefs related to the home and self-reported health was not consistent across the national samples or between the independent or dependent groups. In Germany, the association only applied to independent older adults, and in Sweden, the association only applied to dependent older adults (Ibid.). It could also be that situational control beliefs related to the home are not an adequate predictor of health outcomes among older adults, and that other measures of control beliefs should be used instead. For instance, a cohort study of older adults aged ≥50 in the USA found that both global control (measured as 'constraints' and 'mastery') and health-specific control were significantly associated with a 4-year risk of mortality (Duan-Porter et al., 2017). However, the 'mastery' component of the global control measure was not consistently associated with such a risk. The 'constraints' measure is indicative of perceived external restrictions similar to the external control beliefs used in Studies III and IV (i.e., other people or chance determine/are responsible for what happens) (Jacqui et al., 2013), while 'mastery' is indicative of personal competence, of one's own capabilities of agency (Ibid.), and as such, is similar to the internal aspects of control beliefs which were not used in the current thesis.

Whether control beliefs are related to specific symptoms and not to others, or whether the predictive power of control beliefs related to the home pertaining to health is limited to specific populations, is, accordingly, an important question for future research. Furthermore, the importance of including both external and internal aspects of control beliefs, be they general control beliefs or situational control beliefs, should be emphasised to capture the complex phenomenon of control beliefs.

For health-related quality of Life

Studies III and IV investigated the associations between control beliefs related to the home and HRQoL. While Study III found associations, Study IV did not. Such divergent results can, however, be due to several factors. Studies III and IV used the external subscales of HCQ in different ways; either as separate external scores, or as one summary score. When interpreting the results of the different studies, it is important to consider the different usages of HCQ-E subscales in the regression models, whether it was any external beliefs (a combined score), or whether it was specific external factors (separate subscales) which impacted HRQoL. However, in Study IV, which investigated the external factors separately, neither of the two subscales significantly predicted changes in HRQoL. Furthermore, the two studies used different instruments to measure HRQoL. Study IV used the SF-12 instrument, and Study III used the EQ-5D-5L instrument (the descriptive part). Both instruments are commonly used to measure the same phenomena, general health status or HRQoL, in varying disciplines and populations (e.g., Pemau et al., 2024). Another consideration is the size of the study samples. While Study IV had 329 participants, Study III had 1509 participants, and the larger the sample size, the more likely one is to find significant associations (Dorey, 2011). The last, and perhaps the most important, factor that could have influenced the divergent results, is the difference in study designs. While Study III used a cross-sectional design, Study IV used a longitudinal design. Similar to the association between control beliefs related to the home and health outcomes, these divergent results could be indicative that the association can be found in a limited point in time, and that the association over time, to changes in outcomes, is less prominent or non-existent.

Previous cross-sectional research among younger-old adults on the relationship between control beliefs related to the home and quality of life, or the proximate if not similar phenomena of *wellbeing* (World Health Organization, 2021), has shown that control beliefs were significantly associated with psychological wellbeing (Kylén et al., 2017). More specifically, a combined total score of both HCQ-E subscales was found to be positively associated with odds of reporting depressive mood (OR 1.08; 95% CI 1.02 to 1.14, p=0.008), with one part of Ryff's and Keye's scales of psychological wellbeing (purpose in life) (B = -0.09, 95% CI = -0.15 to -0.03, p = 0.004), but not with another part of the same instrument (autonomy). These previous findings are in line with the findings from Study III, indicating that, there are at least associations at a limited point in time. The suggestion that associations only exist at one point in time, and not over time, is further supported, albeit in an older population, by Wahl et al. (2009). They found cross-sectional associations

between control beliefs related to the home and different quality of life instruments, but after one year, the association did not remain.

Another consideration is that even though Kylén et al. (2017) presented statistically significant values, whether the odds ratios and beta-coefficients were of clinical significance is called into question. For instance, an increased odds of 8 % could be considered a very small effect size (Chen, Cohen, & Chen, 2010). When calculating minimal clinically important difference (MCID) by effect size, a small effect size value (0.3) is commonly used (e.g., Franceschini et al., 2023). Therefore, a very small effect size might not be clinically significant. Similarly, the unstandardised beta-coefficients of –0.09 for a scale range of 16–80 could be questioned as to whether it could amount to a MCID value. In order to change the PWQ purpose in life by 2.25 points (6.25 % of a range of 9–45), the combined external HCQ score (range 16–80) would have to change by 25 points. The relationship between control beliefs and HRQoL could instead be regarded as an insufficient but necessary, or at least contributing, factor (Mackie, 1965). That is, one factor of many which enables a change in HRQoL or wellbeing.

Another question which merits attention is whether control beliefs predict trajectories of health or HRQoL, or whether trajectories of health or HRQoL predict control beliefs. For instance, Zhang et al. (2020) found in a small sample (N = 205) of older adults in the USA, health and psychological wellbeing, measured using a symptom checklist (Larsen & Kasimatis, 1991) similar to the checklist utilised in Study IV, and positive and negative affect (the Positive and Negative Affect Schedule), was predictive of control beliefs, measured as locus of control and perceived competence, constructs similar to internal housing-related control beliefs rather than external housing-related control beliefs. Similarly, Oi (2023) in a large population dataset of older adults in the USA (14,448 persons, aged ≥50) found that decreased mobility predicted decreased (internal) control beliefs, but not the other way around. While Study III supports concurrent associations in either direction, the lack of significant results in Study IV could be explained by in incorrect assumption regarding direction of influence between the phenomena.

The importance of meaningfulness of the home in older age

For health

Study IV investigated whether meaningfulness of the home was associated with health. The overall assessment of the results concluded that, despite the existence of some associations between a baseline measurement of MOH and a six-year (on average) change in gastrointestinal- and metabolism-related symptom severity, meaningfulness of the home could not predict changes in symptom severity. In the MOH regression models and changes in gastrointestinal- and metabolism-related symptoms, the different MOH subscales had different associate directions. Scoring higher in physical and cognitive-emotional aspects was associated with an increase in metabolism- and gastrointestinal-related symptom severity, respectively, and scoring higher in behavioural and social aspects was associated with less gastrointestinal- or metabolism-related symptom severity. If these were true associations, there would be an increased risk of developing more severe symptoms if a person perceives the home, for instance, as being well-designed, having a nice view, being a base from which one can pursue one's activities, and being a safe and familiar place. Such an association is contrary to the literature on place attachment and meaning of home (e.g., Baumeister & Leary, 1995; Rowles & Bernard, 2013; Sun et al., 2022).

Comparing the findings of Study IV to similar research, Haak et al. (2015) found that perceiving higher meaningfulness of one's home (cf. less meaningfulness) was associated with lower odds of reporting heart-lung symptoms (OR 0.37 to 0.65); that is, cough, chest pain, and breathlessness. Study IV, in comparison, found associations in different symptom categories, gastrointestinal- and metabolism-related symptom severity. Worth noting in the study of Haak et al. (2015) is that among the persons in the third quartile of the MOH score, a larger proportion reported the presence of symptoms compared to the persons in the second quartile, indicating that the odds ratios did not linearly follow the MOH score. Another comparison is to Tomsone et al. (2013), which reported associations between perceiving one's home as more meaningful and reporting better health among single-living very old adults (aged ≥75) in three countries. However, this association was only significant among older adults in Latvia who also were classified as independent in activities of daily living, and in Sweden, only among persons

classified as either dependent or independent. Furthermore, in Latvia, only the social subscale in MOH contributed to the association; while in Sweden, for independent persons, the physical and the social subscales contributed; and for dependent person in Sweden, only the social subscale contributed. Consequently, no MOH subscale predicted self-reported health among single-living older adults (aged ≥75) in Germany, and no other subscales contributed to any association among the Latvian and Swedish study samples. These disparate results could be explained by differing contextual and cultural factors between the countries. Even though the housing context in Germany is similar to Sweden, there are other factors that differ such as housing policy or other sociocultural perspectives (Wanka et al., 2024). Also, when comparing previous research to the results of Study IV, it raises the question as to whether different aspects of meaningfulness of the home have different impacts on health among older adults, and whether these associations differ cross-sectionally and longitudinally.

For health-related quality of life

Studies III and IV investigated whether meaningfulness of the home was associated with HRQoL, and while Study III found strong associations, Study IV did not. Similar to other results of this thesis, the seemingly divergent results could be attributed to several factors. For instance, the studies differed in what instruments were used to measure HRQoL (SF-12 and EQ-5D-5L, respectively), and in how the MOH instrument was used in the analyses. Study III combined the means of all subscales into a total score, while Study IV used the mean values of each subscale individually. Such a mean of a total score can theoretically mask changes in the different subscales. If there is an increase in one subscale and a decrease in another, the total score might remain unchanged. Using each subscale would, in such an instance, reveal changes in the different aspects of the meaningfulness of the home. Furthermore, by using the subscales individually, whether there are aspects of the meaningfulness of the home that have stronger associations to outcomes such as HRQoL would be revealed. Such differentiation in meaningfulness is valuable when trying to improve the meaningfulness of the home for older adults.

Comparing the findings of Studies III and IV to previous research, Kylen et al. (2017) found cross-sectional associations between MOH and psychological wellbeing (depressive mood, purpose in life, and autonomy). However, only the cognitive-emotional and social subscales of MOH were associated with decreased odds of reporting depressive moods (OR 0.95 and 0.91, respectively); only the

behavioural subscale was associated with autonomy (Beta-coefficient 0.009), and only the physical and social subscales were associated with purpose in life (beta-coefficients 0.08 and 0.15, respectively). Such heterogeneous associations are further incentives to highlight the question as to whether there are different aspects of the meaningfulness of the home that are more important for outcomes, such as HRQoL, than other aspects. Like the associations between control beliefs related to the home and HRQoL, and for the same reasons (pages 79–80), the associations do not seem to amount to MCID due to the low OR and beta-coefficients.

As pointed out in the summary of the introduction (pages 43–44), there is a lack of research as to whether and how meaningfulness related to the home environment influences quality of life among younger-old adults. Most research has focused on how specific patient groups either frame perceived meaning of one's home, or how meaningful aspects are related to other outcomes. For instance, there is research among specific patient groups such as persons suffering from Parkinson's Disease (Andersson, Nilsson, Slaug, Oswald, & Iwarsson, 2020) or dementia (Wang, Dubois, & Lu, 2024); older adults requiring homecare (Fraser, Archibald, & Nissen, 2014); and older adults moving to special housing (Lovatt, 2018). In contrast, there is more research on the phenomenon of place attachment among older adults. For instance, Chen et al. (2022) found that place attachment was positively associated with psychological wellbeing among older adults during the SARS-CoV-2 pandemic. Also, Sun et al. (2022) found that place attachment was not only linked to health via meaningful aspects of the home, but autobiographical aspects of the home environment (memories) were, in turn, enablers of place attachment and, by extension, were important for psychological wellbeing. The concept used in this thesis, meaningfulness of the home, is a broad concept that aims to capture both meaningful aspects of, and attachment to, the home (Oswald et al., 2006; Oswald & Wahl, 2005), and it could be argued that the different subscales not only captures different aspects of the meaningfulness of the home, but also diversify levels of meaningfulness of the home and emotions, such as attachment towards the home. For instance, the cognitive-emotional subscale of MOH contains several items related to familiarity and memory (Oswald et al., 2006), important features of place attachment (Altman & Low, 1992). The use of the MOH instrument in this thesis, be it as a combined score, or by using the subscales individually, can therefore be considered to have captured both place attachment and perceived meaning of the home.

The interaction of control beliefs and meaningfulness of the home

Two studies investigated the interaction between control beliefs and meaningfulness of the home among older adults (Studies II and III). Study II showed that control beliefs of the home were intertwined with aspects of meaningfulness of the home across certain transitional experiences. For example, changes in control beliefs, the perception that one was not capable of handling one's home, either at the present or in the future, changed the meaningfulness of the home, and feelings of needing or wanting to relocate. Conversely, a change in the meaning of a home due to a life transition, such as children moving out and changing the home from a family home to an empty home, changed aspects of control beliefs. The change in control beliefs were, for the most part, framed as positive feelings of increased control beliefs. Such findings support current theories of ageing well (Chaudhury & Oswald, 2019; Wahl et al., 2012), which emphasises the complex interactive processes of agency and belonging from a life-course perspective; that is, across events and historical changes in a person's life (Wahl et al., 2012). The findings of Study III suggested that, compared to perceiving less meaningfulness of the home, perceiving higher meaningfulness is associated with less reduction in HRQoL due to a higher belief that external factors are responsible for events in the home. Not only is the finding of Study III supporting the finding of study II, that there are interactive effects between meaningfulness and control beliefs related to the home, but the findings also support current theories of ageing well (Ibid.); in that such an interaction plays an important role in ageing well (Chaudhury & Oswald, 2019; Wahl et al., 2012).

