



UMEÅ UNIVERSITY

Exploring resident thriving in Swedish nursing homes

The Umeå ageing and health research
programme (U-Age) Thesis I

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Dedicated to the bright memory of Vera and Hildegard

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Abstract

Background

The population living in nursing homes is generally characterized by high age and female sex, as well as by physical and cognitive impairments. Also, negative symptoms such as pain and neuropsychiatric symptoms are reportedly common. Care in Swedish nursing homes is regulated by law and national guidelines implying that care is to be tailored to resident preferences and needs in order to facilitate their well-being. However, there is no national data source on the characteristics of nursing home residents or on measures of their well-being. Thriving and not merely surviving in nursing homes has been described as a subjective experience of place-related well-being resulting from interaction between residents and the nursing home environment in terms of the quality of care and caregivers, as well as from the physical and psychosocial environment. However, there is a gap in knowledge of whether and, if so, to what extent resident characteristics and factors in the nursing home environment are associated with resident thriving in nursing homes.

Aim

The overall aim of this thesis is to explore resident thriving in Swedish nursing homes, and the extent to which resident characteristics, neuropsychiatric symptoms, activities, and environmental factors are associated with resident thriving.

Methods

This thesis is based on cross-sectional baseline data from a national inventory of health and care in Swedish nursing homes collected in 2013–2014. The resident sample covered 4831 residents in 548 units from 172 nursing homes in 35 Swedish municipalities. The data were explored using descriptive statistics, as well as simple and multiple linear regression analyses and multilevel linear regression analyses. Resident characteristics and symptom prevalence as well as their associations with thriving; and engagement in everyday activities and their associations with thriving were explored in a sample comprising 4831 nursing home residents from 172 nursing homes. Associations between resident thriving and resident living conditions, nursing home facility and unit characteristics, and the psychosocial climate of units were explored in a sample comprising 4205 residents from 147 nursing homes.

Results

Engagement in everyday activities was positively associated with resident thriving, the strongest associations being found for engagement in an activity programme, dressing nicely, and spending time with someone the resident likes.

Environmental factors associated with thriving were a positive psychosocial climate at the unit, having access to newspapers, residing in a special care unit, and residing in a facility that was unlocked during the day. Cognitive functioning was strongly associated with resident thriving. Aggressive and depressive symptoms were found to be negatively associated with resident thriving regardless of levels of cognitive functioning.

Conclusions

Engagement in everyday activities can support thriving and can be conceptualized and implemented as nursing interventions to facilitate thriving in nursing homes. Factors in the nursing home environment can support resident thriving; in particular, the psychosocial climate of units seems to have a great influence. Aggressive and depressive symptoms were associated with lower levels of thriving. Targeting these symptoms would therefore seem to be a priority in nursing homes. The population living in Swedish nursing homes has a high prevalence of neuropsychiatric symptoms and cognitive impairment. Residents with cognitive impairment also commonly resided in general units. As all data were cross-sectional, longitudinal studies would be valuable to further explore causality. As resident data were based on proxy ratings, future research exploring residents' perspectives on thriving would be valuable. The present findings contribute to our understanding of nursing home residents' complex care needs and identify factors that could have an impact on their well-being. These findings can provide benchmark estimates for further research, quality assessment activities, as well as further clinical development work.

Key words

Thriving, everyday activities, environment, cognitive impairment, neuropsychiatric symptoms, nursing homes, nursing.

Abbreviations

ADLs	Activities of Daily Living
MMSE	Mini Mental State Examination
NPI-NH	Neuropsychiatric Inventory – Nursing Home Version
PAINAD	Pain Assessment in Advanced Dementia
PCQ-S	Person-Centred Climate Questionnaire – Staff Version
QoL	Quality of Life
SCU	Special care unit for people with dementia
SNAC	Swedish National Study on Aging and Care
SWENIS	Swedish National Inventory of Health and Care in Nursing Homes
TOPAS	Thriving of Older People Assessment Scale
U-Age	Umeå Ageing and Health Research Program

Svensk sammanfattning

Populationen som bor i särskilda boenden kännetecknas allmänt av hög ålder, förekomst av fysiska och kognitiva funktionsnedsättningar och majoriteten är kvinnor. Smärta och neuropsykiatriska symtom har också rapporterats vara vanliga. Vård och omsorg i svenska särskilda boenden regleras av lag och nationella riktlinjer som gör gällande att äldre personer har rätt till en aktiv och meningsfull tillvaro tillsammans med andra och det bör vara möjligt för äldre människor att leva självständigt och under trygga förhållanden. Den vård och omsorg som ges bör vara personcentrerad och därigenom anpassad till de äldre personernas behov för att underlätta deras välbefinnande. Dock saknas det nationell data om de äldre personernas fysiska och kognitiva förmåga. Det är även okänt i vilken grad personer i svenska särskilda boenden för äldre deltar i vardagliga aktiviteter. Att trivas i särskilda boenden har beskrivits som ett resultat av en optimal interaktion mellan personen själv och kvaliteter i miljön så som omsorgen och personalens kvalitet samt fysisk- och psykosocial miljö. Det finns emellertid en kunskapslucka när det gäller om, samt i vilken utsträckning personernas egen karaktäristika, deltagande i vardagliga aktiviteter och enskilda faktorer i boendemiljön är associerade med deras trivsel. Denna avhandling undersöker faktorer av betydelse för trivsel i svenska särskilda boenden för äldre med fokus på karaktäristika, deltagande i aktiviteter samt faktorer i den fysiska och psykosociala miljön.

Avhandlingens fyra delstudier baseras på tvärsnittsdata från enkätundersökningen Svensk nationell inventering av vård och hälsa inom särskilda boenden (SWENIS) som genomfördes 2013 – 2014 i 172 särskilda boenden i 35 kommuner. Insamlade data omfattar uppgifter om de äldre, personalen samt boendet. I de tre första delstudierna (I-III) användes ett urval som omfattade 4831 äldre. Proxyskattningar av de äldre personernas trivsel, karaktäristika (ålder, kön, kognitiv förmåga, ADL förmåga), samt förekomst av symtom (smärta och neuropsykiatriska symptom) och skattningar av deltagande i vardagliga aktiviteter utfördes av personalen. I delstudie IV användes ett matchat dataset innehållande proxyskattningar av de äldre personernas trivsel och karaktäristika ($n=4205$); personalens självskattningar av psykosociala klimatet på avdelningen ($n=3509$); samt karaktäristika på 147 särskilda boenden. Datat analyserades med beskrivande statistik, enkla och multipla linjära regressionsanalyser och flernivåmodeller.

Huvudresultatet visade att ett deltagande i vardagliga aktiviteter var positivt associerat med trivsel. Deltagande i ett aktivitetsprogram, att klä sig fint samt att spendera tid med någon som personen tycker om uppvisade de starkaste associationerna med trivsel. De faktorer i boendemiljön som var positivt associerade med de äldre personernas trivsel var ett positivt psykosocialt klimat på avdelningen, tillgång till dagstidningar, att bo på demensenhet samt att bo på ett särskilt boende där entrédörren var upplåst under dagtid. Aggressiva och depressiva symptom visade sig vara negativt associerade med trivsel oavsett grad av kognitiv funktion. Vidare var den kognitiva förmågan var starkt associerad med personernas trivsel. Resultatet visade också att de som bor i svenska särskilda boenden för äldre har en hög förekomst av neuropsykiatriska symptom och kognitiv svikt. Personer med kognitiv svikt bodde också i hög utsträckning på vanliga avdelningar.

Sammantaget visar avhandlingen att deltagande i vardagliga aktiviteter kan stödja trivsel. Vardagliga aktiviteter skulle därmed kunna användas som omvårdnadsåtgärder i syfte att främja trivsel i särskilda boenden. Även faktorer i det särskilda boendets miljö kan stödja personernas trivsel, varav det psykosociala klimatet på avdelningen verkar kunna ha ett stort inflytande. Aggressiva och depressiva symptom kan indikera lägre nivåer av trivsel. Att inrikta omvårdnaden på att förebygga och lindra dessa symptom borde därmed prioriteras. Fortsatta studier, i synnerhet longitudinella kvalitativa och kvantitativa studier för att avgöra vilka faktorer som är relaterade till en förändring av trivsel skulle vara värdefulla. Intervjustudier där äldre personer med kognitiv svikt får ge sin syn på faktorer av betydelse för trivsel i särskilda boenden skulle vara värdefullt.

Resultaten i denna avhandling bidrar med en ökad förståelse för de komplexa omvårdnadsbehov som personer i särskilda boenden för äldre har, samt om faktorer som har betydelse för deras trivsel. Avhandlingen tillhandahåller även riktvärden som skulle kunna användas vid ytterligare forskning, kvalitetsbedömning samt vid kliniskt utvecklingsarbete.

Nyckelord

Trivsel, vardagliga aktiviteter, miljö, kognitiv svikt, neuropsykiatriska symptom, särskilda boenden, omvårdnad

Original papers

This thesis is based on the following four papers, which will be cited in the text by their Roman numerals:

- I. Björk, S., Juthberg, C., Lindkvist, M., Wimo, A., Sandman, P. O., Winblad, B., & Edvardsson, D. (2016). Exploring the prevalence and variance of cognitive impairment, pain, neuropsychiatric symptoms and ADL dependency among persons living in nursing homes; a cross-sectional study. *BMC Geriatrics*, 16(1), 154. doi: 10.1186/s12877-016-0328-9
- II. Björk, S., Lövheim, H., Lindkvist, M., Wimo, A., & Edvardsson, D. (2017). Thriving in relation to cognitive impairment and neuropsychiatric symptoms in Swedish nursing home residents. *International Journal of Geriatric Psychiatry*. doi: 10.1002/gps.4714 [Epub ahead of print]
- III. Björk, S., Lindkvist, M., Wimo, A., Juthberg, C., Bergland, Å., & Edvardsson, D. (2017). Residents' engagement in everyday activities and its association with thriving in nursing homes. *Journal of Advanced Nursing*, 73(8), 1884–1895. doi: 10.1111/jan.13275
- IV. Björk, S., Lindkvist, M., Lövheim, H., Bergland, Å., Wimo, A., & Edvardsson, D. Exploring resident thriving in relation to the nursing home environment [Submitted]

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Introduction

This thesis is part of the Umeå Ageing and Health Research Program (U-Age) Swedish National Inventory of Health and Care in Nursing Homes (SWENIS). The purpose of the U-Age research programme is to explore person-centred care and health-promoting living conditions for an ageing population. U-Age is designed to provide experimental, cross-sectional, and longitudinal data on different types of housing models and person-centred care interventions. U-Age consists of four research projects, i.e., U-Age Home Care, U-Age TryBo, U-Age Nursing Home, and U-Age SWENIS, employing controlled, cross-sectional, and longitudinal designs across ageing in place, sheltered housing, and nursing homes. U-Age SWENIS, of which this PhD project is part, is intended to initiate longitudinal monitoring of care and health in Swedish nursing homes.