Comparing to other research on interactive effects between meaningfulness of the home and control beliefs, albeit general control beliefs, Sun et al. (2022) created a model of pathways from place attachment to wellbeing based on empirical data from focus group interviews. Place attachment, via meaningful or autobiographical aspects of the home, was suggested to be linked to both competence (an aspect of control belief) and autonomy of the person, and furthermore to several aspects of wellbeing. The findings of Study III, that meaningfulness moderates the association between control beliefs and HRQoL, is also coherent with Sun et al.'s empirically based model (Ibid.). The findings of this thesis, with a basis in both theoretical and empirical developments, suggest that meaningfulness and control beliefs related to the home interrelate and interact, and that this interaction is associated with outcomes of ageing well, such as wellbeing. Future research should include both

phenomena to see how the interaction between them fares over time, particularly for outcomes of ageing well.

Considerations of main concepts and theoretical frameworks

Operationalising control beliefs and meaningfulness of the home

In the thesis, the concept of control beliefs related to the home were operationalised in studies III and IV with the HCQ instrument which was constructed to quantify aspects of agency among older adults when dealing with press of the home environment (Oswald et al., 2003). As previously described (see pages 58–59), HCQ consists of different subscales measuring either internal control, referring to beliefs that events related to the home are contingent on one's own actions, or external control, referring to beliefs that events related to the home are contingent on either other persons, or on chance, luck or fate. While the aspects of internal and external control beliefs are in some sense contradictory, they are not mutually exclusive and can change independently. For instance, it is possible to have stable internal control beliefs while having increased external control beliefs during the ageing process (Ibid.). The psychometric properties of the HCQ subscales have been varied. The external subscales have consistently been measured to have above acceptable levels of internal consistencies (Cronbach's alpha ranging from 0.54–0.83) (Boonyaratana et al., 2021; Oswald et al., 2003), while the recent psychometric testing of the internal subscale studies showed below acceptable levels, that is, Cronbach's alpha < 0.50 (Boonyaratana et al., 2021; Gefenaite et al., 2020). When combining both external subscales, the internal consistency ranged from 0.67–0.70 (Gefenaite et al., 2020; Haak et al., 2015; Kylén et al., 2017; Nygren et al., 2007; Oswald et al., 2006). Due to the low internal consistencies of the internal subscale, recent research has only used the two external subscales, but how they have been used has differed across research. Most research has utilised a combined score of both the external subscales, which is similar to how the subscales were used in Study III. Other research has used the external subscales separately, which is how the subscales were used in Study IV. In Study III, there was a tendency for external control beliefs to increase with age as the mean HCQ-E was 0.55 higher in a range of 5.88 points in the older age group when compared to the younger age group. However, the difference was not tested statistically. Comparing younger-old adults,

the participants in Study IV scored a mean HCQ-E Others of 1.80, and a mean HCQ-E Chance of 2.8, which was a higher total mean of HCQ-E (a mean total HCQ-E of 4.6, age range 65–68) than the younger-old group in Study III (a mean HCQ-E of 3.36 for the age range 55–74). That the participants in Study III scored a lower mean HCQ-E than participants in Study IV could potentially be explained by the recruitment of the study samples. The study sample in Study III was invited from lists of older adults interested in new housing. Being interested in new housing options could potentially infer a more proactive study sample, who would likely score lower in HCQ-E. Even though there was a larger age range in Study III, the mean ages of the younger-old groups in Studies III and IV were more or less similar. Study III had a mean age of 65.81, and study IV had a mean age at the time for scoring HCQ-E of 66.09. Therefore, it is unlikely that the difference in age range affected the lower score among participants in Study III.

In Studies III and IV, the concept of meaningfulness of the home was operationalised with the MOH instrument which has been developed to cover subjectively meaningful habits, social contacts, evaluations, goals, values, cognitions, and emotions in relation to the home (Oswald et al., 2006). The theoretical assumption of this instrument comes from the ideas of place identity and place attachment; that the home, in addition to being an objective function for the person, represents meaning related to the person's experience and personality that transforms a space into a place (Ibid.). As previously described (page 59), MOH consists of four subscales representing a broad variety of aspects; physical, behavioural, cognitive-emotional (which were previously separate subscales, see Oswald & Wahl, 2005), and social meaningful aspects of the home environment. Internal consistencies of the instrument have been varied. Research combining the subscales into one score has found internal consistencies of Cronbach's alpha of 0.78 (Haak et al., 2015), while using the different subscales differently have shown internal consistencies of Cronbach's alpha ranging from 0.44–0.69 (Boonyaratana et al., 2021; Kylén et al., 2017; Nygren et al., 2007; Oswald et al., 2006). Similar to HCQ, MOH was used as a combined instrument in Study III, and separate subscales in Study IV.

Regarding control beliefs and meaningfulness of the home

The concepts of control beliefs and meaningfulness of the home have previously been delineated in the introduction section of the thesis, but some additional consideration regarding the concepts merit attention. In Study II, there were

descriptions by some participants of wanting to have less maintenance or handling of the home, and that this wish was a reason to relocate from a house to a condominium or to a rental apartment. Similarly, there were descriptions of changing the car to a rental car or being part of a carpool, an additional choice related to less maintaining and handling in their lives. These changes in required maintenance or handling were, according to the descriptions of the people in the interviews, connected to positive feelings, and better living. The descriptions could be seen as examples of allowing, or even welcoming, external influences on certain aspects of one's life, and thereby mitigating stressful situations which would eventually affect wellbeing. Whether participants of Study IV had positive emotions regarding external factors influencing the events in their homes, could potentially explain the non-associations with changes in health or wellbeing. However, the negative association between HCQ-E and HRQoL in Study III would contradict, but not refute, such considerations. A shift in having positive emotions regarding external control could be compared to a shift to secondary coping strategies to mitigate stress mechanism (Myers & Hwang, 2004), which could reduce or mitigate negative effects on health and wellbeing. Therefore, a consideration of the HCQ-E instrument is that even though the external control beliefs in general are considered to have a negative influence on the person, some of the items of the HCQ-E Others subscale could be answered affirmatively while at the same time representing a welcomed (positive) influence (Oswald et al., 2006). A possibility is that the influence of other people on the home environment becomes increasingly more welcomed when people perceive their own capabilities to be diminishing, now or in the future. Relying on other people when one's own capabilities could be a cause for reducing stressful situations. This shift in control could associate diminishing internal control beliefs and increasing external control beliefs with improved wellbeing, which is contrary to the common understandings of internal and external control beliefs. The complexity of the situational control beliefs of the home, and ageing well, is therefore in need of further differentiation. Also, from this argumentation, the necessity of disentangling the complexity of the underlying coping strategies in relation to the perceived stressfulness of the situation comes into focus.

The participants in Study III reported a mean of total MOH of 32.34 (in a range of 0–40). The younger-old age group reported a mean of 32.38, while the older age group reported 32.27. In Study IV, the participants reported a mean of total MOH of 34.57, which is slightly higher than the participants in Study III. Even though both study samples reported high bonding or attachment to their home, perceiving

their homes as meaningful, participants in Study IV reported a higher meaningfulness of their homes, compared to participants in Study III, particularly the older age group in Study III. One explanation could be that the participants in Study IV were living in the same homes for the duration of the study, as indicated by the proportion of participants having lived in the same home for over 20 years. Living for longer in a home normally increases one's affective bonding towards it (Altman & Low, 1992; Rowles & Bernard, 2013). As previously mentioned, the participants in Study III were listed as being interested in new housing options, which implies having considered of potentially relocating, and therefore might having less affective bonding towards one's current home. An interesting observation is that the older age group in Study III reported slightly lower meaningfulness related to their homes than did the younger age group. As previously described, older adults tend to have lived longer in their current home compared to younger-old adults (Statistics Sweden, 2022). Having lived longer in one's current home commonly leads to higher affective bonding towards one's home (Altman & Low, 1992; Rowles & Bernard, 2013). Therefore, it is possible that recruiting from an interest list of new housing created a sample of older adults (aged ≥75) who had less affective bonding towards their current home than did their peers. Furthermore, if the older group in Study III had lower affective bonding towards their current home compared to peers, it is possible that this could explain why hypothesis 2 of Study III, that there is a stronger moderation effect among older adults compared to younger-old, was not supported by the findings.

Regarding life transitions

Turning to relocation and retirement, such concepts are widely diverse, as described in the background section of the thesis (e.g., Costlow et al., 2020; Zhan et al., 2019) and treating them homogeneously is therefore problematic. One attempt at differentiation of the concepts was the division between chronological experiences of relocation and retirement in study II, whether relocation happened before or after retirement. However, additional differentiations of these two life transitions are warranted, given that the literature demonstrates the heterogeneity of these two phenomena (Ibid.). Regarding relocation, further differentiation should be made into proactive or reactive relocation; that is, to what extent the person felt in control of the decision-making process of relocation. The experience of being in control of a relocation is likely different to the experiences of not being in control of a relocation, such as being forced to relocate (Gilbert et al., 2015). Even though some

data appeared in the interviews of Study II regarding proactive or reactive relocation, these aspects merit specific research efforts in future research in order to understand the potential positive or negative associations with aspects of control beliefs or meaningfulness of the home, and ultimately to health and wellbeing. If different relocating experiences are combined into a single phenomenon, then any true associations, either positive or negative, between some types of relocation experiences and aspects of control beliefs, belonging, and health or wellbeing could potentially become muddled. Similarly, and for the same reasons, retirement should be differentiated from factors influencing the retirement process such as retirement age, socioeconomic status, perceived control over, and ability to, retire. Again, if these varying experiences, with varying associations with health or wellbeing, as previously described, are combined into a single phenomenon, any true associations from the various experiences to an outcome could become muddled.

Theoretical framework of the thesis

Studies II–IV in the thesis were guided by the Integrative Model of Aging Well (Wahl et al., 2012) and its further development (Chaudhury & Oswald, 2019), both of which have been described previously (pages 25–27). Regarding that model, Study II explored the interactions between agency (control beliefs related to the home), belonging (meaningfulness of the home), and the individual life-course (experienced life transitions). Study III investigated to which extent having higher perceived belonging (meaningfulness) maintains a person's wellbeing (HRQoL) despite loss of agency (control beliefs), and Study IV investigated whether agency (control beliefs) and belonging (meaningfulness) can predict changes in wellbeing (health or HRQoL). Having described and discussed the notions of agency and belonging previously (pages 28 and 32, respectively), two other aspects of the model merit additional consideration: the outcomes, and the aspect of time.

The first consideration is whether the studies in the thesis have feasibly addressed the proper outcomes of the model; that is, whether the outcomes of symptom severity and HRQoL used in the thesis should be considered outcomes of ageing well as defined by the model. Wahl et al. (2012) describes three interrelated "major endpoints of interaction with the environment" (Ibid., p. 311) that define the concept of ageing well; (i) the preservation of one's self and identity, (ii) maintaining wellbeing, and (iii) highest autonomy. Chaudhury & Oswald (2019) argue that wellbeing, still an important part of ageing well, can be captured with the notions of autonomy and identity. Wahl et al. (2012) does not further define wellbeing, but

they do give examples of how to operationalise the outcomes. Higher agency and belonging leads to higher autonomy (exemplified by independence in daily activities), better wellbeing (referred to as environmental mastery), and less depressive symptoms (Ibid., p. 312). Through the exemplified study (Oswald et al., 2007), it is understood that ADL (Sonn & Asberg, 2020) was used to operationalise the outcome of autonomy; while wellbeing was operationalised using the Psychological Well-being Questionnaire (Ryff, 1989) and the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988); and depression or depressive symptoms was operationalised with the Geriatric Depression Scale (Yesavage et al., 1982). Even though Wahl et al. (2012) did not specify which outcome depression would fit, reasonably it fits wellbeing rather than the outcomes of autonomy or identity. Wellbeing can thereby be understood as a multifaceted concept capturing, at the very least, cognitive and emotional aspects of health. Health and wellbeing are closely linked concepts which both emphasise integrated aspects of mental and physical health, rather than a duality. Compared to WHO's concept of health (2021); which is a "[…] state of complete physical, social, and mental well-being, […]" (Ibid., p., 3), and their definition of wellbeing, which includes quality of life and the ability to meaningfully and purposefully contribute to one's world (Ibid., p. 10), wellbeing in the model by Wahl et al. (2012) could very well be expanded to encompass physical states and functions in addition to mental ones. By this argument, the outcomes in Studies III and IV have addressed the outcomes of the model by Wahl et al. (Ibid.).