An increasing number of people is ageing, so the proportion of older people in the population is also increasing. This challenges care providers to supply high-quality nursing home care while achieving cost effectiveness. Studies of residents in nursing homes have traditionally often had a deficit orientation, focusing on functional decline, neuropsychiatric symptoms, malnutrition, anxiety, and/or depression. However, the absence of such negative conditions does not necessarily result in the nursing home resident experiencing well-being. This thesis accordingly focuses on a positive outcome, namely, the thriving of nursing home residents. This thesis continues previous research conducted by members of the U-Age research group and colleagues at the Department of Nursing at Umeå University, examining factors of importance to staff and residents in nursing homes and to their care and well-being. This previous research includes studies of person-centred care, psychosocial care climate, engagement in meaningful activities, and “at-homeness”. However, this research has been predominantly qualitative and the few quantitative studies conducted are limited in their sample size and sampling procedure. This is why the methods used in this thesis are quantitative, exploring the relationships among variables related to resident health and thriving in a national randomized sample. The basis of this thesis consists of four papers that explore thriving in relation to resident characteristics, engagement in activities, and nursing home environment.

Swedish care facilities for older people are formally called “special housing for older people” (Swedish: *Särskilda boenden för äldre*). In this thesis and its constituent papers, I have used the internationally established term “nursing homes”. This decision was based on results of the IAGG and AMDA surveys establishing an international consensus on the definition of nursing home: “A nursing home is a facility with a domestic-styled environment that provides 24-hour functional support and care for persons who require assistance with ADLs

[activities of daily living] and who often have complex health needs and increased vulnerability. Residency within a nursing home may be relatively brief for respite purposes, short term (rehabilitative), or long term, and may also provide palliative/hospice and end-of-life care. In general, most nursing homes also provide some degree of support from health professionals” (Sanford et al. 2015, pp. 183–184). Consequently, other papers and theses based on the U-Age SWENIS data may use other definitions.

Background

Thriving in nursing homes

The main concept addressed here is thriving, which has been explored in various disciplines, though mainly in paediatrics, gerontology, psychology, and management. In gerontology, thriving has been described as a continuum and the emphasis is on human growth and development as resulting from optimal interactions between the person and the environment in different life stages. How people perceive, assess, and manage their situations also affects their thriving (Haight et al. 2002). The concept of thriving as presented by Bergland et al. (2006, 2014) and by Bundick et al. (2010) refers to experiences of well-being in relation to the place in which a person lives, emerging from a well-adjusted interaction between the person and the environment (Bergland and Kirkevold 2006; Bundick et al. 2010; Bergland et al. 2014).

The word “thriving” (Swedish: *trivsel*) is frequently and commonly used in the Scandinavian languages. The word refers to feelings of joy and satisfaction, especially regarding one’s living conditions. Thriving can be used both in terms of thriving with ones living and as a state of development but then mostly in the case of plants and living creatures as an expression for a favourable growth (Svenska Akademien 1893-). Thriving as used in daily conversations generally refers to a place-related description of a person’s level of well-being in relation to the extent to which the person has settled into or enjoys being in a specific place.

The thriving examined here is the place-related well-being described by Bergland and Kirkevold (2006). Their concept of thriving in nursing homes was developed from an extensive qualitative study in Norway involving mentally lucid residents’ experiences of nursing home life (Bergland and Kirkevold 2006). These authors described thriving as a subjective experience of well-being resulting from well-adapted interaction between the resident and particular qualities of the nursing home environment, such as quality of care, staff, and the physical and psychosocial environment (Bergland and Kirkevold 2006; Bergland et al. 2014). Bergland and Kirkevold (2006) described thriving in nursing homes as comprising two core dimensions, i.e., *resident attitude* and *quality of care and caregivers*, and five additional aspects, i.e., *engagement in meaningful activities*, *relationships with family and friends*, *positive relationships with other residents*, *opportunities to go outside*, and *qualities in the physical environment*. These five additional aspects did not contribute to thriving if the core dimensions were absent.

The core dimension that contributed the most to an experience of thriving was the resident's *attitude towards living in the nursing home*. Thriving was described as impossible without the resident's decision to thrive and make the most of the situation. The second core dimension was *quality of care and caregivers*. Depending on whether or not the quality of care and staff were satisfactory according to the resident's preferences and needs, the quality of care and caregivers was described as supporting or undermining the resident's own efforts to thrive. In this manner, the dimension was described to have an impact on the resident's attitude towards living in the nursing home. Consequently, thriving was described as a dynamic process rather than a condition and may also change with time (Bergland and Kirkevold 2006). Striving for resident thriving in nursing homes signifies that in everyday care, nursing homes should include pleasant experiences for their residents, instead of merely focusing on residents' medical conditions and/or on relieving unpleasant symptoms.

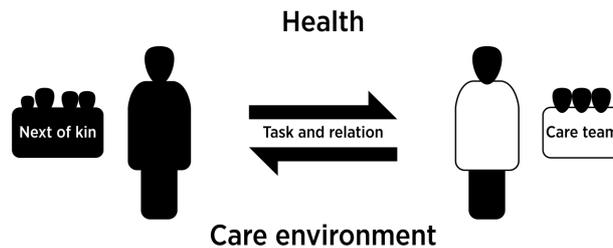
Thriving emphasizes the residents' feelings of well-being in relation to the place where they live and the extent to which they have settled into the nursing home (Bergland and Kirkevold 2006; Bergland et al. 2014). This distinct focus on well-being in relation to place and adjustment to the institutional context is also what distinguishes thriving from the more extensively used concept of quality of life (QoL), which also has a focus on subjective well-being (Bergland et al. 2014, 2015). Several international studies have examined factors related to QoL in nursing home residents, yet very few have considered resident thriving in nursing homes. The Thriving of Older People Assessment Scale (TOPAS) is an instrument developed to measure thriving in nursing homes, covering each dimension of the concept with a subscale. TOPAS is theoretically situated in the nursing research life-world tradition, providing a life-world-based measurement of well-being in relation to living in an institutional environment (Bergland et al. 2014). Because nursing home residents cannot always assess or express their own thriving, someone else needs to estimate resident thriving in TOPAS, which has accordingly been tested for proxy ratings. These test results indicate satisfactory inter-rater reliability between self and proxy ratings (Bergland et al. 2014, 2015). Besides these scale development studies, only one study using TOPAS had been published (Patomella et al. 2016) before the work presented in this thesis. Although Patomella et al. (2016) obtained novel and interesting results, their study sample was small ($n = 191$), being limited to one nursing home and having a very high prevalence of cognitive impairment (80%). Consequently, additional studies using larger samples are needed for further exploration of factors associated with thriving. Patomella et al. (2016) also stressed that such larger-sample studies are warranted using other statistical methods, as the statistical method they used (i.e., dividing the sample by a median split and comparing the two groups) did not enable estimates of each individual variable's relationship with thriving.

Theoretical framework

A model of nursing (Figure 1) has been developed at the Department of Nursing, Umeå University. The model can be seen as modelling important aspects influencing nursing from the societal to individual levels, i.e., health, society, organization, care philosophy, ethics, tasks and relationships, person in need of care, next of kin, care environment, caregiver, and care team. These aspects constitute a whole by being closely related to one another although positioned at different levels. The model has the interaction between the person in need of care and the caregiver at its core. This interaction incorporates a task as well as a relationship component. The task component encompasses the nursing tasks conducted, whereas the relationship component encompasses the relationships established between care provider and receiver. These two task and relationship components are integrated to form a whole: they are inseparable as they are each other's preconditions, occur simultaneously, and have situational importance for nursing (Norberg et al. 1992; Department of Nursing 2015). Consequently, nursing consists of both a task and a relationship dimension.

The goal of nursing is to promote health through preventing and managing illness, striving to improve and re-establish health, preventing illness and disease, reducing suffering, comforting, and/or creating conditions for a dignified death. In the model, health is described in relation to goals and capacity. A balance between capacity and goals can facilitate health, and illness experiences may emerge if there is an imbalance. All nursing care takes place in particular contexts and is influenced by various factors, and the model suggests that there is a connection between capacity, goals, and the environment. Nursing is also located within and influenced by its surrounding environment. The care environment is constituted by the physical and psychosocial aspects of the environment, which are intertwined to form a whole. The care environment can influence health through influencing behaviours, interactions, and emotions and is thereby significant for nursing content, quality, and safety. Nevertheless, nursing is also situated within a larger context in which societal values and political governance influence care philosophy and ethics. This is also important for nursing, as it shapes nursing preconditions and organization as well as the orientation of care (Norberg et al. 1992; Department of Nursing 2015).

Care philosophy and ethics



Society and organization

Figure 1. The Umeå Model of Nursing.

The remainder of this background presentation touches on the various elements of the Umeå Model of Nursing. The next section presents population challenges. A short review of the structures and content of Swedish nursing homes follows, including the main organizational changes that have led to the current nursing home care and care environments. An account of person-centred care and of the staff caring for residents in nursing homes is then presented, before shifting attention to the main interest in this thesis the nursing home residents and their lives in nursing homes.

Population challenges

According to the United Nations (2015), the world population is rapidly ageing. Twelve per cent (901 million people) of the global population were aged 60 years and over in 2015, and that proportion is growing by 3.26% per annum. Compared with the rest of the world, Europe has proportionally the largest old population, with 24% of its population being aged 60 years and over. The rapid increase in the ageing population is not just a European but rather a global phenomenon and is expected to continue and accelerate globally in coming decades. By 2030, 1.4 billion people are projected to be aged 60 years and over; the number is expected to reach 2.1 billion people by 2050 and up to 3.2 billion by 2100 (United Nations 2015). As health-care and welfare systems often greatly rely on taxes from the working population, an ageing population poses dual challenges to the system: increased health-care needs of an ageing population accompanied by a shrinking working population funding health-care systems by paying taxes. This will mean great challenges in providing care for older people, as the number of workers per

retiree decreases (United Nations 2015). Though aging is not a disease as such, for most people it not only entails a need for help in coping with everyday life, but also leads to more or less serious health problems. Internationally, nursing homes are increasingly accommodating an increasingly frail population (Katz 2011). This rapidly increasing population with chronic disabling conditions could require long-term support, and it is crucial to understand the health and social care needs of these people.

The Swedish health-care system, including care for older people, is facing a demographic increase in health and care needs coupled with retirements among existing staff. The demographic trend of an increasing proportion and number of aged people in the population is similar to what is happening in other countries (United Nations 2015). In 2013, 19.4% of the total Swedish population was aged 65 years and older and that proportion is increasing, likely reaching approximately 23% by 2030. There is also expected to be an increase in the proportion of people aged 80 years and older from 5.3% in 2013 to 7.5% in 2030 (NBHW 2014a, 2015b). Despite this demographic trend of an increasing number of old people in the Swedish population, there was a decrease in the number of nursing home beds by approximately 25% (29,500 beds) from 2000 to 2012 (NBHW 2014a). As the opportunities for older people to live in nursing homes have become more limited, the trend now is for more people to get homecare help in their regular housing (NBHW 2017b). As a result, nursing home residents could be more frail when admitted to nursing homes, and the government institution inspection for care has questioned whether older people's needs are being adequately met when deciding on nursing home placement (IVO 2015).