The second consideration regards the aspect of time. According to the Integrative Model of Aging Well, the exchanges between belonging and agency "[…] unfolds within a life-course perspective, […]" (Wahl et al., 2012, p. 309). Furthermore, certain "[…] new experiences […]" (Ibid., p. 310) can challenge or enhance aspects of belonging or agency, such as retirement and children moving out of the home (e.g., life transitions). Study II found support for such interactions between life-course experiences (life transitions), agency (control beliefs) and belonging (meaningfulness) in the model. In addition, changes in aspects of agency and belonging were found to be both antecedents and consequences of life transitions. Therefore, Study II suggests that the exchange between agency and belonging is not only affected by the life-course perspective, but the life-course perspective in the model is affected by the exchange between agency and belonging, a direction which is currently not included in the model. Regarding the outcomes over the aspects of time, there is support for short term associations between agency (control beliefs); belonging (meaningfulness); as well as an interaction between agency and

belonging, and wellbeing (Study III), but not over the long term (Study IV). This result is in line with other research comparing cross-sectional and longitudinal results (Haak et al., 2015; Kylén et al., 2017; Nygren et al., 2007; Tomsone et al., 2013) and merits further exploration. One possible explanation of the seemingly lack of longitudinal importance of agency or belonging on wellbeing in older age is that there are other factors that have enough effect on the interaction to conceal significant results. Such a confounding variable could be ADL, which in previous studies has been shown to be significantly associated with the relationship between agency or belonging, and wellbeing (Haak et al., 2015; Kylén et al., 2017). There might also be other confounding factors which warrant additional exploration. Another possible explanation is whether the reactions to stressful events or environments should be considered normal or abnormal reactions. For instance, when estimating anxiety, worry, or depressive conditions, it is important to keep in mind, and to differentiate between, normal reactions and reactions due to dysfunction (Horwitz & Wakefield, 2007, p. 252). While distress can arise from stressful life events or situations, if such a reaction is an appropriate response to the event or situation, it should not be considered a 'dysfunction' since it is not a dysfunctional response (Horwitz, 2002, p. 180). Consequently, if a condition is a normal reaction to a (perceived to be stressful) situation or event, a short-term association between the situation and condition would be expected, rather than a long-term association. This would also be in line with adequate coping strategies for stress-reduction. A normal, or functional, coping strategy would reduce stress exposure, and therefore would not constitute chronic exposure which would have effects on a person's health and wellbeing over time. From this reasoning, the aspect of time would benefit from differentiations of reactions to environmental press when laying out the P-E resources in relation to the P-E processes (Chaudhury & Oswald, 2019, p. 3; Wahl et al., 2012, p. 308). While a normal reaction could have an impact on the agency-belonging interaction, as well as the life-course perspective, it might not have impact on ageing well. A dysfunctional reaction, that is, an inadequate coping mechanism or strategy, on the other hand, might have impact on the outcomes of ageing well in addition to its processes.

Methodological considerations

Certain methodological considerations during the doctoral project merit a discussion: (i) studying the perceived home during a time where many older adults

were more or less confined to their home (the SARS-CoV-2 pandemic), (ii) changes in the doctoral project, (iii) the study designs and analytical approaches, and (iv) the use of single-scale or separate scales of MOH and HCQ.

In Studies I and II, data regarding the perceived home were collected during the SARS-CoV-2 pandemic (years 2020–2021). There was a period (from March 2020 until November 2020; Folkhälsomyndigheten, web resource) where community-living older adults, aged ≥70, were recommended to stay at home and to avoid commuting, shopping, and having direct contact with other people for a perceived longer period of time. Due to these recommendations, the qualitative study in the project was changed from initially being a focus group interview to individual interviews, and from being held in person, to being performed via remote means such as via video-link, or by phone. It was expected that this limitation would potentially affect the interviews, and therefore measures were taken to counteract such an influence. It was anticipated that during the interviews, the life transition of the pandemic would come up as affecting people's lives, and how they perceive their home. To remove the influence of the pandemic situation from the results, during the interviews participants were asked to not consider the pandemic situation as a life transition affecting their lives, or how they perceived their home. Many participants did, however, describe how the pandemic affected them, and because of that, during the analytical phase, there were efforts to disentangle themes connected specifically to experiences of the pandemic. Furthermore, even though some participants wanted to do the interview via phone, most participants wanted to perform the interview via video-link, which could suggest a technologically resourceful sample. Even though the results of Studies I and II were not aiming for generalisability (Study I) or transferability (Study II), aiming instead for a diversity of experiences, having a technologically resourceful sample is further indicative of a proactive sample. Such a consideration is important to keep in mind when interpreting the results, even when aiming for diversity.

Throughout the doctoral project there have been significant changes in the included studies. The initial aim was to contribute to the dynamic interaction between four dimensions of perceived housing (the construct developed by Oswald et al., 2006) and life transitions experienced by younger-old adults, and how any potential interactions affect health, wellbeing, functioning, and social participation in older age. During the first analytical phases of Study II, it became apparent that including all life transitions would yield situational maps too large and difficult to oversee. Therefore, there were changes made to the aim of Study II, to focus on participants who had experienced retirement and relocation, thereby choosing the subsample of

the interviews. Regarding Study III, since the RELOC-AGE study had begun collecting their data during the SARS-CoV-2 pandemic, such data would better represent the data that came from Studies I and II which were collected around the same time. The change from SNAC-GÅS to RELOC-AGE also led to changes in aim and research questions. Initially, Study III was to investigate how different life transitions affected the dimensions of perceived housing construct (Oswald et al., 2006). In RELOC-AGE, despite being a large study sample, there were very few participants who had reported having experienced life transitions. A potential issue therfore became whether the sample could detect any significant associations; that is, it became an issue of statistical power. In addition, concerns about the homogeneity of the life transitions were raised, in that different experiences of a life transition, for instance whether there were proactive or reactive choices, could potentially muddle any result. Therefore, Study III was reconceptualised to explore the potential moderating effect of MOH on the association between HCQ-E and HRQoL. Regarding the initial plans for Study IV, this study was intended to analyse complex interactions between life transitions, perceived housing, and outcomes of health, wellbeing, and social participation by using Structural Equations Modeling. Due to a lack of both data and time, it was decided to remove that study. Instead, it was decided to include a study that I had been involved with but had not initially planned to include in the thesis (Study I).

Turning to the choice of analytical approach, the included studies in the thesis have utilised appropriate analytical choices. Since much of previous research on the importance of the P-E interaction for health or wellbeing in older age has focused on very old adults, that is, those above the age of 75, during this project it was decided to explore whether similar associations and patterns could be found earlier in the ageing process; that is, among older adults around retirement age. Therefore, regression analyses were best suited to detect any significant associations and to discern potential patterns. Furthermore, by using a qualitative explorative approach (Study II), information about potentially unknown aspects of how the home environment is perceived across potentially unknown significant life transitions, was obtained. The situational analytical approach was chosen since it manages to capture "[…] the full situation of inquiry […] (Clarke, 2003, p. 556), including the situation itself as a unit of analysis (Ibid., p. 559). Furthermore, situational analysis is particularly appropriate in projects involving researchers from different fields (Ibid. p. 554) which was the case in study II which included researchers from sociology, educational science, psychology, occupational therapy, public health and epidemiology.

The last methodological consideration is whether the MOH and HCQ subscales are best utilised as one scale, or as separate scales. Studies III and IV use the subscales of MOH and HCQ-E differently. In Study III, both MOH and HCQ-E were used as one single score. Originally, HCQ was designed to use the subscales as different aspects of control (Oswald et al., 2003), but later research has used the external subscales of HCQ as a combined scale in order to improve internal consistency (Boonyaratana et al., 2021). However, despite the subscales being associated with each other, the association was not large enough to indicate dependent aspects and can therefore be used as two distinct separate subscales (Ibid.). Such a relationship between the subscales was also found of the MOH instrument (Ibid.). Study III aspired to investigate the phenomena of control beliefs and meaningfulness related to the home as single phenomena, as aspects of agency or belonging, respectively, rather than as specific aspects or dimensions of said phenomena. Study IV, on the other hand, aspired to investigate whether there were particular aspects of MOH or HCQ-E that were associated with changes in symptom severity or HRQoL, which motivated the use of separate subscales. As argued, both utilisations of the subscales are appropriate from a methodological perspective.

Strengths and limitations

To be able to explore relationships and investigate associations between life transitions, the perceived home, and health and wellbeing, among younger-old adults, appropriate study designs and analytical approaches were utilised across the studies. Furthermore, all studies included appropriate and balanced study samples regarding the distribution of sex (42.3 % – 57.8 % women) and age (Studies I & II ages 62–75, Study III age groups 55–74 and 75–93, and study IV ages 65–76). However, the older age group (75–93 years) in study III had a mean age of 78.69, indicating a group skewed towards younger ages, which is another potential explanation why no large differences in moderating effect were found between the age groups (hypothesis 2, Study III). Regarding the educational level of the included samples, Studies I-III had high proportions of participants with university level education or higher (Study I, 72.0 %; Study II, 76.9 %; and study III, 67.9 %), which is a limitation regarding either the generalisability (Studies I and III), or transferability (Study II), of the results. In comparison, 29.7 % of the participants in Study IV reported university level education. This apparent disparity of educational distribution could be attributed to recruitment methods. The sample in Study IV were randomly selected from the general population of older adults, whereas the sample in Study III was selected from housing-interest lists, and Studies I and II

recruited participants mainly through advertisement materials. Furthermore, in the advertisement material for Studies I and II, examples of life transitions were listed, specifically retirement, relocation, a change in family constellation, becoming grandparents, or being diagnosed with a chronic illness (Appendix I). During the interviews for Studies I and II, participants were asked to talk about any life transition that had significantly affected their lives. However, in the introduction of the interview, life transitions were exemplified as the same life transitions that were listed in the recruitment material (Appendix II). The life transitions that came up during the interviews coincided to a large degree with the exemplified life transitions in the advertisement and in the introduction of the interview. This could indicate that the participants were drawn to the study because of the exemplified life transitions, or it could also be because those life transitions are more commonly experienced among older adults.

A much larger proportion of the participants in Study I had relocated (64 %) compared to the prevalence of relocating among older adults ages 60 and above in Sweden overall (17 %) (SCB, 2022). Furthermore, 25 % of the participants in Study I had separated from their partners, which can be compared to Swedish national statistics where 4 % – 5% of older adults around the same age report having separated (Statistics Sweden, 2022). As previously mentioned, it cannot be ruled out whether the recruitment advertisement attracted participants identifying with the specific life transitions which were listed as examples, or that the recruitment attracted participants having experienced many more life transitions than what had been experienced by their peers. If this were to be the case, it would then be a limitation of both selection bias (Catalogue of Bias Collaboration, Selection Bias, web resource) and the generalisability of Study I. However, for Study II, such a recruitment method is a strength rather than a limitation, since the participants would be considered information rich in regard to the experiences of life transitions and their impact on people's lives. The study sample of Study III was recruited via housing companies and their internal lists of people interested in moving to a new home. Relocation among older adults is generally proportionally low (Statistics Sweden, 2022) and therefore difficult to study in the general population. For that reason, inviting participants from interest lists allows for research on the relocation among older adults. However, being on such a list does not necessarily preclude that a person is actively looking for a new home, but the possibility of the study sample consisting mostly of proactive relocators must be considered, at least in regard to the generalisability of the results.

Drop-out rates in Studies III and IV were 23.2 % (N = 1964 at baseline, and n= 1509 at follow-up) and 12.7 % (N = 371 at baseline, and n = 329 at follow-up) respectively, which is not in itself a problematic retention rate (Gustavson, von Soest, Karevold, & Røysamb, 2012). For Study IV, however, the study sample consisted of a portion of the SNAC-GÅS study, which is a randomised sample of older adults in Skåne region in south Sweden. The HHT Study (Kylén et al., 2014) invited 673 individuals from the SNAC-GÅS study to participate in a sub-study regarding among others, the perceived home, health and wellbeing. Of those 673 persons, 371 (55.1 %) chose to participate which potentially could constitute a volunteer bias due to the low acceptance rate (Catalogue of Bias Collaboration, Volunteer Bias, web resource). These considerations could affect not only the results of the studies, but also the generalisability of the results (Gustavson et al., 2012).

Regarding data collection, Study II used an interview guide that was initially developed with a different aim in mind. Preferably, the interview guide would have focused on the experiences of the specific life transitions on relocation and retirement and the timing of life transitions, or whether one transition happened before the other (for Study II). Even though the explorative design allowed for rich depth of information, a limitation regarding data collection for Study II would be a lack of in-depth qualitative probing questions related to the specific aims. Studies III and IV, due to below acceptable levels of internal consistencies of the internal subscale of HCQ, only measured external factors of control beliefs. When constructing HCQ, it was conceptualised as a component of environmental proactivity (Oswald et al., 2003, p. 138) in which the proactive attitudes emanate from, and about, the individual towards the environment (Ibid.). By this description, internal factors of control beliefs lie at the centre of what it means to be proactive towards one's environment. Therefore, to have a broader understanding of the importance and impact of changes in control beliefs, internal aspects are necessary to include, which was not possible in this thesis. Lastly, Study IV had only one data collection timepoint (baseline) of MOH and HCQ-E available for analysis. As such, MOH and HCQ-E at baseline can be estimated to predict approximately six years of change in symptom severity or HRQoL. Whether any changes in symptom severity or in HRQoL coincided with potential changes in MOH or HCQ-E is an important aspect of any associations between the phenomena. Therefore, not having follow-up data on MOH and HCQ-E is a limitation for the interpretation of the associations in Study IV.

Conclusions

The result of this thesis suggests that maintaining or increasing the 'perceived home' is important for ageing well, even among younger-old adults. However, while there were strong significant associations between both control beliefs and meaningfulness to the home and health-related quality of life, this association was only found cross-sectionally. When studying whether meaningfulness of, or external control beliefs related to, the home predicted changes in symptom severity and health-related quality of life over time, there was no longer any significant support. Furthermore, meaningfulness of the home was found to significantly moderate the negative association between external factors of control beliefs related to the home, and health-related quality of life. This would indicate that the meaningfulness of the home environment is an important and effective aspect of the perceived home to address in older age in order to maintain health and wellbeing, and consequently to age well. The thesis also suggests that young old age is a time in life which could be characterised by change rather than by settling down, and that there are interactions due to different life transitions creating specific trajectories. Furthermore, it is suggested that there are interactions between life transitions in older age, and control beliefs and meaningfulness of the home. Life transitions can be both precursors and consequences of changes in the perceived home, while changes in perceived home can be both antecedents and consequences of life transitions. The thesis therefore suggests that the theories of P-E interaction include such exchanges between the perceived home and the life-course perspective.

Implications for research, practice, and future perspectives

- While certain life transitions trajectories were identified and suggested by Study I, future research should strive to investigate associations between life transition trajectories and health or wellbeing outcomes in older age. In addition, research should strive to identify predictors of different trajectories, for instance socio-economic and demographic characteristics. Such information could be valuable for practice and policy by having social biomarkers or predictors of ageing well.
- In this thesis, the phenomenon of external aspects of control beliefs has been utilised, while omitting internal aspects. The importance of assessing the full phenomenon of control beliefs should be considered in future research, and internal aspects would be necessary to include in order to better understand the implications of control beliefs for ageing well. Future research should therefore endeavour to improve the HCQ instrument so that internal control beliefs related to the home are included.
- Even though the results suggest strong episodic associations between the meaningfulness of the home and health-related quality of life, there is little to no support that such association remain over time. This finding contradicts theories of the P-E interaction, and therefore needs to be replicated by future research.
- The results suggest strong support for the notion that maintaining a higher meaningfulness of the home is an effective strategy to reduce any negative associations between control beliefs and health-related quality of life. The findings therefore suggest that practice and policy should consider efforts to target the meaningfulness of the home around retirement age. To further support practice and policy, it is important that future research investigates whether such moderation effects are episodic or whether they remain over time.

- The investigation into age differences of moderating effects in Study III was, at least in part, affected by not having a broad range of participants in the older age group. Therefore, to further differentiate how and when in older age the perceived home impacts possibilities of ageing well, it is imperative for future research to include a varied age range of older adults, especially among the very old (i.e., aged ≥75).
- In the thesis, relocation and retirement were life transitions that potentially (positively) affected the perceived home. However, since such life transitions are complex, future research should differentiate between different types of relocations and retirements, which might have varying effects on the perceived home, and consequently for ageing well. Special attention should be given to whether such transitions are handled proactively or reactively.
- For policy research and decision-makers, future research should investigate MCID value ranges of at least MOH, HCQ, but also of HRQoL, and other health measurements in the specific population of community-living younger-old persons.

Acknowledgements

I would like to thank the Centre for Ageing and Supportive Environments (CASE) at Lund University, Sweden, in which this PhD project was conducted. Furthermore, I would like to thank the Swedish Research Council for Health, Working Life, and Welfare (Forte) which funded the project. I am also grateful for the Swedish National Graduate School on Ageing and Health (SWEAH) which I have been affiliated with during my project and which has given me significant support and development opportunities.

The work in this thesis could not have been completed if I did not have the support of many other people and I would like to thank everyone that has supported me and my work in one way or another. There are some people that merit special mentions.

To all participants of Studies I and II, thank you for inviting me to listen to, and partake in, your experiences and stories, providing the research field with valuable information of how the events and transitions you experienced affected your lives. The rich information you provided became many articles!

To my main supervisor, Steven Schmidt, I am forever grateful for your relentless support and professionalism despite many difficult periods. Your Socratic method was particularly crucial to the completion of my process, and especially effective when combined with American barbecue.

To my co-supervisor Maya Kylén, thank you for supporting me with good energy throughout the project, for giving me piles of articles and books to get me started in the field of Environmental Gerontology, and especially for tolerating all my commas.

To my co-supervisor Anna Wanka, you have always assisted me and come up with good ideas when my own thoughts got stuck. I am especially grateful for your guidance in developing the situational analysis method, and for opening my world in terms of both research and wine (Federweisser).

I also want to thank the concluding participants of the Perceived Housing and Life Transitions: Good Ageing-in Place (HoT-Age) project, Frank Oswald, Björn Slaug, Susanne Iwarsson, and Karla Wazinski for good discussions, interesting exchanges, and valuable collaborations.

Thanks to all my colleagues at both the Applied Gerontology and Active and Healthy Ageing research groups. A special thanks to Frida Nordenström for always initiating doctoral student gatherings; to Joakim Frögren, Nilla Andersson, and Magnus Lindh-Rengifo, for being inspirational senior doctoral students; and to my roommates Jens Offerman and Agata Yadav for co-creating the (work) space into a meaningful place.

A special thanks is needed for Stina Elfverson and Dan Lindblom for being the administrative pillars that have supported me throughout these years.

Also, I would like to thank my parents; my late father Christer for inspiring me with the academic life, you are always with me in thought and heart; and to my mother, Gunnel, for unwavering belief, and for putting up with my attempts to apply my knowledge regarding the perceived home on you and your home.

Last but certainly foremost, I want to thank my wife and my children for their support throughout all these years. Thank you for believing in me and for giving me this opportunity. I hope I have made all of you proud. To my wife Siremon, thank you for allowing me to focus on this project and for supporting me in my academic endeavours, I could not have done this voyage without you. To my children Leon and Linnea, I started on the path of knowledge development within medical research because of you. Without both of you, this thesis would never have come to be, which is why I dedicate it to you.

References

Abramsson, M., & Nord, C. (2012). *Äldres boende: forskningsperspektiv i Norden*. Lund: Studentlitteratur.

Afshar, P. F., Foroughan, M., Vedadhir, A., & Tabatabaei, M. G. (2017). The effects of place attachment on social well-being in older adults. *Educational Gerontology, 43*(1), 45-51. doi:10.1080/03601277.2016.1260910

Agrigoroaei, S., Polito, M., Lee, A., Kranz-Graham, E., Seeman, T., Lachman, & Margie, E. (2013). Cortisol response to challenge involving low controllability: The role of control beliefs and age. *Biological Psychology, 93*(1), 138-142 :doi.org/10.1016/j.biopsycho.2013.01.003

Aliakbarzadeh Arani, Z., Zanjari, N., Delbari, A., Foroughan, M., & Ghaedamini Harouni, G. (2022). Place attachment and aging: A scoping review. *Journal of Human Behavior in the Social Environment, 32*(1), 91-108. doi:10.1080/10911359.2020.1860852

Alidoust, S., & Khalaj, F. (2021). An exploratory study of house-sitting and 'home'-making among older people. *Australian Geographer, 52*(4), 391-406. doi:10.1080/00049182.2021.1999612

Altman, I., & Low, S. M. (1992). *Place Attachment*. New York: Springer.

Amián, J. G., Alarcón, D., Fernández-Portero, C., & Sánchez-Medina, J. A. (2021). Aging Living at Home: Residential Satisfaction among Active Older Adults Based on the Perceived Home Model. *International Journal of Environmental Research and Public Health, 18*(17), 8959. Retrieved from https://www.mdpi.com/1660-4601/18/17/8959

Andrews, G. J., & Phillips, D. R. (2005). *Ageing and place: perspectives, policy, practice*. London: Routledge.

Bagarić, B., Jokić-Begić, N., & Sangster Jokić, C. (2022). The Nocebo Effect: A Review of Contemporary Experimental Research. *International Journal of Behavioral Medicine, 29*(3), 255-265. doi:10.1007/s12529-021-10016-y

Baker, J. P., & Berenbaum, H. (2007). Emotional approach and problem-focused coping: A comparison of potentially adaptive strategies. *Cognition and Emotion, 21*(1), 95-118. doi:10.1080/02699930600562276

Baltes, P., & Mayer, K. (2001). The Berlin Aging Study: Aging from 70 to 100. *Care Management Journals, 1*. doi:10.1891/1521-0987.1.4.281

Bandura, A. (2006). Toward a Psychology of Human Agency. *Perspectives on Psychological Science, 1*(2), 164-180. doi:10.1111/j.1745-6916.2006.00011.x

Bardel, A., Wallander, M.-A., Wallman, T., Rosengren, A., Johansson, S., Eriksson, H., & Svärdsudd, K. (2019). Age and sex related self-reported symptoms in a general population across 30 years: Patterns of reporting and secular trend. *PLoS One, 14*(2), e0211532. doi:10.1371/journal.pone.0211532

Bardel, A., Wallander, M.-A., Wedel, H., & Svärdsudd, K. (2009). Age-specific symptom prevalence in women 35–64 years old: A population-based study. *BMC Public Health, 9*(1), 37. doi:10.1186/1471-2458-9-37

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497-529. doi.org/10.1037/1089-2680.5.4.323

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of general psychology, 5*(4), 323-370.