Structures and content of Swedish nursing homes

Sweden has a long tradition of tax-financed publicly provided care services for older people, provided on a universal basis. The responsibility for aged care has been divided between the central and local governments since the 1940s. The state is responsible for legislating standards and for providing financial grants to local municipalities. All care of older people in Sweden is a public service, mainly regulated by the Social Services Act introduced in 1982 (SFS2001:453). Since 1992, municipalities have been responsible for providing care for older people (SALAR 2011; Davey et al. 2014). The Swedish Social Services Act (SFS2001:453) states that older people should have an active and meaningful existence in community with others and that it should be possible for them to live independently and in safe conditions. Both the Social Services Act and the Health Care Act control the operation of care for older people in nursing homes (SALAR 2011; Davey et al. 2014). However, everyday care is mostly led by managers with a background in social work, and in particularly governed by the Social Services Act (Backman et al. 2016).

Swedish nursing homes are defined as individual means-tested accommodations provided by municipalities for persons in of need full-time special support (NBHW and SALAR 2015). Annually, approximately 20,000–25,000 people move into nursing homes (NBHW 2016b), and as of November 2016, 82,798 people were living permanently in them (NBHWc). These residents need extensive help to manage their daily living because of age, illness, disability, and/or anxiety (NBHW and SALAR 2015). The concept of group living was introduced in the 1980s to make institutional care for residents with dementia more homelike (Wimo et al. 1991). Nowadays, nursing home residents have their own contracts for their residences, their own furniture, and personal clothing. According to Swedish building regulations, nursing homes should provide a homelike environment and private rooms or apartments (SFS 2007:159). The National Board of Health and Welfare requires private rooms or apartments for residents with their own furniture and personal belongings, as well as offering nursing home residents the opportunity to go outdoors (NBHW 2010). In addition, the right to continue to live with one's partner is granted by Swedish social and rental law if the spouses, cohabitants, or registered partners are granted accommodation in a nursing home. This right is valid in any kind of nursing home, under the Social Services Act Chapter 4. 1c § (SFS 2001:453), and in SCUs (NBHW & NBHBP 2013).

Organizational changes

The organization of Swedish care of older people underwent a fundamental change with the implementation of the Elderly Reform Act (*Ädelreformen*), which came into force in 1992. In this reorganization, the overall responsibility for social services and care for older people was transferred from the county councils to the municipalities, meaning that older people should not have to move as their need for help increases; rather, assistance should come to them (Larsson and Szebehely 2006; SALAR 2011). The term “nursing home” (*sjukhem*) was replaced with “special housing” (*särskilt boende*). As well as making the municipalities the principal providers of all types of special housing for service and care, the Reform also brought about a substantial expansion and raised the standard of the country's housing for older people. From 1992 to 1996, the government spent extensive money on grants for the construction and renovation of group homes and other alternative housing, resulting in a net addition of 20,000 new housing units for older people (SALAR 2011). One intention of the Reform was to put an end to the institutional atmosphere (Alaby 1992). Small homelike apartments were built and shared common areas were made available (i.e., dining rooms, living rooms, and kitchens). Since then, the residents have usually only been provided with beds, and equip the rest of their apartments themselves according to their preferences. The Reform also involved economic changes, since the residents were given responsibility for the costs of their

apartments, food, and care, and would no longer be considered patients but rather residents. Resident participation, respect for autonomy and integrity, and preservation of dignity were key concepts of the Reform. Staff were encouraged to focus on what the older persons could do rather than on their disabilities and diseases (Alaby 1992; Engström 2001; SALAR 2011). After the Reform, special housing increasingly became accommodations for older persons with extensive needs for full-time supervision, personal care, and medical care. Many residents of such housing had some kind of dementia disease. Older persons who did not need such intense care could remain ageing in place in their own homes (SALAR 2011).

Since 1992, the aged care sector has been influenced by new public management. The idea of new public management concept was in the ascendancy but became possible with the introduction of the new Local Government Act (1991:900) that allowed municipalities to delegate care tasks and the right to inspect care to private providers, and an amendment later the same year, regarding Enhanced Competition in Municipal Operations (Government Bill 1992/93:43), clarified that the municipalities could outsource services to both for-profit companies and non-profit organizations (Erlandsson et al. 2013). The Public Procurement Act, also introduced in 1992 (SFS 1992:1528), introduced detailed rules for public procurement. With the introduction of the Act on System of Choice in the Public Sector (SFS 2008:962), which came into force in 2009, the person eligible for nursing home care or in-home care could, in a system of choice, choose their care provider from a list of approved providers (Erlandsson et al. 2013). Together, these two pieces of legislation have resulted in an increase in the number of private health-care providers. Before the beginning of the 1990s, nearly all aged care was provided by the public sector, but in the following decade the proportion of nursing home beds provided by the private sector quickly increased from 5% (1983) to 21% (1992) (Erlandsson et al. 2013). However, according to the latest available statistics from the National Board of Health and Welfare, the proportion of nursing home residents living in privately managed facilities has since remained relatively unchanged: around 20-21% (NBHW 2015a, 2016a, 2017a).

On January 1, 2013, the National Board of Health and Welfare under the Social Services Act introduced national core values stating that Swedish aged care should be targeted so that nursing home residents can live in dignity and experience well-being. Based on these national core values, municipalities define their own local dignity guarantees. The purpose of these national core values and the local dignity guarantees is to clarify how aged care is working to facilitate residents' the opportunity to self-determination, participation, secure individual privacy, and good care.

The guarantees can also include explanations about the older person's senses of security and meaning. Several municipalities have established dignity guarantees specifying the right to activities that are individualized and meaningful.

Caring for residents in nursing homes and special care units

In western nations during the 1980s and 1990s, there was a paradigm shift in ageing research from a focus on functional decline and illness towards a positive view of ageing (Fernández-Ballesteros 2008). New care models have been based on these views, emphasizing active and successful ageing and acknowledging that nursing homes can positively affect residents' lives. Studies have found that modern nursing home care that involves health-promoting care as well as providing everyday activities can facilitate resident health, quality of life, and well-being and support experiences of a good life for its residents (Zingmark et al. 2002; Bergland and Kirkevold 2006; Cooney et al. 2009). Nursing homes can therefore be places where residents thrive, not just survive (Bergland and Kirkevold 2006). Nursing home staff have described their work as meaningful and stimulating but also in negative terms such as mentally and emotionally demanding and burdensome (Ericson-Lidman et al. 2014). Caring for residents with dementia in special care units has been reported to be a demanding and sensitive task (Edvardsson et al. 2009b; Edberg and Edfors 2008). Neuropsychiatric symptoms in residents have been described as among the factors negatively influencing the job satisfaction and burnout of nursing home staff (Miyamoto et al. 2010; Schmidt et al. 2012; Song and Oh 2015).

Person-centred care

Person-centred care is recognized as part of modern aged care (Edvardsson et al. 2008; NBHW 2010, 2014b) and has been described as synonymous with good-quality care (McCormack 2004; Edvardsson et al. 2008). Since 2010, person-centred care has been promoted in Swedish national guidelines for the care of people with dementia (NBHW 2010). The concept of person-centred care has grown into a global theme, being a care philosophy based on humanistic and holistic ideals (McCormack 2004; McCormack and McCance 2006). The foundation of person-centred care is to preserve personhood regardless of the cared-for person's disability or disease (Kitwood 1997; Brooker 2004). Care actions must take their starting point in the person's own experience of disability or disease. The person is involved in planning his or her care, and the care actions taken are based on the person's prerequisites, resources, and obstacles. Throughout this process, the person is met as an equal partner (Nolan et al. 2004; Ekman et al. 2011; Barry and Edgman-Levitan 2012). In the context of a nursing home, the following components have been described as central to person-centred care: considering the personhood of residents with cognitive impairment as never lost but as increasingly concealed; granting residents personhood in all

aspects of care; offering shared decision making; personalizing the residents' care and environment; interpreting residents' behaviour from their viewpoint; and valuing and prioritizing relationships to the same extent as care tasks (Edvardsson et al. 2008). In such an approach, the resident is seen as a whole person with her individual background, intrinsic properties, and hopes. Person-centred care has been linked to decreased stress and increased job satisfaction for staff (McCormack et al. 2010; Pol-Grevelink et al. 2012; Edvardsson et al. 2014b) and seems positively associated with resident QoL (Sjögren et al. 2013).

Characteristics of nursing home populations

Studies have reported residents in nursing homes to be predominantly female with a mean age of >80 years (Abrahamson et al. 2012; Onder et al. 2012; Stange et al. 2013). Physical and cognitive impairments are two of the factors most associated with nursing home admission (Wang et al. 2013).

Cognitive impairment

Studies in nursing homes and similar care settings have demonstrated that cognitive impairment is common among residents (Selbæk et al. 2007; Onder et al. 2012; Centers for Medicare and Medicaid Services 2013; Stange et al. 2013; Gordon et al. 2014; Gustafsson et al. 2015). Cognitive impairment can be caused by several diseases affecting the brain, the most common being a dementia disease. A study found that residents in Swedish nursing home care have on average three diagnoses, the most common being dementia (Ernst Bravell et al. 2011). Although dementia is caused by disorders affecting brain function, the clinical profile characterizing dementia is more than just a manifestation of neuropathological changes in the brain (Woods 2001). According to Kitwood and Bredin (1992), dementia should be regarded as an interplay between the personality that the person has developed throughout life in his or her psychosocial environments *and* the neurological damage (Kitwood and Bredin 1992). Research has demonstrated that people with dementia have reduced interactivity between areas of their brain associated with memory processes and executive control (Zhou et al. 2012), functions involved in how a person interact with his/her environment. Persons with dementia seem to have changed perceptions, interpretations, and response inhibition in relation to their environment (Zwijnsen et al. 2016). In addition, they often suffer the loss of self-initiation (Cook et al. 2008). Accordingly, residents with cognitive impairment have been described as dependent on staff for stimulation and interaction with the environment (Holthe et al. 2007; Ericsson et al. 2011). All these changes seem to affect nursing home residents' ability to successfully and independently interact with their physical and psychosocial environment. Studies have also reported higher cognitive functioning as related to higher engagement in

activities (Fernández-Mayoralas et al. 2015), whereas both boredom and loneliness have been associated with cognitive decline (Conroy et al. 2010). Higher cognitive functioning has also been described as a strong predictor of QoL in nursing home settings (Shippee et al. 2015). Likewise, higher cognitive functioning was also found to be associated with resident thriving and with QoL in a Swedish nursing home study (Patomella et al. 2016).