Bektas, A., Schurman, S. H., Sen, R., & Ferrucci, L. (2018). Aging, inflammation and the environment. *Experimental Gerontology, 105*, 10-18. doi:doi.org/10.1016/j.exger.2017.12.015

Bifulco, A., Spence, R., Nunn, S., Kagan, L., Bailey-Rodriguez, D., Hosang, G. M., Taylor, M., & Fisher, H. L. (2019). Web-Based Measure of Life Events Using Computerized Life Events and Assessment Record (CLEAR): Preliminary Cross-Sectional Study of Reliability, Validity, and Association With Depression. *JMIR Mental Health, 6*(1), e10675. doi:10.2196/10675

Bigonnesse, C., Beaulieu, M., & Garon, S. (2014). Meaning of Home in Later Life as a Concept to Understand Older Adults' Housing Needs: Results from the 7 Age-Friendly Cities Pilot Project in Québec. *Journal of Housing for the Elderly, 28*(4), 357-382. doi:10.1080/02763893.2014.930367

Birditt, K. S., Polenick, C. A., Luong, G., Charles, S. T., & Fingerman, K. L. (2020). Daily interpersonal tensions and well-being among older adults: The role of emotion regulation strategies. *Psychology and Aging, 35*(4), 578-590. doi:10.1037/pag0000416

Blanchard-Fields, F., Jahnke, H. C., & Camp, C. (1995). Age differences in problem-solving style: the role of emotional salience. *Psychology and Aging, 10*(2), 173-180. doi:10.1037//0882-7974.10.2.173

Bollini, A. M., Walker, E. F., Hamann, S., & Kestler, L. (2004). The influence of perceived control and locus of control on the cortisol and subjective responses to stress. *Biological Psychology, 67*(3), 245-260. :doi.org/10.1016/j.biopsycho.2003.11.002

Bonnet, C., Gobillon, L., & Laferrère, A. (2010). The effect of widowhood on housing and location choices. *Journal of Housing Economics, 19*(2), 94-108. :doi.org/10.1016/j.jhe.2010.04.003

Boonyaratana, Y., Hansson, E. E., Granbom, M., & Schmidt, S. M. (2021). The Psychometric Properties of the Meaning of Home and Housing-Related Control Beliefs Scales among 67–70 Year-Olds in Sweden. *International Journal of Environmental Research and Public Health, 18*(8), 4273. Retrieved from https://www.mdpi.com/1660-4601/18/8/4273

Boverket (2024). *Allt fler 80+ i befolkningen*. https://www.boverket.se/sv/samhallsplanering/bostadsmarknad/olika-grupper/aldre/ Accessed 2024-08-14.

Brandtstädter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging, 5*(1), 58-67. doi:10.1037//0882-7974.5.1.58

Burström, K., Teni, F. S., Gerdtham, U.-G., Leidl, R., Helgesson, G., Rolfson, O., & Henriksson, M. (2020). Experience-Based Swedish TTO and VAS Value Sets for EQ-5D-5L Health States. *PharmacoEconomics, 38*(8), 839-856. doi:10.1007/s40273-020-00905-7

Carstensen, L. L. (1995). Evidence for a Life-Span Theory of Socioemotional Selectivity. *Current Directions in Psychological Science, 4*(5), 151-156. doi:10.1111/1467-8721.ep11512261

Carver, C. S. (1997). You want to measure coping but your protocol' too long: Consider the brief cope. *International Journal of Behavioral Medicine, 4*(1), 92-100. doi:10.1207/s15327558ijbm0401_6

Catalogue of Bias Collaboration, Brassey J, Mahtani KR, Spencer EA, Heneghan C. **Volunteer bias**. Catalogue Of Bias 2017: http://www.catalogofbias.org/biases/volunteer-bias. Accessed 2024-04-29.

Catalogue of Bias Collaboration, Nunan D, Bankhead C, Aronson JK. **Selection bias.** Catalogue Of Bias 2017: http://www.catalogofbias.org/biases/selection-bias/ Accessed 2024-04-29.

Celia, A.-B., Ivan, C.-R., Estela, J.-L., Maria Eugenia, V.-A., Irene, S.-D., & Vicente, M.-V. (2021). Effect of retirement on cognitive function: a systematic review and meta-analysis. *Occupational and Environmental Medicine, 78*(10), 761. doi:10.1136/oemed-2020-106892

Center for Disease Control, web resource. Definition of Policy | Policy, Performance, and Evaluation | CDC. Accessed 2024-08-25.

Cerino, E. S., Charles, S. T., Mogle, J., Rush, J., Piazza, J. R., Klepacz, L. M., Lachman, L. M., & Almeida, D. M. (2024). Perceived control across the adult lifespan: Longitudinal changes in global control and daily stressor control. *Developmental Psychology, 60*(1), 45-58. doi:10.1037/dev0001618

Chang, P.-J., Tsou, C.-W., & Li, Y.-S. (2020). Urban-greenway factors' influence on older adults' psychological well-being: A case study of Taichung, Taiwan. *Urban Forestry & Urban Greening, 49*, 126606.:doi.org/10.1016/j.ufug.2020.126606

Charles, S. T. (2010). Strength and vulnerability integration: A model of emotional well-being across adulthood. *Psychological Bulletin, 136*(6), 1068-1091. doi:10.1037/a0021232

Chaudhury, H., & Oswald, F. (2019). Advancing understanding of person-environment interaction in later life: One step further. *Journal of Aging Studies, 51*, 100821. :doi.org/10.1016/j.jaging.2019.100821

Chen, J. J., Liu, L. F., Lin, C. I., & Lin, H. C. (2022). Multidimensional Determinants of Well-Being Among Community-Dwelling Older Adults During the Early Stage of the COVID-19 Pandemic in Taiwan. *Gerontology and Geriatric Medicine, 8*, 23337214221111227. doi:10.1177/23337214221111227

Chen, P.-C., & Wilmoth, J. M. (2004). The Effects of Residential Mobility on ADL and IADL Limitations Among the Very Old Living in the Community. *The Journals of Gerontology: Series B, 59*(3), S164-S172. doi:10.1093/geronb/59.3.S164

Cohen, S., Murphy, M. L. M., & Prather, A. A. (2019). Ten Surprising Facts About Stressful Life Events and Disease Risk. *Annual Review of Psychology, 70*(1), 577-597. doi:10.1146/annurev-psych-010418-102857

Colloca, L., & Barsky, A. J. (2020). Placebo and Nocebo Effects. *New England Journal of Medicine, 382*(6), 554-561. doi:10.1056/NEJMra1907805

Costlow, K., Parmelee, P. A., Choi, S. L., & Roskos, B. (2020). When less is more: Downsizing, sense of place, and well-being in late life. *Journal of Environmental Psychology, 71*, 101478.:doi.org/10.1016/j.jenvp.2020.101478

Courtin, E., & Knapp, M. (2017). Social isolation, loneliness and health in old age: a scoping review. *Health & Social Care in the Community, 25*(3), 799-812. :doi.org/10.1111/hsc.12311

Curtis, R. G., Huxhold, O., & Windsor, T. D. (2018). Perceived Control and Social Activity in Midlife and Older Age: A Reciprocal Association? Findings from the German Ageing Survey. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences, 73*(5), 807-815. doi:10.1093/geronb/gbw070

Dhuli, K., Naureen, Z., Medori, M. C., Fioretti, F., Caruso, P., Perrone, M. A., Nodari, S., Manganotti, P., Xhufi, S., Bushati, M., Connely, S. T., Herbst, K. L., & Bertelli, M. (2022). Physical activity for health. *Journal of Preventive Medicine and Hygiene, 63*(2 Suppl 3), E150-e159. doi:10.15167/2421-4248/jpmh2022.63.2S3.2756

Drewelies, J., Wagner, J., Tesch-Römer, C., Heckhausen, J., & Gerstorf, D. (2017). Perceived control across the second half of life: The role of physical health and social integration. *Psychology and Aging, 32*(1), 76-92. doi:10.1037/pag0000143

Duan-Porter, W., Hastings, S. N., Neelon, B., & Van Houtven, C. H. (2017). Control beliefs and risk for 4-year mortality in older adults: a prospective cohort study. *BMC Geriatrics, 17*(1), 13. doi:10.1186/s12877-016-0390-3

Dulin, P. L., Hanson, B. L., & King, D. K. (2013). Perceived control as a longitudinal moderator of late-life stressors on depressive symptoms. *Aging and Mental Health, 17*(6), 718-723. doi:10.1080/13607863.2013.784956

Ekman, R., & Arnetz, B. B. (2013). *Stress: gen, individ, samhälle*. Stockholm: Liber.

Ekström, H., & Elmståhl, S. (2006). Pain and fractures are independently related to lower walking speed and grip strength: Results from the population study "Good Ageing in Skåne". *Acta Orthopaedica, 77*(6), 902-911. doi:10.1080/17453670610013204

Ekström, H., Schmidt, S. M., & Iwarsson, S. (2016). Home and health among different sub-groups of the ageing population: a comparison of two cohorts living in ordinary housing in Sweden. *BMC Geriatrics, 16*(1), 90. doi:10.1186/s12877-016-0265-7

EuroQol Research Foundation. EQ-5D-5L User Guide. 2019. Available from: https://euroqol.org/publications/user-guides. Accessed 2024-08-25.

Evans, G. W., Kantrowitz, E., & Eshelman, P. (2002). Housing Quality and Psychological Well-Being Among the Elderly Population. *The Journals of Gerontology: Series B, 57*(4), P381-P383. doi:10.1093/geronb/57.4.P381

Ferreira, V. M., & Sherman, A. M. (2006). Understanding associations of control beliefs, social relations, and well-being in older adults with osteoarthritis. *International Journal of Aging and Human Development, 62*(3), 255-274. doi:10.2190/0KMV-RU7X-CAQM-0RRA

Folhälsomyndigheten, web resource. När hände vad under pandemin? — Folkhälsomyndigheten (folkhalsomyndigheten.se) Accessed 2024-08-25.

Furunes, B., Bengtsson, C., & Lapidus, L. (1996). Subjectively experienced symptoms in relation to socio-economic factors in women. *European Journal of Epidemiology, 12*(6), 617-624. doi:10.1007/bf00499461

Gefenaite, G., Björk, J., Schmidt, S. M., Slaug, B., & Iwarsson, S. (2020). Associations among housing accessibility, housing-related control beliefs and independence in activities of daily living: a cross-sectional study among younger old in Sweden. *Journal of Housing and the Built Environment, 35*(3), 867-877. doi:10.1007/s10901-019-09717-4

Gilbert, S., Amella, E., Edlund, B., & Nemeth, L. (2015). Making the Move: A Mixed Research Integrative Review. *Healthcare (Basel), 3*(3), 757-774. doi:10.3390/healthcare3030757

Haacke, H. C., Enßle, F., Haase, D., Helbrecht, I., & Lakes, T. (2019). Why Do(n't) People Move When They Get Older? Estimating the Willingness to Relocate in Diverse Ageing Cities. *Urban Planning 4*(2), 17. doi:10.17645/up.v4i2.1901

Haak, M., Kylén, M., Ekström, H., Schmidt, S., Horstmann, V., Elmståhl, S., & Iwarsson, S. (2015). Relationships between perceived aspects of home and symptoms in a cohort aged 67-70. *Archives of Gerontology and Geriatrics, 61*(3), 529-534. doi:10.1016/j.archger.2015.06.013

Hanslmaier, M., Peter, A., & Kaiser, B. (2018). Vulnerability and fear of crime among elderly citizens: what roles do neighborhood and health play? *Journal of Housing and the Built Environment, 33*(4), 575-590. doi:10.1007/s10901-018-9626-1

Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review, 102*(2), 284-304. doi:10.1037/0033-295x.102.2.284

Hirsch, J. L., & Clark, M. S. (2019). Multiple Paths to Belonging That We Should Study Together. *Perspectives on Psychological Science, 14*(2), 238-255. doi:10.1177/1745691618803629

Hoh, J. W. T., Lu, S., Yin, Y., Feng, Q., Dupre, M. E., & Gu, D. (2020). Environmental Gerontology. In D. Gu & M. E. Dupre (Eds.), *Encyclopedia of Gerontology and Population Aging* (pp. 1-8). Cham: Springer International Publishing.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11*(2), 213-218. doi:10.1016/0022-3999(67)90010-4

Hong, J. H., Lachman, M. E., Charles, S. T., Chen, Y., Wilson, C. L., Nakamura, J. S., VanderWeele, T. J., & Kim, E. S. (2021). The positive influence of sense of control on physical, behavioral, and psychosocial health in older adults: An outcome-wide approach. *Preventive Medicine, 149*, 106612.:doi.org/10.1016/j.ypmed.2021.106612

Hong, S.-I., & Chen, L.-M. (2009). Contribution of Residential Relocation and Lifestyle to the Structure of Health Trajectories. *Journal of Aging and Health, 21*(2), 244-265. doi:10.1177/0898264308328960

Isawa, M., Kajiyama, M., Tominaga, Y., Nakada, H., Aomori, T., & Mochizuki, M. (2020). Review of clinical studies on the nocebo effect. *Die Pharmazie - An International Journal of Pharmaceutical Sciences, 75*(11), 548-553. doi:10.1691/ph.2020.0642

Jakobsson, U., Hallberg, I. R., & Westergren, A. (2004). Overall and health related quality of life among the oldest old in pain. *Quality of Life Research, 13*(1), 125-136. doi:10.1023/B:QURE.0000015286.68287.66

Karasek, R., & Theorell, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York, N.Y.: Basic Books.

Karasek, R. A. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly, 24*(2), 285-308. doi:10.2307/2392498

Koffer, R., Drewelies, J., Almeida, D. M., Conroy, D. E., Pincus, A. L., Gerstorf, D., & Ram, N. (2019). The Role of General and Daily Control Beliefs for Affective Stressor-Reactivity Across Adulthood and Old Age. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences, 74*(2), 242-253. doi:10.1093/geronb/gbx055

Kristensson, J., Modig, S., Midlöv, P., Hallberg, I. R., & Jakobsson, U. (2010). Healthcare utilisation and knowledge concerning prescribed drugs among older people. *European Journal of Clinical Pharmacology, 66*(10), 1047-1054. doi:10.1007/s00228-010-0837-y

Kylén, M., Ekström, H., Haak, M., Elmståhl, S., & Iwarsson, S. (2014). Home and health in the third age - methodological background and descriptive findings. *International Journal of Environmental Research and Public Health, 11*(7), 7060-7080. doi:10.3390/ijerph110707060

Kylén, M., Schmidt, S. M., Iwarsson, S., Haak, M., & Ekström, H. (2017). Perceived home is associated with psychological well-being in a cohort aged 67–70 years. *Journal of Environmental Psychology, 51*, 239-247. doi:10.1016/j.jenvp.2017.04.006

Lachman, M. E. (2004). Development in Midlife. *Annual Review of Psychology, 55*(1), 305-331. doi:10.1146/annurev.psych.55.090902.141521

Lachman, M. E., & Burack, O. R. (1993). Planning and Control Processes Across the Life Span: An Overview. *International Journal of Behavioral Development, 16*(2), 131-143. doi:10.1177/016502549301600203

Lachman, M. E., Neupert, S. D., & Agrigoroaei, S. (2011). Chapter 11 - The Relevance of Control Beliefs for Health and Aging. In K. W. Schaie & S. L. Willis (Eds.), *Handbook of the Psychology of Aging (Seventh Edition)* (pp. 175-190). San Diego: Academic Press.

Lagergren, M., Fratiglioni, L., Hallberg, I. R., Berglund, J., Elmståhl, S., Hagberg, B., Holst, G., Rennemark, M., Sjolund B-M., Thorslund, M., Wiberg, I., Winblad B., & Wimo, A. (2004). A longitudinal study integrating population, care and social services data. The Swedish National study on Aging and Care (SNAC). *Aging Clinical and Experimental Research, 16*(2), 158-168. doi:10.1007/BF03324546

Lawton, M. P., & Nahemow, L. (1973). Ecology and the aging process. In *The psychology of adult development and aging.* (pp. 619-674). Washington, DC, US: American Psychological Association.

Lawton, M. P., & Simon, B. (1968). The Ecology of Social Relationships in Housing for the Elderly1. *The Gerontologist, 8*(2), 108-115. doi:10.1093/geront/8.2.108

Lee, S. (2021). Cross-sectional and longitudinal association between neighborhood environment and perceived control in older adults: Findings from hrs. *International Journal of Environmental Research and Public Health, 18*(21). doi:10.3390/ijerph182111344

Levy, B. R., Chung, P. H., Slade, M. D., Van Ness, P. H., & Pietrzak, R. H. (2019). Active coping shields against negative aging self-stereotypes contributing to psychiatric conditions. *Social Science & Medicine, 228*, 25-29. :doi.org/10.1016/j.socscimed.2019.02.035

Lewin, K. (1939). Field Theory and Experiment in Social Psychology: Concepts and Methods. *American Journal of Sociology, 44*(6), 868-896. doi:10.1086/218177

Li, W., Ye, X., Zhu, D., & He, P. (2021). The Longitudinal Association Between Retirement and Depression: A Systematic Review and Meta-Analysis. *American Journal of Epidemiology, 190*(10), 2220-2230. doi:10.1093/aje/kwab125

Lu, S., Wei, F., & Li, G. (2021). The evolution of the concept of stress and the framework of the stress system. *Cell Stress, 5*(6), 76-85. doi:10.15698/cst2021.06.250

Löfqvist, C., Granbom, M., Himmelsbach, I., Iwarsson, S., Oswald, F., & Haak, M. (2013). Voices on Relocation and Aging in Place in Very Old Age—A Complex and Ambivalent Matter. *The Gerontologist, 53*(6), 919-927. doi:10.1093/geront/gnt034

Mahler, M., Sarvimäki, A., Clancy, A., Stenbock-Hult, B., Simonsen, N., Liveng, A., Zidén, L., Johannessen, A., & Hörder, H. (2014). Home as a health promotion setting for older adults. *Scandinavian Journal of Public Health, 42*(15_suppl), 36-40. doi:10.1177/1403494814556648

Martin, P., Kelly, N., Kahana, B., Kahana, E., Willcox, B. J., Willcox, D. C., & Poon, L. W. (2014). Defining Successful Aging: A Tangible or Elusive Concept? *The Gerontologist, 55*(1), 14-25. doi:10.1093/geront/gnu044

Mellinger, C., Fritzson, A., Park, B., & Dimidjian, S. (2024). Developing the Sense of Belonging Scale and Understanding Its Relationship to Loneliness, Need to Belong, and General Well-Being Outcomes. *Journal of Personality Assessment, 106*(3), 347-360. doi:10.1080/00223891.2023.2279564

Moss, H. B. (2013). The Impact of Alcohol on Society: A Brief Overview. *Social Work in Public Health, 28*(3-4), 175-177. doi:10.1080/19371918.2013.758987

Myers, H.F., Hwang, W-C. (2004). Cumulative Psychosocial Risks and Resilience: A Conceptual Perspective on Ethnic Health Disparities. In: National Research Council. *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life*. Washington, DC: The National Academies Press. doi: 10.17226/11086.

Nowicki, S., Iles-Caven, Y., Kalechstein, A., & Golding, J. (2021). Editorial: Locus of Control: Antecedents, Consequences and Interventions Using Rotter's Definition. *Frontiers in Psychology, 12*. doi:10.3389/fpsyg.2021.698917

Nygren, C., Oswald, F., Iwarsson, S., Fänge, A., Sixsmith, J., Schilling, O., Sixsmith, A., Széman, Z., Tomsone, S., & Wahl, H.-W. (2007). Relationships Between Objective and Perceived Housing in Very Old Age. *The Gerontologist, 47*(1), 85-95. doi:10.1093/geront/47.1.85

Odone, A., Gianfredi, V., Vigezzi, G. P., Amerio, A., Ardito, C., d'Errico, A., Stuckler, D., & Costa, G. (2021). Does retirement trigger depressive symptoms? A systematic review and meta-analysis. *Epidemiology and psychiatric sciences, 30*, e77. doi:10.1017/S2045796021000627

Oswald, F., Schilling, O., Wahl, H.-W., Fänge, A., Sixsmith, J., & Iwarsson, S. (2006). Homeward bound: Introducing a four-domain model of perceived housing in very old age. *Journal of Environmental Psychology, 26*(3), 187-201. :doi.org/10.1016/j.jenvp.2006.07.002

Oswald, F., & Wahl, H.-W. (2004). Housing and Health in Later Life. *Reviews on Environmental Health, 19*(3-4), 223-252. doi:10.1515/reveh-2004-19-3-405

Oswald, F., & Wahl, H.-W. (2005). Dimensions of the Meaning of Home in Later Life. In: Rowles, G.D. and Chaudhury, H., Eds., *Home and Identity in Late Life: International Perspectives*, Springer, New York, 21-45.

Oswald, F., Wahl, H.-W., Martin, M., & Mollenkopf, H. (2003). Toward Measuring Proactivity in Person-Environment Transactions in Late Adulthood. *Journal of Housing for the Elderly, 17*(1-2), 135-152. doi:10.1300/J081v17n01_10

Pardon, M.-C. (2007). Stress and ageing interactions: A paradox in the context of shared etiological and physiopathological processes. *Brain Research Reviews, 54*(2), 251-273. doi.org/10.1016/j.brainresrev.2007.02.007

Pemau, R. C., González-Palacios, P., & Kerr, K. W. (2024). How quality of life is measured in studies of nutritional intervention: a systematic review. *Health and Quality of Life Outcomes, 22*(1), 9. doi:10.1186/s12955-024-02229-y

Pinquart, M., & Schindler, I. (2007). Changes of life satisfaction in the transition to retirement: A latent-class approach. *Psychology and Aging, 22*(3), 442-455. doi:10.1037/0882-7974.22.3.442

Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology, 30*(4), 422-434. doi.org/10.1016/j.jenvp.2010.08.002

Robinson, S. A., & Lachman, M. E. (2017). Perceived Control and Aging: A Mini-Review and Directions for Future Research. *Gerontology, 63*(5), 435-442. doi:10.1159/000468540

Robinson, S. A., & Lachman, M. E. (2018). Daily Control Beliefs and Cognition: The Mediating Role of Physical Activity. *The Journals of Gerontology: Series B, 75*(4), 772-782. doi:10.1093/geronb/gby081

Rowe, J. W., & Kahn, R. L. (1997). Successful Aging1. *The Gerontologist, 37*(4), 433-440. doi:10.1093/geront/37.4.433

Rowles, G. D. (1983). Between worlds: a relocation dilemma for the Appalachian elderly. *International Journal of Aging and Human Development, 17*(4), 301-314. doi:10.2190/x2uf-rq0v-bln5-gdcn

Rowles, G. D., & Bernard, M. (2013). *Environmental gerontology: Making meaningful places in old age*. New York, NY, US: Springer Publishing Company.

Sawada, S., & Toyosato, T. (2021). The moderating effect of place attachment on the relationship between economic status and well-being among the older adults in Japan. *Geriatric Nursing, 42*(3), 721-726. doi.org/10.1016/j.gerinurse.2021.03.003

Schüz, B., Wurm, S., Schöllgen, I., & Tesch-Römer, C. (2011). What do people include when they self-rate their health? Differential associations according to health status in community-dwelling older adults. *Quality of Life Research, 20*(10), 1573-1580. doi:10.1007/s11136-011-9909-4

Scully, J. A., Tosi, H., & Banning, K. (2000). Life Event Checklists: Revisiting the Social Readjustment Rating Scale after 30 Years. *Educational and Psychological Measurement, 60*(6), 864-876. doi:10.1177/00131640021970952

Shanahan, M. J., Mortimer, J. T., & Kirkpatrick Johnson, M. (2016). Introduction: Life Course Studies – Trends, Challenges, and Future Directions. In M. J. Shanahan, J. T. Mortimer, & M. Kirkpatrick Johnson (Eds.), *Handbook of the Life Course: Volume II* (pp. 1-23). Cham: Springer International Publishing.

Socialstyrelsen (2022). Statistisk om socialtjänstinsatser till äldre och personer med funktionsnedsättning efter regiform. Statistik om socialtjänstinsatser till äldre och personer med funktionsnedsättning efter regiform - Socialstyrelsen Accessed 2024-08-25.

Socialstyrelsen (2023). Statistik om socialtjänstinsatser till äldre 2023. Statistik om socialtjänstinsatser till äldre 2023 (socialstyrelsen.se) Accessed 2024-08-25.

Statistics Sweden, After age 60. A description of older people in Sweden Demographic reports 2022:2. After 60. A description of older people in Sweden 2020 (scb.se) Accessed 2024-08-25.