Neuropsychiatric symptoms

For people with dementia, exhibiting neuropsychiatric symptoms has been described as the leading cause of admission to a nursing home (Gaugler et al. 2009). Neuropsychiatric symptoms are also known as behavioural or psychological symptoms (more commonly known as BPSD) and/or non-cognitive symptoms in dementia and may include depressive and aggressive behaviour, anxiety, elation, irritability, apathy, disinhibition, delusions, hallucinations, wandering behaviour, and sleep and/or appetite changes. It has been described that 97% of persons with dementia display these symptoms at some point during the course of their disease (Steinberg et al. 2008). Co-occurring symptoms are also reportedly common (Wetzels et al. 2010b). Neuropsychiatric symptoms seem common in nursing home settings internationally, as found in a review of studies from 10 countries (Sweden not included) that reported prevalence rates of 38–95% in residents with dementia (Selbæk et al. 2013). The aetiology of neuropsychiatric symptoms is multifactorial and includes disease-related neuropathological changes, physical disease, unmet psychological or physical needs, environmental influences, and/or pain (Lyketsos et al. 2006). It has even been argued that integrating psychological and social factors as well as the influence of neurological damage and other physical factors is crucial in explaining the symptoms (Zwijnsen et al. 2016). Neuropsychiatric symptoms have been reported to impair nursing home residents' QoL (Wetzels et al. 2010a) and have been linked to lack of engagement and boredom (Krishnamoorthy and Anderson 2011). Neuropsychiatric symptoms seem to cause suffering and ill-being for both residents and staff (Wetzels et al. 2010a; Song and Oh 2015). Non-pharmacological interventions such as environmental adjustments and activities tailored to residents' capacities and needs are considered first-line alternatives for reducing and managing neuropsychiatric symptoms (Kales et al. 2014). Consequently, engaging residents in various activities could be an essential part of contemporary nursing home care.

Pain

Pain is an additional common symptom in nursing home populations (Takai et al. 2010; Lukas et al. 2013a; Hunnicutt et al. 2017) and is described as often unsatisfactorily treated in nursing home populations (Lövhelm et al. 2006; Lukas et al. 2013b; Hunnicutt et al. 2017). Effective pain management has further been

demonstrated to significantly reduce agitation in residents with moderate to severe dementia (Husebo et al. 2011). Residents with pain are reportedly less involved in activities and more likely to experience depression and anxiety (Lapane et al. 2012; Sund Levander 2016). Pain was not found to be related to lower QoL in one study (Kim et al. 2014), however, the sample examined included only cognitively intact residents.

Impaired ADL capacity

Nursing home residents also have an extensive need for assistance in ADLs (Onder et al. 2012; Centers for Medicare and Medicaid Services 2013). Impaired ADL capacity has been described as related to the prevalence of neuropsychiatric symptoms (Zuidema et al. 2007). Impaired ADL capacity is also reportedly associated with lower QoL in nursing home residents (Kim et al. 2014; Shippee et al. 2015). In relation to thriving, one study has reported that residents with higher ADL capacity experienced higher levels of thriving (Patomella et al. 2016). Both cognitive and functional decline have been reported to be risk factors for low engagement in activities (Bliss et al. 2015).

Life in nursing homes

Nursing homes have largely been described negatively, portrayed by the media as undesirable places to live and work (Miller et al. 2012, 2016). In addition to progressive deterioration of cognitive and ADL capacities, nursing home residents may experience relational losses, for example, of spouses, relatives, and friends. In qualitative studies of residents' experiences of life in nursing homes, residents have expressed that their everyday lives are boring (Heggstad et al. 2013; Mjørud et al. 2017). Residents have expressed that feelings of boredom and loneliness contribute to a view that life is no longer worth living (Oosterveld-Vlug et al. 2014). Boredom has been related to a deficiency of meaningful activities (Thomas 1996; Wood et al. 2009) and loneliness has been linked to a deficiency of social integration and relatedness (Thomas 1996). Still, residents have stated that they feel safe living in nursing homes (Slettebø 2008; Minney et al. 2016; Mjørud et al. 2017). Also, the annual survey asking Swedish nursing home residents about their experience of nursing home care indicates that the residents generally are content with the care and services provided and that more than 80% were satisfied with their accommodations, whereas 48% of the residents responded that they had a pleasant room/apartment and that the common areas in the nursing home as well as the outdoor environment were pleasant (NBHW and SALAR 2017). Residents have expressed that lack of time spent with staff leads to boredom and loneliness (Slettebø 2008). Feelings of boredom, loneliness, and helplessness constitute great obstacles to the experience of well-being in nursing homes (Thomas 1996).

A nursing home is not only an institutional setting but also a home for its residents. Nursing homes thereby have potential to influence their residents' lives both physically and socially. Positive experiences of nursing home life are known to be important for residents' QoL (Bradshaw et al. 2012), and positive mood and having more social interaction is reportedly related to higher QoL in residents with dementia (Beerens et al. 2016). According to Hancock et al. (2006), engagement is a basic human need. Engagement, defined as being involved or occupied with an external stimulus (Cohen-Mansfield et al. 2009), has been associated in nursing home residents with positive emotions and a break from boredom and loneliness (Sifton 2001). Activities in nursing homes can differ in terms of level of resident engagement and be more solitary or more social in nature. Activities can also differ in their significance and meaning to residents. However, this thesis does not distinguish between different types of activities. The term "everyday activities" is simply used to refer to all kinds of activities. Everyday activities have been described by nursing home residents as a very important factor that has impact on their QoL (Cooney et al. 2009; Hall et al. 2011; Schenk et al. 2013). It has been suggested that engagement in everyday activities may help residents maintain a positive self-image and a sense of independence (Edvardsson et al. 2010).

The extent to which residents engage in activities is considered an indicator of nursing home quality (Kolanowski et al. 2006). Research seems to suggest that activities need to be wide-ranging and tailored to individual past interests, life stories, capacities, and needs. Such personalized activities form an essential component of person-centred care (Edvardsson et al. 2008). Both person-centred care and personalized activities are promoted in nursing homes by the Swedish National Board of Health and Welfare (NBHW 2010). Engagement in everyday activities has also been associated with living in more person-centred units (Sjögren et al. 2013). Residents have expressed the importance of being offered a choice of activities (Thomas et al. 2013). In a Swedish study, outdoor walks, parlour games, and household chores were described as common everyday activities in SCUs, but the prevalence of resident engagement in these everyday activities seemed low (Edvardsson et al. 2014a). That study does not account for this low engagement, but cognitive and functional decline as well as communication and vision difficulties have been described as risk factors for low engagement (Bliss et al. 2015). Studies have also pointed out that staff do not sufficiently know the residents' wishes (Harmer and Orrell 2008; Haugland 2012) and that staff sometimes underestimate residents' will and ability to engage in activities (Haugland 2012). Research indicates that engagement in everyday activities positively influences the well-being and thriving of residents in nursing homes (Bergland and Kirkevold 2006; Cooney et al. 2009; Hall et al. 2011; Schenk et al. 2013; Edvardsson et al. 2014a). Even so, the number of everyday activities offered in nursing homes has been described as limited (Kjøs and Havig

2016) and residents have been described as often inactive and lonely (Harper Ice 2002; Slettebø 2008; den Ouden et al. 2015). Still, little is known about what kinds of everyday activities nursing home residents are engaged in during a week and about how engagement in various everyday activities is associated with resident well-being and/or thriving.

Assessing well-being in nursing homes

Assessing QoL and well-being in nursing home populations seems challenging mostly because the high prevalence of cognitive impairment that may impede self-report procedures due to the limited insight, recall and communication associated with cognitive impairment. QoL has been described as intrinsically dependent on the person's own perception and can be obtained from self-reports even in dementia, but self-reporting limits from whom such information can be collected (Kane et al. 2003; Ettema et al. 2005). Unfortunately, existing proxy measures of QoL have been reported as having low inter-rater reliability when applied to nursing home residents (Spector and Orrell 2006; Crespo et al. 2012; Gräske et al. 2012). However, the complexity of assessing well-being in nursing home populations does not imply that the task is irrelevant. There seems to be a need to explore nursing home resident well-being and the factors associated with it. TOPAS has showed satisfactory reliability and validity estimates between self-ratings and proxy ratings (Bergland et al. 2014, 2015), so the instrument may provide a measure of resident well-being in relation to living in the institutional environment of a nursing home. Knowledge of such factors could guide preventative efforts and interventions that could benefit residents, as well as being valuable for stakeholders and municipalities.

There are three main large data-collection initiatives relating to the health of older people in Sweden besides the annual survey asking all Swedish nursing home residents about their experiences of nursing home care. These are the Swedish National Study on Aging and Care (SNAC) (Lagergren et al. 2004), Senior Alert registry of preventive care processes (Edvinsson et al. 2015) and the Swedish national BPSD registry (BPSD 2017). However, neither SNAC or Senior Alert specifically targets residents thriving in nursing homes. SNAC collects population-based information on life conditions, lifestyle, and personality and how these can be linked to health and well-being in old age. It also collects health system-based information on the consumption of support, rehabilitation, and health-care services in the home together with information on demands for special housing, to analyse population needs in relation to system functionality (Lagergren et al. 2004). However, data from SNAC do not permit detailed analyses of resident thriving in nursing homes. The ongoing Senior Alert is a Swedish national data-collection initiative that aims to document and promote health and prevent harm in older people in need of health care and aged care.

This is done using a quality register that documents assessments, interventions, and evaluations regarding falls, malnutrition, pressure ulcers, and oral health (Edvinsson et al. 2015). The BPSD registry is monitoring behavioural symptoms, mainly on people with dementia with the NPI instrument, making it possible to follow the effects of interventions on an individual level (BPSD 2017).

However, neither Senior Alert nor the annual Swedish nursing home survey includes internationally recognized variables such as the extent to which residents exhibit cognitive impairment, pain symptoms, and neuropsychiatric symptoms (Moniz-Cook et al. 2008) or variables on engagement in everyday activities. Thus, there is a need to explore resident thriving in nursing homes at a national level, and to explore factors that can influence thriving, for example, nursing home environment and engagement in everyday activities.

Rationale

The population living in nursing homes have extensive and complex needs including cognitive impairment, neuropsychiatric symptoms, pain, and dependency in ADLs that could be major challenges to their well-being. Research that can underpin the care of people with cognitive impairment and of the management of neuropsychiatric symptoms in nursing homes was identified as a top priority in the International Survey of Nursing Home Research Priorities (Morley et al. 2014). Still, research into nursing homes and residents with cognitive impairment is often limited to considering negative measures, such as symptom prevalence and the use of pharmacological substances. In addition, beneficial outcomes of interventions are often reported in terms of reduced negative outcomes, such as common symptoms.

According to the Social Services Act, older persons should have an active and meaningful existence in community with others and it should be possible for older people to live independently and in safe conditions. The national guidelines state that nursing homes needs to allow residents to have access to a meaningful repertoire of activities to facilitate their well-being (NBHW 2010). Despite this, very little is known of the extent to which residents are engaged in everyday activities and are able to thrive in Swedish nursing homes.

Consequently, to facilitate resident thriving, essential and optimal use of the environment and everyday activities in nursing homes requires clarity in defining everyday activities and environmental factors that may contribute to resident thriving. This thesis addresses the fact that it is unknown to what extent nursing home residents participate in everyday activities such as going outdoors, pursuing hobbies, and engaging in physical activities – all factors that contribute to QoL and thriving for many people. In addition, it is unknown whether and, if

so, to what extent factors such as resident characteristics, engagement in everyday activities, and the nursing home environment are associated with resident thriving. Research into factors that are important to resident thriving in nursing homes has also so far been mainly qualitative.

Until recently, it has been difficult to quantitatively assess thriving due to a shortness of appropriate instruments. A “thriving tool” was recently developed and tested for proxy ratings (Bergland et al. 2014, 2015). This tool enables strength-based measures that can complement the QoL instruments reported to have limited estimated inter-rater reliability as well as the measures of negative symptoms sometimes used to capture positive outcomes in nursing home populations. The thriving tool also enables studies of larger, more heterogeneous samples. This may supply knowledge of the extent to which resident capacities and factors in the care environment are associated with thriving, complementing the results of previous qualitative studies of thriving. As this tool is a new instrument, few studies have used it specifically to explore the factors associated with thriving among nursing home residents.

Aims

The overall aim of this thesis was to explore resident thriving in Swedish nursing homes, and the extent to which resident characteristics, neuropsychiatric symptoms, activities, and environmental factors were associated with resident thriving.

The purpose of papers I and II was to explore the characteristics of the residents living in Swedish nursing homes and the extent to which personal factors such as residents' characteristics and symptoms were associated with resident thriving. The purpose of papers III and IV was to explore the extent to which engagement in everyday activities as well as nursing home environment factors (i.e., the physical and psychosocial environment) were associated with thriving.

Specific aims

The specific aims of the consistent papers of this thesis were as follows:

Paper I – to explore the prevalence of cognitive impairment, ADL-dependency, pain and neuropsychiatric symptoms among residents in a nationally representative Swedish sample, and to investigate whether pain and neuropsychiatric symptoms differ in relation to gender, cognitive function, ADL-capacity, type of unit and length of stay;

Paper II – to explore relations among thriving, cognitive functioning, and neuropsychiatric symptoms in nursing home residents;

Paper III – to describe the prevalence of everyday activity engagement for older people in nursing homes and the extent to which engagement in everyday activities is associated with thriving; and

Paper IV – to explore the extent to which environmental factors are associated with resident thriving.

Methods

Data collection

As this project is part of SWENIS, all analyses performed in papers I–IV are based on cross-sectional data drawn from SWENIS staff, resident, and facility surveys. Papers I–III used data from the SWENIS resident dataset and paper IV from the staff, resident, and facility datasets. An overview of the included papers, research focus, participants, and data-collection source is shown in Table 1.

Table 1. Overview of the included papers, showing their focus, participants, and data sources.

Paper	Focus	Participants	Data source
I	Characteristics of residents, prevalence of cognitive impairment, ADL dependency, and variance of pain and neuropsychiatric symptoms	4831 residents in 172 nursing homes	SWENIS Resident Survey, questionnaires
II	Associations among thriving, cognitive functioning, and neuropsychiatric symptoms	4831 residents in 172 nursing homes	SWENIS Resident Survey, questionnaires
III	Associations between thriving and engagement in everyday activities	4831 residents in 172 nursing homes	SWENIS Resident Survey, questionnaires
IV	Associations between thriving and environmental factors	4205 residents and 3509 staff in 163 nursing homes, together with corresponding data on the environments of 147 nursing homes	SWENIS Staff, Resident, and Facility Surveys, questionnaires

The SWENIS data-collection procedure

The SWENIS dataset covers a national sample of nursing home staff, residents, and managers. Of the total of 290 Swedish municipalities, 60 were randomly selected. This number of selected municipalities was based on sample size calculations indicating that a sample of 4500 residents would provide enough power to explore the various research questions of U-Age SWENIS with a variability in standard deviations, and on data regarding the average number of nursing homes in Swedish municipalities. Chief executive officers of nursing homes in the selected municipalities were contacted and given information about the study; the research team sought their written consent to conduct research in the municipality and to approach the managers of the nursing homes. The chief executive officers were also asked to provide contact information for the nursing homes in their municipalities. Informed consent was received for 47 municipalities. Three reminders requesting contact information were sent; five municipalities did not respond to these requests and five withdrew from

participation. Following this procedure, unit managers of 202 nursing homes in 37 municipalities were contacted by telephone and given information about the study. During this process, one municipality withdrew from participation and all three nursing homes in another municipality withdrew from participation, leaving 188 nursing homes in 35 municipalities. Figure 2 presents a flowchart outlining the data-collection procedure.

No attempts were made to approach non-participating municipalities or units to ascertain their reasons for not participating in the SWENIS study. The care home managers received oral and written information about the study and approached their staff, who received written instructions on how to complete the questionnaires and were informed that a member of the research team could be contacted if additional guidance was needed. The assessment of each resident was asked to be completed by the staff member who knew that resident best.

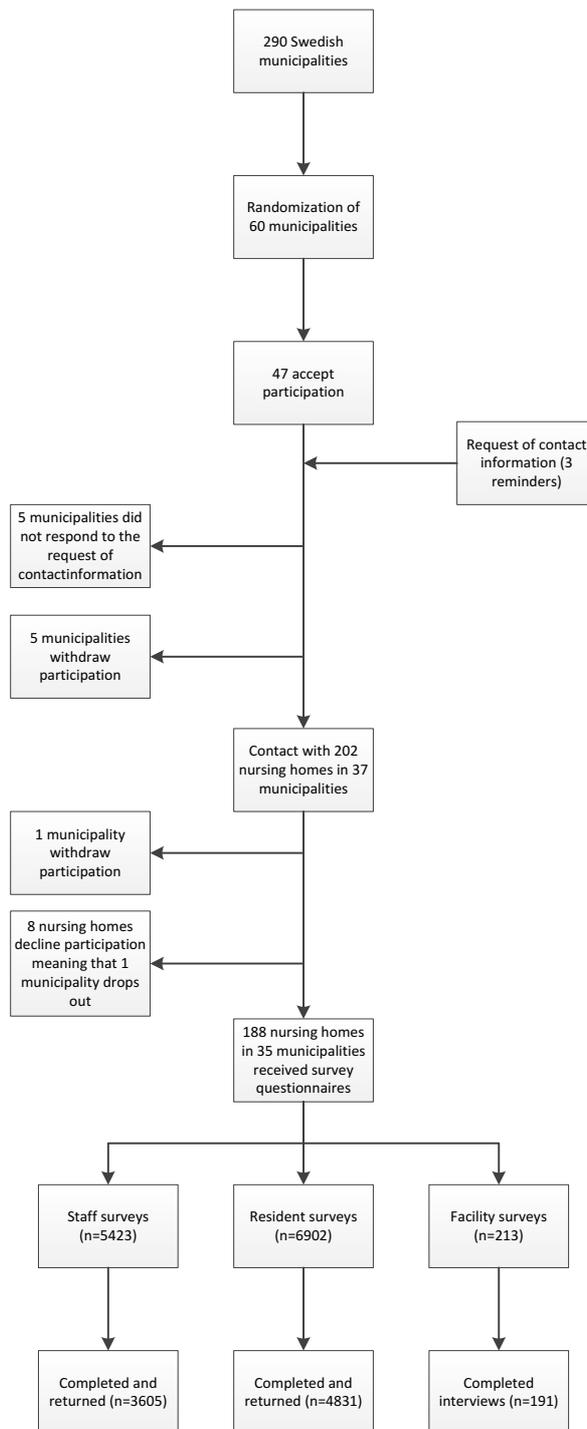


Figure 2. Flowchart of the SWENIS data-collection procedure.

The SWENIS data were collected between November 2013 and September 2014 using a three-part survey, as follows:

A) The Staff Survey: Self-reported information on person-centredness and leadership was obtained from direct care staff. The response rate on SWENIS A was 67% and the final sample contained 169 nursing homes, comprising 526 units and 3605 staff members. Only permanent staff or staff on long-term substitution in the participating nursing homes at the time of data collection were included in the study. Staff employed for night shifts only were not included in the study.

B) The Resident Survey: Information on resident characteristics, functional and cognitive status, health indicators, quality of life, and thriving was obtained from proxy raters (staff). The response rate on SWENIS B was 70% and the final sample contained 172 nursing homes, comprising 548 units and 4831 residents. The nursing home facilities had from 7 to 128 beds, and both general units and SCUs were included. Only residents permanently living in the participating nursing homes at the time of data collection were included in the study.

C) The Facility Survey: Information on the building, organization, staffing levels, care and activity routines, and mortality was obtained from telephone interviews with managers. Nursing home managers were sent the questionnaire in advance and interview times were scheduled. A member of the research team conducted the structured interview. Structured interviews were held with 191 unit managers, giving information on 166 nursing homes.

Participants

The participants included in this research consisted of residents (papers I–III) and residents and care staff (paper IV). The participants are further described below in the sections treating the individual papers.

Papers I–III

The sample consisted of 4831 residents (mean age 85.5 years, SD 7.8); two thirds were female (68%) and most (82%) had Swedish as their first language. Two thirds (67%) of the residents had a cognitive impairment and 16% were able to independently manage all personal ADLs. The average length of stay was 30.4 months (SD 32.0). The proxies were 94% female and 84% worked as enrolled nurses.

Paper IV

The sample consisted of a matched sample of residents ($n = 4205$; mean age 85.5 years, SD 7.8; 67% female) and staff ($n = 3509$; mean age 46.6 years, SD 11.3; 95% female; work experience in current nursing home 9.9 years, SD 8.0; 83% enrolled nurses) in 163 nursing homes matched in the regression model with data on 442 units in 147 nursing homes.

Assessments

The SWENIS surveys include both validated rating scales and study-specific variables. Internationally established questionnaires were used for assessing resident ADL capacity, cognitive function, neuropsychiatric symptoms, pain, and thriving. Table 2 presents an overview of the scales and additional study-specific items used in the four studies.

Table 2. Scales and additional items used in papers I–IV.

Assessment methods	Paper			
	I	II	III	IV
Thriving of Older People Assessment Scale (TOPAS)		X	X	X
Gottfries Cognitive Scale	X	X	X	
Katz Activities of Daily Living Index	X	X	X	X
Neuropsychiatric Inventory – Nursing Home Version (NPI-NH)	X	X		
Pain Assessment in Advanced Dementia (PAINAD)	X			
Person-Centred Climate Questionnaire – Staff Version (PCQ-S)				X
Study-specific items about demographics	X	X	X	X
Study-specific items about living arrangements	X		X	X
Study-specific items about the environment				X
Study-specific items about everyday activities			X	
Study-specific items about the facility				X
Study-specific items about the unit				X

Resident variables

Thriving was assessed using the Thriving of Older People Assessment Scale (TOPAS), a proxy-report scale comprising 32 items organized in five subscales: resident attitudes towards being in long-term care; quality of care and caregivers; residents’ engagement and peer relationships; keeping in touch with people and places; and qualities in the physical environment. Items are formulated as statements relating to resident thriving that are scored on a six-point Likert-type scale ranging from “No, I disagree completely” (= 1) to “Yes, I agree completely” (= 6). The total score could range from 32 (lowest possible level of thriving) to 192 (highest possible level of thriving) (Bergland et al. 2014). Satisfactory correspondence between proxy and self-report ratings has been reported (Bergland et al. 2014, 2015). Data on resident thriving are presented in papers II–IV.