Sun, Y., Ng, M. K., Chao, T.-Y. S., He, S., & Mok, S. H. (2022). The impact of place attachment on well-being for older people in high-density urban environment: a qualitative study. *Journal of Aging & Social Policy*, 1-21. doi:10.1080/08959420.2022.2111168

The EuroQol Group. (1990). EuroQol - a new facility for the measurement of health-related quality of life. *Health policy, 16*(3), 199-208. doi.org/10.1016/0168-8510(90)90421-9

The Whoqol Group. (1998). The World Health Organization quality of life assessment (WHOQOL). *Social Science & Medicine, 46*(12), 1569-1585. doi.org/10.1016/S0277-9536(98)00009-4

Tibblin, G., Bengtsson, C., Furunes, B., & Lapidus, L. (1990). Symptoms by Age and Sex: The Population Studies of Men and Women in Gothenburg, Sweden. *Scandinavian Journal of Primary Health Care, 8*(1), 9-17. doi:10.3109/02813439008994923

Tomsone, S., Horstmann, V., Oswald, F., & Iwarsson, S. (2013). Aspects of housing and perceived health among ADL independent and ADL dependent groups of older people in three national samples. *Aging Clinical and Experimental Research, 25*(3), 317-328. doi:10.1007/s40520-013-0050-9

Urbaniak, A., & Walsh, A (2019). The interrelationship between place and critical life transitions in later life social exclusion: A scoping review. *Health & Place*, 60(102234). doi.org/10.1016/j.healthplace.2019.102234

Van Cauwenberg, J., De Donder, L., Clarys, P., De Bourdeaudhuij, I., Buffel, T., De Witte, N., Dury, S., Verté, D., & Deforche, B. (2014). Relationships between the perceived neighborhood social environment and walking for transportation among older adults. *Social Science & Medicine, 104*, 23-30. doi.org/10.1016/j.socscimed.2013.12.016

Vern L. Bengtson, P., & Richard Settersten, J. P. (2016). *Handbook of Theories of Aging* (Vol. Third edition). New York, NY: Springer Publishing Company.

Wahl, H.-W., & Oswald, F. (2010). Environmental Perspectives on Aging. In: The SAGE Handbook of Social Gerontology. In. doi:10.4135/9781446200933

Wahl, H. W., Iwarsson, S., & Oswald, F. (2012). Aging well and the environment: toward an integrative model and research agenda for the future. *Gerontologist, 52*(3), 306-316. doi:10.1093/geront/gnr154

Wahl, H. W., Schilling, O., Oswald, F., & Iwarsson, S. (2009). The home environment and quality of life-related outcomes in advanced old age: findings of the ENABLE-AGE project. *European Journal of Ageing, 6*(2), 101-111. doi:10.1007/s10433-009-0114-z

Wang, M. (2007). Profiling retirees in the retirement transition and adjustment process: Examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology, 92*(2), 455-474. doi:10.1037/0021-9010.92.2.455

Ware, J., Kosinski, M., & Keller, S. (1995). *SF-12: How to Score the SF-12 Physical and Mental summary scales*. Boston: MA: The Health Institute, New England Medical Center. Second Edition.

Ware, J., Snow, K., Kosinski, M., & Gandek, B. (1993). SF36 Health Survey: Manual and Interpretation Guide. *Lincoln, RI: Quality Metric, Inc,* Vol 30.

Ware, J. E., Kosinksi, M., & Keller, S. D. (1996). A 12-Item Short-Form Health Survey: Construction of Scales and Preliminary Tests of Reliability and Validity. *Medical Care, 34*(3), 220-233. Retrieved from https://journals.lww.com/lww-medicalcare/Fulltext/1996/03000/A_12_Item_Short_Form_Health_Survey__Construction.3.aspx

Wiest, M., Schüz, B., & Wurm, S. (2013). Life satisfaction and feeling in control: Indicators of successful aging predict mortality in old age. *Journal of Health Psychology, 18*(9), 1199-1208. doi:10.1177/1359105312459099

Wiles, J. L., Rolleston, A., Pillai, A., Broad, J., Teh, R., Gott, M., & Kerse, N. (2017). Attachment to place in advanced age: A study of the LiLACS NZ cohort. *Social Science & Medicine, 185*, 27-37. doi.org/10.1016/j.socscimed.2017.05.006

Wister, A. V. (1989). Environmental Adaptation by Persons in their Later Life. *Research on Aging, 11*(3), 267-291. doi:10.1177/0164027589113001

Wu, Y.-T., Prina, A. M., Barnes, L. E., Matthews, F. E., Brayne, C., & CFAS, M. (2015). Relocation at older age: results from the Cognitive Function and Ageing Study. *Journal of Public Health, 37*(3), 480-487. doi:10.1093/pubmed/fdv050

Yancura, L. A., & Aldwin, C. M. (2008). Coping and health in older adults. *Current Psychiatry Reports, 10*(1), 10-15. doi:10.1007/s11920-008-0004-7

Yang, H., Tng, G. Y. Q., Ng, W. Q., & Yang, S. (2021). Loneliness, Sense of Control, and Risk of Dementia in Healthy Older Adults: A Moderated Mediation Analysis. *Clinical Gerontologist, 44*(4), 392-405. doi:10.1080/07317115.2020.1799891

Yuan, K.-S., & Wu, T.-J. (2021). Environmental stressors and well-being on middle-aged and elderly people: the mediating role of outdoor leisure behaviour and place attachment. *Environmental Science and Pollution Research*. doi:10.1007/s11356-021-13244-7

Zahodne, L. B., Schupf, N., & Brickman, A. M. (2018). Control beliefs are associated with preserved memory function in the face of low hippocampal volume among diverse older adults. *Brain Imaging and Behavior, 12*(4), 1112-1120. doi:10.1007/s11682-017-9776-x

Zhai, L., Wang, J., Liu, Y., & Zhang, H. (2022). Involuntary Retirement and Depression Among Adults: A Systematic Review and Meta-Analysis of Longitudinal Studies. *Frontiers in Psychiatry, 13*. doi:10.3389/fpsyt.2022.747334

Zhan, Y., Wang, M., & Daniel, V. (2019). Chapter 25 - Lifespan Perspectives on the Work-to-Retirement Transition. In B. B. Baltes, C. W. Rudolph, & H. Zacher (Eds.), *Work Across the Lifespan* (pp. 581-604): Academic Press.

Zhang, Y., Van Dijk, T., Tang, J., & Berg, A. E. v. d. (2015). Green Space Attachment and Health: A Comparative Study in Two Urban Neighborhoods. *International Journal of Environmental Research and Public Health, 12*(11), 14342-14363. Retrieved from https://www.mdpi.com/1660-4601/12/11/14342

Zingmark, M., Björk, J., Granbom, M., Gefenaite, G., Nordeström, F., Schmidt, S. M., Rantanen, T., Slaug, B., & Iwarsson, S. (2021). Exploring Associations of Housing, Relocation, and Active and Healthy Aging in Sweden: Protocol for a Prospective Longitudinal Mixed Methods Study. *JMIR Research Protocols, 10*(9), e31137. doi:10.2196/31137

World Health Organization, web resource. Healthy ageing and functional ability (who.int). Accessed 2024-08-25.

Appendix 1 – Recruitment material for Studies I and II

Följande skrivning användes för rekrytering av deltagare och för studierna I och II, och var inkluderad i etikansökan. Personerna som svarade på fick tillgång till ytterligare information om forskningsprojektet och om vad deltagandet innebar.

> *Hej!*
>
> *Är du mellan 60–75 år, har upplevt en förändring i livet under de senaste fem åren, t.ex. att ha blivit pensionär, har flyttat, förlorat en partner, blivit diagnosticerad med en kronisk sjukdom, eller upplevt någon annan livsförändring? Då är du personen vi söker för denna studie!*
>
> *På Lunds universitet söker vi deltagare till en forskningsstudie om livsförändringars betydelse för upplevelsen av boende och hälsosamt åldrande.*
>
> *I Sverige finns en ambition att möjliggöra kvarboende för äldre i hemmet så länge som möjligt. Den forskning och den bostadspolitik som finns har i huvudsak fokuserat på fysiska aspekter av hemmet som tex tillgänglighet och på individens möjlighet till en fungerande vardag. Andra aspekter såsom den subjektiva upplevelsen av hemmet, hälsa och livskvalitet är mycket mindre studerat och när det kommer till hur livsförändringar påverkar dessa faktorer är kunskapsbehovet stort. Syftet med denna studie är därför att få kunskap om hur livsförändringar samspelar med upplevelsen av boendet och med ett hälsosamt åldrande, det vill säga hälsa, livskvalitet och delaktighet.*
>
> *Att delta i studien innebär att du kommer att bli intervjuad av mig eller någon av mina kollegor. Intervjuerna kommer att äga rum genom video-länk eller telefon för att följa Folkhälsomyndighetens rekommendationer*

gällande Covid-19. Under förutsättning att rekommendationerna ändras kan även möjligheten ges att hålla intervjun i person. I sådana fall kan intervjun antingen ske hemma hos dig, eller i Lunds universitets lokaler på Margaretavägen 1B, 222 40 Lund under hösten och vintern 2020-2021.

Om du är intresserad av att veta mer om projektet, och om hur intervjun kommer att gå till, kontakta mig på e-post erik.eriksson@med.lu.se eller ring till 046-222 19 83. Vi ser fram emot ditt deltagande!

Hälsningar,
Erik Eriksson, doktorand
Aktivt och Hälsosamt Åldrande
Lunds universitet

Ansvarig för projektet
Steven Schmidt, docent, vetenskaplig samordnare
E-post: steven.schmidt@med.lu.se
Telefon: 046-222 19 83

ENGLISH

The following text was used to advertise the study and was included as part of the ethics application. People who responded to this advertisement were granted access to additional information regarding the study and information about participating.

Hello!

Are you 60–75 years old, have experienced a life transition during the last 5 years, for instance becoming a pensioner, losing a partner, to be diagnosed with a chronic disease, or some other life changing transition? Then you are the person we are looking for in this study.

At Lund University we are looking for participants in a study of the importance of life transitions for the perception of one's housing and healthy ageing.

In Sweden there is an ambition to make ageing in the own home possible. Research and policy had focused on physical aspects of the home, as well as the physiological

and mental health of the individual. Other individual aspects, such as the perception of the home, social participation, and well-being is much less studied. What part life transitions play in relation to these aspects is currently unknown. The purpose of this study is to gain knowledge of how life transitions interact with the perception of the home, and with what we call aspects of healthy ageing, namely health, functioning, well-being, and social participation.

To participate in this study means that that you will be interviewed by me or a colleague of mine. The interviews will be conducted through video-link or by telephone to maintain the recommendations of social distancing set by the Swedish Public Health Agency during the Covid-19 pandemic. If the recommendations would be changed to allow for in person meetings, then the interview could be held at your home, or at Lund university at Margaretavägen 1B, 222 40 Lund. The interviews are planned to be held during autumn and winter 2020/2021.

If you are interested to know more about the study, and to learn more about the interview, contact me at email erik.eriksson@med.lu.se or call me on 046-222 19 83. I will then contact you to tell you more about the study and you will get an opportunity to ask any questions you might have.

Regards,
Erik Eriksson, PhD student
Active and Healthy Ageing
Lund University

Responsible for the project
Steven Schmidt, Docent, Scientific Coordinator
Email: steven.schmidt@med.lu.se
Telephone: 046-222 19 83

Appendix II – Interview guide for Studies I and II

HoT-Age kvalitativ intervjuguide, version 2020-11-10

SVENSKA

Innan intervjun
Gå igenom samtyckesformuläret innan intervjun med intervjupersonen. Läs sedan inledningen. Sedan börjar huvuddelen av intervjun. I slutet av intervjun, be intervjupersonen att lämna några viktiga socio-demografiska data. Be bara om dessa uppgifter om de inte redan har besvarats i intervjun eller är igenkännliga (t.ex. kön) - skriv i detta fall själv svaret.

Introduktion
I Sverige finns det en ambition att möjliggöra åldrande i hemmet. Forskning och politik har främst fokuserat på fysiska aspekter av hemmet (t.ex. tillgänglighet) och den boendes hälsa. Andra aspekter som exempelvis egna upplevelsen av hemmet, socialt liv, och livskvalitet är mycket mindre studerat. Vilken roll livsförändringar spelar i relationen till dessa aspekter är okänt. En livsförändring kan vara många olika typer av händelser som upplevs viktiga. Det kan exempelvis vara att du eller din partner bli pensionär eller att sluta arbeta, att flytta till ett annat boende, en förändring i familjesituation så som en förlust av en partner eller en ny relation, eller att få en kronisk sjukdom.

Syftet med denna studie är att ta reda på hur livsförändringar påverkar upplevelsen av ens hem, ens hälsa och livskvalitet, och ens sociala liv.