Resident cognitive function was assessed using the Gottfries Cognitive Scale (Gottfries et al. 1969). The scale consists of 27 items formulated as statements responded to with a “yes” (= 1) or “no” (= 0), with higher scores indicating higher cognitive function. Scores under 24 indicate a cognitive impairment. Criterion-related validity of the cut-off have been established against the Mini-Mental State Examination (MMSE) (Sandman et al. 1988). The cognitive scores are presented in papers I–IV and included in the regression models in papers II–IV. In the analyses in papers I and II, the scores are further divided into four groups

representing: no cognitive impairment (score 24–27), mild impairment (score 16–23), moderate impairment (score 8–15), and severe impairment (score 0–7) (Lövheim et al. 2010).

ADL capacity was measured using a simplified version of the Katz Activities of Daily Living Index (Katz et al. 1963; Wallace and Shelkey 2007), which assesses a person's ability to independently manage daily activities in the following domains: bathing, dressing, transferring, toileting, eating, and continence. In this version, each domain was scored dichotomously as dependent (= 0) versus fully independent (= 1), for a total score of 0–6 points. Higher scores indicate greater independence. For the analyses in papers I and III, the total score was dichotomized as ADL dependent (score 0–3) or ADL independent (score 4–6) (Tiong et al. 2013). ADL sum scores are presented in papers II–IV.

The prevalence of neuropsychiatric symptoms in papers I–II was assessed using the Neuropsychiatric Inventory – Nursing Home Version (NPI-NH) (Cummings et al. 1994; Wood et al. 2000). The NPI-NH evaluates the following 12 neuropsychiatric symptoms: delusions, hallucinations, agitation/aggression, depression/dysphoria, anxiety, elation/euphoria, apathy, disinhibition, irritability/lability, aberrant motor behaviour, night-time behaviour, and eating behaviour. Each symptom is rated according to frequency, ranging from not occurring at all (= 0) to occurring once or several times per day (= 4), and the severity of each symptom is rated as ranging from mild (= 1) to severe (= 3). An item score is generated by multiplying frequency by severity (range 0–12), higher scores indicating greater severity of behaviour. A total NPI-NH score can be calculated by adding all item scores and generating an index score with a maximum of 144. The instrument has been assessed to be valid and reliable (Wood et al. 2000). The items were dichotomized between not occurring at all and occurring when analysed in paper I, while the item score was used in paper II.

Pain was assessed using the Pain Assessment in Advanced Dementia (PAINAD) scale, which evaluates symptoms of pain based on breathing, body language, facial expression, vocalization, and consolability (Warden et al. 2003). Each of the five items is scored between 0 and 2 for a total score of 0–10 points, with higher scores indicating higher pain intensity. The total score was dichotomized, with >1 representing being in pain (Zwakhalen et al. 2012). Data on pain were presented in paper I. Demographic variables related to the residents, such as age, sex, length of stay, and living arrangements, were also included in the analyses (papers I–IV). Furthermore, some demographic variables concerning the proxies were also recorded, including sex and how well the proxy knew the resident (papers I and II).

Twenty-six study-specific variables concerning the residents' engagement in everyday activities were used in paper II, namely: receiving hugs/physical touch, talking to relatives/friends, receiving visitors, having everyday conversations with staff not related to care, grooming, watching TV, spending time with someone the resident likes, dressing nicely, playing or listening to music, being outside the nursing home, reading a book/newspaper, engaging in an activity program, engaging in physical activity, participating in celebrations, participating in religious activities, participating in cultural activities, interacting with pets, being on excursions, engaging in a hobby, having a massage, writing or drawing, playing parlour games with others, doing everyday chores, visiting a restaurant, taking part in an educational program and going to the cinema. These study-specific items were based on the person-directed care questionnaire (White et al. 2008) and the Multi-Dimensional Dementia Assessment Scale (Sandman et al. 1988).

Eleven study-specific variables concerning the residents' living arrangements and environment were used in paper IV, namely: type of unit, single room, lives with partner, room with private furniture, room with private kitchen/kitchenette, private TV, private telephone, private computer, access to internet, access to newspapers, and outdoor access.

Staff variables

The psychosocial climate was assessed using the Person-Centred Climate Questionnaire – Staff Version (PCQ-S) (Edvardsson et al. 2009a, 2015). The scale assesses the extent to which the staff experience the psychosocial climate of a unit as person-centred and consists of three subscales: a climate of safety, a climate of everydayness, and a climate of community. The scale comprises 14 items formulated as statements related to the psychosocial environment, and responses are given on a six-point Likert-type scale ranging from (0) complete disagreement to (5) complete agreement. Total scores range from 0 to 70, with higher scores indicating a more person-centred unit climate (Edvardsson et al. 2009a, 2015) Data on psychosocial climate were presented in paper IV.

Demographic variables related to the staff, such as age, sex, education, and work experience in their current nursing home, were presented in paper IV.

Facility and unit variables

Nine study-specific variables concerning the nursing home facility environment was used in paper IV, namely: facility locked at night, facility locked during the day, and variables for the numbers of units, beds, beds in SCU, rooms, single rooms, double rooms, and common areas in the facility. Four variables for the units were also included, namely: unit locked during the day, unit locked at night, number of beds and common areas the unit.

Ethics

Both managers and staff were provided with written information specifying the purpose of the study, that participation was voluntary and could be withdrawn at any time, and that confidentiality was guaranteed when presenting the results of SWENIS. For the staff survey (A), the completion/return of the questionnaire was considered as giving informed consent. For the resident survey (B), consent was not obtained from individual residents, as the type of data gathered represented information normally found in the resident care plans and no procedure that involved the residents was performed. In addition, flyers with information about the study and its purposes were provided for public display in the nursing homes. For the facility survey (c), completion of the structured interview was considered as giving informed consent.

The staff, resident, and facility surveys were coded at to unit level. Data on staff, residents, and managers were confidential and could be identified only by their code numbers; except for age and sex, no personal data were collected. The file containing the information on the specific units and nursing homes to which individual questionnaires were sent was kept on a secure server separate from the surveys and only a very limited number of persons in the research group had access to that information. The surveys are stored in a locked environment. Data presented in this thesis were also only presented at the group level to prevent identification of individuals. The SWENIS study, including its design, received approval from the Regional Ethics Review Board in Umeå (2013-269-31).

Statistical analysis

Statistical calculations were performed using The Statistical Package for Social Sciences, SPSS software for PC, version 22 (papers I and III) and version 23 (paper II). SPSS software for Mac, version 24 was used for paper IV. Microsoft Excel was used for paper II. *P*-values of <0.01 were considered statistically significant in papers I and III (to adjust for multiple testing and the large sample size), whereas *P*-values of <0.05 were considered statistically significant in papers II and IV. An overview of all included variables and analyses in studies I–V is presented in Table 3.

Table 3. An overview of the data sources and analyses in papers I–V.

Paper	Data source	Variables	Analyses
I	SWENIS Resident survey	Age, sex, type of unit, length of stay, single room, living with partner, first language, ADL capacity, cognitive function, neuropsychiatric symptoms, and pain	Descriptive statistics, χ^2 test, φ , and internal consistency (Cronbach's α)
II	SWENIS Resident survey	Age, sex, type of unit, length of stay, thriving, cognitive function, ADL function, and neuropsychiatric symptoms (i.e., delusions, hallucinations, aggression/agitation, depression/dysphoria, anxiety, elation/euphoria, apathy, disinhibition, irritability, aberrant motor behaviour, night-time behaviours, and eating changes)	Descriptive statistics, correlation, simple linear regression, multiple linear regression, and multiple linear regression including interaction terms
III	SWENIS Resident survey	Age, sex, type of unit, length of stay, thriving, cognitive function, ADL capacity, receiving hugs/physical touch, talking to relatives/friends, receiving visitors, having everyday conversations with staff not related to care, grooming, watching TV, spending time with someone the resident likes, dressing nicely, playing or listening to music, being outside the nursing home, reading a book/newspaper, engaging in an activity program, engaging in physical activity, participating in celebrations, participating in religious activities, participating in cultural activities, interacting with pets, being on excursions, engaging in a hobby, having a massage, writing or drawing, playing parlour games with others, doing everyday chores, visiting a restaurant, taking part in an educational program, and going to the cinema	Descriptive statistics, correlation, simple linear regression, and multiple linear regression
IV	SWENIS Resident, staff, and facility survey	<i>Resident variables:</i> Age, sex, cognitive function, ADL function, type of unit, single room, lives with partner, room with private furniture, room with private kitchen/kitchenette, private TV, private telephone, private computer, access to internet, access to newspapers, and outdoor access <i>Staff variables:</i> Psychosocial climate <i>Facility variables:</i> Facility locked at night, facility locked during the day, as well as numbers of units, beds, beds in SCU, rooms, single rooms, double rooms, and common areas in the facility <i>Unit variables:</i> Unit locked during the day, unit locked at night, as well as average numbers of beds and average number of common areas in the unit	Descriptive statistics, correlation, χ^2 test, φ , multilevel simple linear regression, multilevel multiple linear regression, and ICC

χ^2 = chi-squared; φ = phi coefficient; ICC = intra-class correlation coefficient

Descriptive statistics

All papers (I–IV) include descriptive statistics. The results in paper I were presented as proportions and dichotomous variables were analysed using the chi-square test and the phi coefficient (effect sizes of $\phi < 0.1$ were considered unimportant). Correlation analysis was used in papers II–IV.

Regression analyses

Data in papers II and III were analysed using multiple linear regression to explore different neuropsychiatric symptoms and everyday activities associated with thriving. The independent variables included in each paper are further presented in Table 3. In paper II, all regression analyses, both simple linear regressions and multiple linear regressions, were performed in four separate models based on cognitive function (i.e., no, mild, moderate, and severe impairment). First, simple linear regressions were performed using the TOPAS sum score as the dependent variable and the 12 neuropsychiatric symptoms as independent variables. In the next step, a forward selection approach was used in which the neuropsychiatric symptoms were included one by one, starting with the symptom that had the strongest bivariate correlation with thriving. In the final step, multiple linear regression models were performed that included the identified neuropsychiatric symptoms significantly associated with thriving in each group, along with resident characteristics (i.e., sex, age, ADL function, and cognitive score).

In paper III, the TOPAS sum score was the dependent variable and the independent variables were the 26 everyday activities, cognitive function and ADL capacity, age, and sex. Four regression models were created using the TOPAS sum score as the dependent variable. In the first model, only the resident characteristics were included as independent variables. The second model included all the everyday activities found to be significantly associated with thriving in the simple regression analysis ($p < 0.01$) after testing for multicollinearity. The third model included all the independent variables from the first and second models. In the fourth and final model, a linear stepwise multiple regression with manual backward selection was used, starting from the third model and deleting non-significant variables, one by one, until only significant variables remained in the model. The significance level for this procedure was set at a p -value of <0.01 .

In paper IV, nursing home environment factors associations with thriving were explored using simple and multiple multilevel linear regression with a random effect for unit-level variation. This unit random effect was chosen to account for clustering of residents within the same unit. All other variables in the model were treated as fixed effects. First, an unconditional model was created using the TOPAS sum score as the dependent variable and containing only estimates of the

unit random intercept of resident thriving. This model was intended to test for significant variation in residents' thriving between units. Second, simple multilevel linear regression analyses were performed using the TOPAS sum score as the dependent variable, with the independent variables being the environment factors along with age, sex, cognitive function, and ADL function. The statistical significance level in the simple linear regression analysis was defined as $p < 0.05$. Following that procedure, two multilevel models were created. The first one included only the resident characteristics (i.e., age, sex, ADL capacity, and cognitive function) as independent variables. Inclusion in the last, full model was restricted to variables in the simple regression models associated with a TOPAS sum score having a p -value of <0.05 . The statistical significance in the last full model was defined as $p < 0.05$.

The level of collinearity among the assessment scales was explored using Pearson's product-moment correlation and the variance inflation factor (VIF) test (papers III and IV) For categorical variables, the χ^2 test with phi coefficient was used to explore the correlation between categorical variables (papers III and IV).

Reliability analyses

The internal consistency reliability of all included assessment scales (papers I, III, and IV) was explored using Cronbach's α . The intra-class correlation coefficient (ICC) was calculated in paper IV to evaluate the random effects for the empty model.

Handling of missing data

Four variables included in the thesis are scale total scores, i.e., Gottfries Cognitive Scale, ADL, TOPAS, and PCQ-S. Consequently, non-completed (missing) items in these scales represented internal loss for each variable. For the analysis in paper IV, missing data for TOPAS and PCQ-S were imputed using the mean value of the total scale for all individuals (Shrive et al. 2006). For TOPAS, missing data for up to three items (9%) were imputed. For PCQ-S, missing data for up to two items (14%) were imputed. At the unit level, three staff estimates of PCQ-S were assessed as the minimum for the unit to be included (paper IV).

Results

This chapter presents the main results of the papers, presented in the following sections: “Thriving in relation to resident characteristics and neuropsychiatric symptoms” (papers I and II), “Thriving in relation to everyday activities” (paper III), and “Thriving in relation to the environment” (paper IV).

Thriving in relation to resident characteristics and neuropsychiatric symptoms

Data on 4831 residents were analysed (mean age, 86 ± 8 years; 68% female; median length of stay, 22 months). The results indicated that the prevalence of cognitive impairment was 67% and that 56% of the nursing home residents were rated as ADL dependent (Table 4).

Table 4. Descriptive data for the SWENIS sample.

	n = 4831	
Socio-demographic		
Female, <i>n</i> (%)	3239	(67.8)
Age in years, mean (SD)	85.5	(7.8)
Living with partner, <i>n</i> (%)	135	(2.9)
Swedish as second language, <i>n</i> (%)	820	(17.6)
Length of stay in months, mean (SD)	30.4	(32.0)
Living in general unit, <i>n</i> (%)	2931	(62.2)
Function and symptoms		
Cognitive impairment, <i>n</i> (%)	2827	(66.6)
Dependent in ADLs, <i>n</i> (%)	2526	(56.3)
Pain, <i>n</i> (%)	2103	(47.9)
Neuropsychiatric symptoms, any, <i>n</i> (%)	4309	(92.0)

In addition, 53% of the residents in general units were rated as having a cognitive impairment. The prevalence of one or more neuropsychiatric symptoms was 92% (paper I). Cognitive functioning was strongly associated with resident thriving. ADL capacity was associated with thriving at higher levels of cognitive functioning (i.e., Gottfries score 27–16) but not at lower levels (i.e., Gottfries score 15–0). In addition, at higher levels of cognitive functioning, several factors displayed associations with thriving. At lower levels of cognitive functioning (i.e., Gottfries score 15–0), only the degree of cognitive impairment and neuropsychiatric symptoms were associated with thriving (paper II). As for the exploration of relationships between individual neuropsychiatric symptoms and resident thriving, two of the 12 symptoms, i.e., aggressive and depressive symptoms, were identified as negatively associated with thriving regardless of resident cognitive functioning (paper II).

The prevalence of neuropsychiatric symptoms was higher among residents with than without cognitive impairment (95% vs. 84%, $p < 0.001$, $\phi = 0.195$), and residents living in SCUs had a higher prevalence of neuropsychiatric symptoms than did residents in general units (95% vs. 90%, $p < 0.001$, $\phi = 0.102$) (paper I). All but two of the individual neuropsychiatric symptoms displayed nonlinear relationships with cognitive functioning, exposing higher NPI-NH scores at middle levels of cognitive functioning. The exceptions were apathy, which showed an almost linear relationship, and elation/euphoria, which showed a linear relationship with the level of cognitive impairment (paper II).

Thriving in relation to everyday activities

Resident engagement in 26 everyday activities was explored in relation to thriving to further explore the possible impact of everyday life on thriving in nursing homes (paper III). The main finding was that engagement in everyday activities was associated with resident thriving. As presented in Table 5, 12 everyday activities were independently associated with thriving in the final model including both resident characteristics and everyday activities; these activities were: engaging in an activity program, dressing nicely, spending time with someone the resident likes, engaging in a hobby, participating in religious activities, having everyday conversations with staff not related to care, watching TV, engaging in physical activity, being outside the nursing home, playing parlour games with others, participating in celebrations and receiving hugs/physical touch. This model explained 24.6% of the variance in thriving. Engagement in an activity program (59%, St. $\beta = 0.110$, $p < 0.001$) had the strongest association with thriving, followed by dressing nicely (81%, St. $\beta = 0.096$, $p < 0.001$) and spending time with someone the resident likes (81%, St. $\beta = 0.086$, $p < 0.001$).

Table 5. Resident engagement in everyday activities associated with thriving after a backward elimination procedure.

Variables	Prevalence		St. coefficients	
	<i>n</i>	%	β	Sig.
Age			0.087	<0.001
Male sex	1538	32.2	0.024	0.099
Cognitive impairment	2827	66.6	-0.163	<0.001
ADL dependency	2526	56.3	-0.125	<0.001
Engaging in an activity program	2795	58.7	0.110	<0.001
Dressing nicely	3829	80.6	0.096	<0.001
Spending time with someone the resident likes	3963	81.4	0.086	<0.001
Engaging in a hobby	852	18.0	0.071	<0.001
Participating in religious activities	1357	28.4	0.070	<0.001
Having everyday conversations with staff not related to care	3895	81.9	0.064	<0.001
Watching TV	3897	81.5	0.063	<0.001
Engaging in physical activity	2457	50.8	0.055	0.001
Being outside the nursing home	3084	64.5	0.052	0.001
Playing parlour games with others	750	15.8	0.049	0.001
Participating in celebrations	1921	40.7	0.047	0.002
Receiving hugs/physical touch	4125	87.0	0.039	0.009
Adjusted <i>R</i> ²				0.246

Gender was included in the backward multiple regression model for theoretical reasons, even though it was found to be non-significant ($p > 0.10$) in the simple regression analysis. The variables that were entered in the backward elimination procedure and excluded from the final model due to non-significance were: talking to relatives/friends, receiving visitors, grooming, playing or listening to music, reading a book/newspaper, participating in cultural activities, interacting with pets, being on an excursion, participating in cultural activities, having a massage, writing or drawing, doing everyday chores, visiting a restaurant, taking part in an education program, and going to the cinema.

Thriving in relation to the environment

To gain further knowledge of life in nursing homes, 25 nursing home environment factors were explored in relation to thriving (paper IV). Of these, 12 environmental factors were found to be associated with thriving in the multilevel simple regression analysis (Table 6). However, in the adjusted multilevel multiple regression model, only the psychosocial climate in the unit (estimate = 0.970, $p < 0.001$), living in a special care unit (estimate = 2.745, $p = 0.038$), having access to newspapers (estimate = 3.810, $p = 0.001$), and living in a facility that was locked during the day (estimate = -2.722, $p = 0.041$) were associated with thriving when resident characteristics were also taken into account.

Table 6. Resident, facility, and unit variables having significant associations with the dependent variable TOPAS score in a multilevel simple linear regression analysis.

			Simple regression estimate	Simple regression p-value
Residents		n = 4205		
TOPAS score, mean (SD)	152.0 (25.2)			
Age, mean (SD)	85.5 (7.8)	0.243		<0.001 ^a
Female sex, n (%)	2798 (67.2)	1.681		0.038 ^a
Gottfries Cognitive Scale, mean (SD)	17.6 (8.3)	1.112		<0.001 ^a
Katz ADL score, mean (SD)	2.9 (2.1)	3.274		<0.001 ^a
Facilities		n = 147		
Residing in SCU, n (%)	1454 (35.4)	4.287		<0.001 ^a
Room with private furniture, n (%)	4121 (98.7)	8.641		0.011 ^a
Room with private kitchen/kitchenette, n (%)	3273 (78.8)	3.227		0.007 ^a
Private television, n (%)	3131 (74.9)	4.778		<0.001 ^a
Private telephone, n (%)	2436 (58.5)	9.361		<0.001 ^a
Access to internet, n (%)	587 (14.3)	4.715		<0.001 ^a
Access to newspapers, n (%)	2915 (70.3)	8.794		<0.001 ^a
Outdoor access, n (%)	4039 (96.9)	8.351		<0.001 ^a
Units		n = 442		
Facility locked during the day, n (%)	35 (32.1)	-4.514		0.002 ^a
Unit locked during the day, n (%)	178 (41.5)	-5.550		<0.001 ^a
Unit locked at night, n (%)	237 (55.9)	-3.323		0.006 ^b
Unit PCQ score, mean (SD)	50.0 (4.6)	1.130		<0.001 ^a

^aDenotes an explanatory variable with a *p*-value of <0.05 in the simple multilevel linear regression with TOPAS score as an outcome variable later included in the multilevel multiple regression.

^bDenotes an explanatory variable with a *p*-value of <0.05 in the simple multilevel linear regression with TOPAS score as an outcome variable not included in the multilevel multiple linear regression model due to a strong correlation with the variable unit locked during the day.

An additional finding in paper IV was that unit affiliation explains 12.3% of the total variation in thriving between units, indicating that thriving is a place-related phenomenon. As shown in Table 7, further calculations revealed that 12.3–4.1% of the variance between units could be explained by residents' being nested within units (ICC). This indicates that the variance in thriving was higher between than within units even when fixed independent variables were considered.

Table 7. Estimates of intercept variance in multilevel modelling of resident thriving.

Model		Estimate	Wald Z	p-value	ICC
1. Unconditional	Intercept, unit variance	78.289	8.020	<0.001	0.123
2. Resident characteristics	Intercept, unit variance	55.962	6.490	<0.001	0.105
3. Environment factors, adjusted	Intercept, unit variance	21.453	2.931	0.003	0.041

Discussion

The present results indicate that activities and factors in the nursing home environment are positively associated with residents' thriving (papers III and IV). Thriving was found to be a place-related phenomenon (paper IV) and resident characteristics were found to be associated with thriving (II). This thesis thereby contributes to the understanding of thriving in nursing homes by providing knowledge of the extent to which activities, environment and resident characteristics are associated with thriving. The papers included in this thesis have explored some, but not all, of the components of the Umeå Model of Nursing (Figure 1) by their focus on thriving (as a measure of health) in relation to the person in need of care (i.e., the nursing home resident), task-relation (i.e., activities), and the care environment (i.e., physical and psychosocial nursing home environment). This thesis thereby adds a piece to the puzzle of factors associated with thriving.