I den här intervjun är jag intresserad av din personliga åsikt och dina tankar, du berättar så mycket eller så lite som du vill. Det finns inga rätta eller fel svar, så känn dig fri att berätta allt du kan tänka på och ta den tid du vill. I den här typen av intervju är min roll i huvudsak att lyssna på dig och ta några anteckningar.

Huvuddel

Inledande frågeställning:

- Tänk tillbaka på de senaste åren, berätta om de förändringar i ditt liv som du har upplevt under denna tid, och berätta om hur de har påverkat ditt liv.

Särskilda frågor: Ställ bara dessa frågor om den intervjuade inte pratar om dem. Fråga om varje livsförändring enskilt.

Vardagsliv & socialt deltagande

- Kan du beskriva hur förändringen har påverkat din vardag? (exempel på vardagspåverkan är dagliga rutiner och hur mycket tid som spenderas i hemmet)
- Kan du beskriva hur en normal dag var för dig innan _____?
- Kan du beskriva hur en normal dag är för dig nu efter _____?
- Hur är en normal dag i ditt liv nu, jämfört med en normal dag i ditt liv före _____?
- Om du tänker framåt, ca 3 år från nu, hur tror du att ditt vardagsliv kommer se ut då?

- På vilka sätt har ditt sociala liv påverkats av _____? Till exempel, vilka väljer du att umgås med, och hur ofta?
- Kan du beskriva hur ditt sociala liv var för dig innan _____?
- Kan du beskriva hur ditt sociala liv är för dig idag?
- Om du jämför ditt sociala liv före och efter ____ hur tänker du då?
- Om du tänker framåt, ca 3 år från nu, hur tror du att ditt sociala liv kommer se ut då?

Uppfattning av hemmet och närområdet (t.ex. närmsta kvarteret, parker, offentliga platser)

- Vilka platser är särskilt viktiga för dig? (Fråga bara en gång)
- Om du jämför innan och efter _____, hur har sättet du använder ditt hem förändrats?
- Om du funderar kring ditt hem och där du bor, på vilket sätt har _____ påverkat dina tankar kring det? (exempel på tankar om hemmet är känsla av trygghet, identitet, ansvar, tillfredsställelse, och kontroll)

- Hur tänker du kring ditt boende i framtiden?
    - Hur har _____ påverkat dina tankar kring boende i framtiden?

- Om du funderar kring ditt närområde, på vilket sätt har _____ påverkat dina tankar kring det?
    - Hur har _____ påverkat dina tankar om ditt kvarter där du bor?
    - Hur har _____ påverkat dina tankar om de offentliga platser som finns i närheten av där du bor?
- Om du jämför innan och efter _____, på vilka sätt har dina aktiviteter i ditt närområde förändrats?
- Skulle du kunna beskriva vilka aktiviteter du brukade göra i ditt närområde innan ____?
- Kan du beskriva vilka aktiviteter du gör i ditt närområde idag?
- Om du jämför vilka aktiviteter du brukade göra före ___ och vilka du gör idag, hur tänker du då?

Hälsa & Livskvalitet

- Vad innebär hälsa och livskvalitet för dig? (Fråga bara en gång)
- På vilka sätt har _____ påverkat din hälsa?
- På vilka sätt har _____ påverkat din livskvalitet?
- Om du jämför din hälsa och livskvalitet före och efter ____ hur tänker du då?
- Vad tror du skulle vara viktigt för dig, så att du ska må bra i framtiden?

Förändra (räcker att fråga en gång, dvs. inte för varje livsförändring)

- Om du hade möjlighet att göra precis vad du ville med ditt hem, vad skulle du absolut vilja behålla eller ändra för att du ska kunna leva som du vill?
- Om du tänker på ditt närområde, vad är det som är viktigt för dig där?
    - Vilka platser är särskilt betydelsefulla för dig?
    - Om du kunde förändra vad du ville i ditt närområde, vad skulle du då förändra, och vad skulle du inte förändra?

Framtiden (räcker att fråga en gång, dvs. inte för varje livsförändring)

- Om du föreställer dig ditt liv om tre år, vad tänker du kommer vara viktigt för dig då?

Demografiska data

Slutligen vill vi samla in lite information om din livssituation. Denna information används endast för vår dokumentation och för att beskriva våra deltagare. Informationen kommer inte att vidarebefordras eller användas utanför denna studie. Jag vet att vi redan har talat om några av dessa punkter; vänligen svara på frågorna ändå så att jag kan se till att jag förstod allt korrekt.

1. Hur gammal är du?
2. Kön *(ska anges av intervjuaren, om den kan bedömas)*
3. I vilken region bor du?
4. Vilken utbildning har du?
5. I vilket land föddes du?
    - *(om inte född i Sverige)* Hur gammal var du när du kom till Sverige?
6. Vad är ditt civilstånd?
7. Hur bor du idag?
    - Hur länge har du bott i ditt nuvarande hem?
    - Hur många bor i ditt hem?
    - Vilka är det som du bor med?
8. I allmänhet, skulle du vilja säga att Din hälsa är:
   a. Utmärkt
   b. Mycket god
   c. God
   d. Någorlunda
   e. Dålig

Avslutning

Tack för att du tog dig tid att träffa mig och göra en intervju.

- Vi har redan pratat om olika saker i den här intervjun. Finns det några andra ämnen som du tycker att vi ännu inte har tagit upp och som du tycker är viktiga?
- Finns det något annat du vill betona eller lägga till?

- Har du några frågor till mig?

Efter intervjun

Ljudinspelningen kan stoppas härifrån. Tänk på följande två saker:

- *Snöbollsrekrytering: Fråga om personen känner till andra som också skulle vara intresserade av att delta i studien, och vid behov utbyt kontaktinformation/handhållet informationsmaterial.*
- *Fråga om vi kan få kontakta intervjupersonen via epost om vi skulle behöva klargöra något från intervjun. Om intervjupersonen är intresserad skulle vi kunna skicka en populärvetenskaplig sammanställning av studiens resultat.*
- *Om personen har uppvisat indikationer på depression, skadliga tankar, eller dylikt:*
    - *Fråga om person har någon kontakt med vårdcentral eller husläkare.*
    - *Fråga om personen skulle vilja ha information om olika stödlinjer:*
        - *Äldrelinjen: 020-22 22 33*
        - *Jourhavande medmänniska: 08-702 16 80*
        - *Jourhavande präst: 112, be att få tala med jourhavande präst.*
        - *Kyrkan SOS: 0771-800 650*
        - *Lifeline (kristen hjälptelefon): 010-498 10 10*
        - *Självmordslinjen: 901 01*

HoT Age Qualitative Interview Guide, version 2020-11-10

ENGLISH

Before the interview

Go through the consent form before the interview with the interviewee. Then read the introduction. Then the main part of the interview begins. At the end of the

interview, ask the interviewee to provide some important socio-demographic data. Only ask for this information if it has not already been answered in the interview or is recognizable (e.g. gender) - in this case write the answer yourself.

Introduction

In Sweden, there is an ambition to enable aging in the home. Research and policy making have mainly focused on physical aspects of the home (e.g. accessibility) and the health of the resident. Other aspects such as one's own experience of the home, social life, and quality of life are much less studied. The role of a life transition in relation to these aspects is unknown. A life transition can be many different types of events that are perceived as important. This could be, for example, becoming a pensioner or quitting work, moving to another residence, a change in the family situation such as loss of a partner or a new relationship, or being diagnosed with a chronic illness.

The purpose of this study is to find out how life changes affect the experience of one's home, one's health and quality of life, and one's social life.

In this interview, I am interested in your personal opinion and your thoughts. There is no right or wrong answer, so feel free to talk about everything you can think of and take the time you want. In this type of interview, my role is mainly to listen to you and make some notes.

Main part

Introductory question:

- Think back on the past years, tell me about the life transitions that you have experienced during this time, and tell me about how they have affected your life.

Questions on specific subjects: Only ask these questions if the interviewee does not talk about them. Ask about each life change individually.

Everyday life & social participation

- Can you describe how the change has affected your everyday life? (examples of everyday impact are daily routines and how much time is spent at home)
- Could you describe how a normal day was before _____?
- Could you describe how a normal day is after _____?
- How is a normal day in your life now, compared to a normal day in your life before _____ happened?
- If you are thinking about your future, about three years from now, how do you think your daily life will be then?

- In what ways has your social life been affected by _____? For example, who you choose to hang out with, and how often?
- Could you describe how your social life was before _____?
- Could you describe how your social life is today?
- If you are thinking about the future, about three years from now, how do you think your social life will be then?

Perception of home and neighbourhood

- Which places are particularly important to you? (Ask only once)
- If you compare before and after _____, how has the way you use your home changed?
- If you are thinking about your home and where you live, in what way has _____ influenced your thoughts about it? (examples of thoughts about a home is a sense of safety, identity, responsibility, satisfaction, and control)
- How do you think about your housing in the future?
    - How has _____ affected your thoughts about housing in the future?

- If you are thinking about your neighbourhood, in what way has _____ influenced your thoughts about it?
    - How has _____ affected your thoughts about your block/area where you live?
    - How has _____ affected your thoughts about the public places near where you live?
- If you compare before and after _____, in what ways have your activities in your neighbourhood changed?

- Could you describe which activities you used to do in your neighbourhood before _____?
- Can you describe which activities you do in your neighbourhood today?
- If you compare the activities you used to do before _____ and the activities you do today, what comes to mind?

Health & Quality of Life

- What does health and quality of life mean to you today? (Ask only once)
- In what ways has _____ affected your health?
- In what ways has _____ affected your quality of life?
- If you compare your health and quality of life before and after ____ how do you think then?
- What do you think would be important for you to feel good in the future?

Change (enough to ask these questions once, i.e. not for each life transition)

- If you had the opportunity to do exactly what you wanted with your home, what would you absolutely want to keep or change so that you can live the way you want?
- If you think about your neighbourhood, what is important for you there?
    - Which places are especially important for you?
    - If you had the possibility to change what you wanted in your neighbourhood, what would change, and what would you not change?

The Future (enough to ask this once, i.e. not for each life transition)

- If you picture your life in three years, what do you think would be important for you then?

Demographic data

Finally, we want to gather some information about your life situation. This information is used only for our documentation and to describe our participants. The information will not be passed on or used outside of this study. I know we have already talked about some of these points; please answer the questions anyway so that I can make sure I understood everything correctly.

1. How old are you?
2. Gender (*to be stated by the interviewer, if it can be assessed*)
3. In what region do you live?
4. What education do you have?
5. In what country were you born?
    a. (*if not born in Sweden*) How old were you when you came to Sweden?
6. What is your marital status?
7. How do you live today?
    a. How long have you lived in your current home?
    b. How many people live in your home?
    c. Who do you live with?
8. In general, would you say that your health is:
    a. Excellent
    b. Very good
    c. Good
    d. Fair
    e. Poor

Ending the interview

Thank you for taking the time to meet me and do an interview.

- We have already talked about different things in this interview. Are there any other topics that you think we have not yet addressed and that you think are important?
- Is there anything else you want to emphasize or add?
- Do you have any questions for me?

After the interview

The audio recording can be stopped from here. Consider the following:

- *Snowball recruitment: Ask if the person knows others who would also be interested in participating in the study, and if necessary, exchange contact information / handheld information material.*
- *Ask if we can contact the interviewee via email if we need to clarify anything from the interview. If the interviewee is interested, we could send a popular science summary of the study results.*

- *If the person has shown indications of depression, harmful thoughts, or similar:*
    - *Ask whether they have had any contact with a health center or a family doctor.*
    - *Ask whether they would like to have information on different helplines:*
        - *Elderly line: 020-22 22 33*
        - *Fellow on call: 08-702 16 80*
        - *On-call priest: 112, ask to speak to the on-call priest*
        - *SOS Church: 0771-800 650*
        - *Lifeline (a Christian helpline): 010-498 10 10*
        - *Suicide line: 901 01*

Printed by Media-Tryck, Lund 2024 NORDIC SWAN ECOLABEL 3041 0903

LUND UNIVERSITY

FACULTY OF MEDICINE

Department of Health Sciences

Lund University, Faculty of Medicine
Doctoral Dissertation Series 2024:151
ISBN 978-91-8021-648-7
ISSN 1652-8220