Thriving in relation to resident characteristics and neuropsychiatric symptoms

As the person in need of care is at the centre of nursing in the Umeå Model (see Figure 3), it is reasonable to focus on the residents living in nursing homes, on their characteristics and needs, to improve the knowledge and thereby be able to tailor their care to their needs.

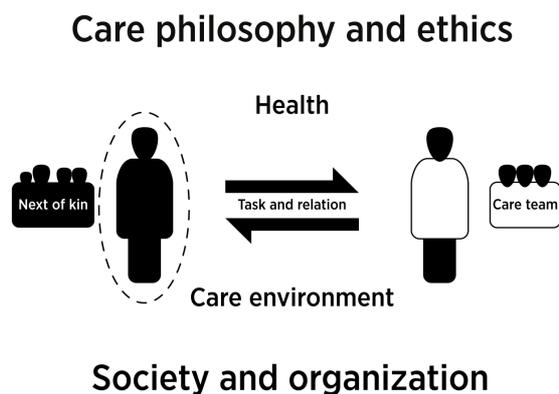


Figure 3. The person in need of care highlighted in the Umeå Model of Nursing.

Exploring the population living in Swedish nursing homes (paper I) revealed that cognitive impairment, dependency in ADL, and pain were common and, furthermore, that neuropsychiatric symptoms were highly prevalent. The prevalence of cognitive impairment was only slightly lower than that found by previous Swedish studies indicating prevalence rates around 70% (Ernst Bravell et al. 2011; Gustafsson et al. 2015). The high prevalence of cognitive impairment also in general units might reflect the decrease in the number of nursing home beds despite the demographic trend towards more older people in the population (NBHW 2014a), and could indicate higher thresholds for nursing home placement. The prevalence of neuropsychiatric symptoms among residents with cognitive impairment was high (95%) compared with rates reported in a previous review (mean 82%, range 38–95%) (Selbæk et al. 2013). Since recommendations regarding the prescription and use of antipsychotic, anxiolytic, hypnotic, and sedative drugs for neuropsychiatric symptoms have been revised, the use of such drugs has decreased. It could be tempting to relate the high prevalence of neuropsychiatric symptoms in the sample to the reduction of such drug use. However, a recent study has demonstrated that, despite this reduction, the prevalence of neuropsychiatric symptoms has remained largely unchanged (Gustafsson et al. 2016). This result raised questions concerning the well-being of residents residing in Swedish nursing homes, and cognitive impairment and neuropsychiatric symptoms were prevalent to such an extent that a second study was performed to explore these factors in relation to resident thriving (paper II). Resident cognitive functioning was found to be strongly associated with thriving (paper II). The findings that higher cognitive functioning and higher ADL function were positively associated with resident thriving were not unexpected. Similar relationships between thriving and levels of cognitive function and ADL function were also described in a previous Swedish study (Patomella et al. 2016).

Regarding the negative associations found between neuropsychiatric symptoms and thriving, two of these symptoms, i.e., aggressive and depressive symptoms, were negatively associated with residents' thriving regardless of their cognitive function. Similar results have been reported regarding agitation and depression, which were previously reported to be associated with decreased QoL (Beerens et al. 2013; Mjørud et al. 2014). The results reported in paper II extend the findings of Patomella et al. (2016) by demonstrating that cognitive function as well as aggressive and depressive symptoms were continuously present as factors negatively associated with thriving regardless of cognitive functioning. Neuropsychiatric symptoms can be interpreted as expressions of unmet needs stemming from the nursing home residents' decreased ability to provide for themselves or to communicate their needs (Cohen-Mansfield 2000, 2001). In addition, they can be viewed as meaningful expressions and communications of experience (Graneheim and Jansson 2006). Consequently, the negative associations between neuropsychiatric symptoms and thriving (paper II) adds a

suggestion that aggressive and depressive symptoms could be an expression of the resident not thriving. However, given the cross-sectional data used in this paper the results do not allow for a causal relation to be inferred between thriving and neuropsychiatric symptoms. The possibility remains that neuropsychiatric symptoms resulted in lower levels of thriving and not vice versa.

The results indicate that cognitive functioning is an important factor related to the thriving of nursing home residents. One possible interpretation of this finding is that residents with cognitive impairments lose the ability to interpret and interact with their environment and initiate engagement (Kolanowski and Litaker 2006; Cook et al. 2008; Zwijsen et al. 2016). Impaired cognitive functioning may therefore be seen as hampering residents' ability to gain full access to the potential contribution that nursing home environment factors and activities can have on their thriving. Using the Umeå Model of Nursing, it would seem that the proximity of staff with whom residents have high-quality relationships could help meet the residents' need for stimulation and facilitate interaction with their environment so they can thrive. From this perspective, nursing home staff are of prime importance in making the environment and activities accessible to the residents, and it seems possible that staff could mediate the impact of the additional aspects contributing to resident thriving.

Thriving in relation to everyday activities

The results indicated that engagement in activities was positively associated with resident thriving. Twelve everyday activities were associated with thriving in the final model, namely: engaging in an activity program, dressing nicely, spending time with someone the resident likes, engaging in a hobby, participating in religious activities, having everyday conversations with staff not related to care, watching TV, engaging in physical activity, being outside the nursing home, playing parlour games with others, participating in celebrations, and receiving hugs/physical touch (paper III). Social interactions have been described as an important contributor to resident health and well-being in nursing homes (Victor et al. 2000; Bergman-Evans 2004; Drageset 2004). In addition, studies have reported that residents engage in activities in order to feel socially connected (Thomas et al. 2013; Tak et al. 2015). Engaging in everyday activities therefore seems to include a social component, providing the possibility for the resident to have social interactions with staff and peer residents. Several of the activities found to be positively associated with thriving can be interpreted to incorporate social interactions and these social interactions could have importance for thriving.

Using the Umeå Model of Nursing (figure 4) to reflect on the significance of everyday activities in nursing homes, activities can be seen as having value for both residents and staff. The residents engaging in an activity may experience moments of joy and health as the activity may give them respite from boredom and symptoms of ill-health.

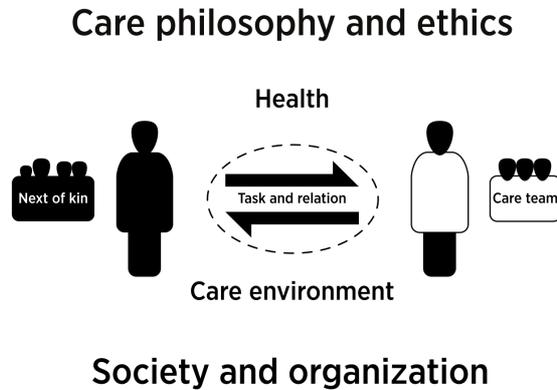


Figure 4. The task and relationship component highlighted in the Umeå Model of Nursing.

It seems as the staff may also benefit from joining in everyday activities, the activities may serve as a tool that can be used in developing relationships with nursing home residents. When staff and residents engage in everyday activities together, the joint activities may serve as arenas for staff - resident meetings. These meetings can provide staff with a possibility to deepen their relationship with the resident. Establishment of a staff-resident relationship seems necessary for staff to gain knowledge about the resident's preferences and needs. Such knowledge is needed in order to be able to provide the resident with person-centred care and could serve as a toolbox for the identification of resident needs and aid interpretation of neuropsychiatric symptoms. Consequently, it seems as both residents and staff may benefit from joint engagement in everyday activities. According to this view, the positive associations between engagement in everyday activities and thriving as reported here may at least partly be regarded as sign of positive resident-staff relationships, creating health in the moment and thriving for residents.

The results indicated that engagement in everyday activities is important for resident thriving. However, based on the present results, it would be unwise to conclude that greater engagement in more everyday activities necessarily always would be beneficial for all residents' thriving and that nursing homes should

therefore aim for higher participation rates in everyday activities. There is the possibility that residents rated as experiencing higher levels of thriving may have been engaged in only a few everyday activities. It is also possible that thriving itself may result in greater engagement in activities (Janke et al. 2008). For these reasons, longitudinal studies are needed to help clarify the causal relationships between activities and thriving.

Based on the present results, it is also impossible to recommend that nursing homes should promote higher engagement or that engagement in a variety of activities is better than engagement in only a few. Notably, studies have also reported that in residents with cognitive impairment, engagement can have negative effects, causing reactions such as sadness, anxiety, and lower positive self-image (Fritsch et al. 2009; Smit et al. 2016). For example, high levels of social engagement reportedly increase agitation among residents with severe cognitive impairment (Kolanowski and Litaker 2006). It has been argued that people with dementia also need periods of solitude and rest (Kitwood 1997). This does not mean that low engagement and/or a limited set of activities are to be striven for, but it does emphasize that the activities provided in nursing homes need to be adapted to the individual residents' capabilities and preferences (Harmer and Orrell 2008; Kolanowski et al. 2005). To make such adaptations, it seems that staff need to have extensive knowledge of the residents and to have relationships with them. Further exploration of the impact of activities on thriving in relation to resident cognitive function, and analyses to explore if there are particular patterns of highly contributing activities that could contribute especially to thriving in residents with cognitive impairment, are warranted and could aid in the design of intervention studies. However, such pattern analyses must be undertaken with caution. Bergland and Kirkevold (2006) stress that the experience of thriving results from *individually adapted* interaction between the nursing home resident and the care environment. Consequently, such analyses can provide only rough guidance, as it is impossible to generalize as to what activities will necessarily result in an experience of thriving in all nursing home residents, as residents' engagement in activities always takes place in a particular physical and psychosocial environmental context.

The activity that displayed the strongest association with thriving was participation in an activity program. This is a somewhat controversial finding in light of studies questioning the benefit of scheduled activities, as activities included do not always match nursing home residents' interests, capacities, and needs (Buettner and Fitzsimmons 2003; Popham and Orrell 2012; Tak et al. 2015). Still, as the results indicated that activity programmes had the strongest association with thriving, one interpretation is that they may well have been adapted to residents' preferences and capabilities. Another possibility is that activity programmes could be seen as providing structure for everyday life and

giving residents something to look forward to and thereby be of importance for resident thriving. Galvin and Trodes (2011) have argued that there is a well-being dimension to the anticipation of events in the future. Consequently, further qualitative studies of the meaning of activity programmes to residents and of the process of planning activity programmes could be valuable. What the activities in the activity programmes were in the sampled nursing homes remains unknown as no such data were collected. It is also unknown how much influence the residents had on the inclusion of specific activities in the programmes. Questions also linger about the extent to which residents were encouraged to make their own choices regarding engagement in social and individual activities and about the extent to which residents had individualized activity programmes. For all these reasons, activity programmes could be a useful target for further research.

Another everyday activity that displayed nearly as strong an association with thriving as did activity programmes was dressing nicely. Dressing and clothing were not specifically mentioned as contributing factors in the Norwegian thriving study, even though personal belongings and furniture were referred to as factors contributing to nursing home resident thriving (Bergland and Kirkevold 2006). Facilitating the presence and use of personal objects and clothes is known to be important, as they can provide a sense of comfort and security and help residents maintain connections to their past social identity and roles (Falk et al. 2013; Van Hoof et al. 2016). Dressing has been described as part of how people convey and enact their identities on a day-to-day basis (Twigg 2010). It would therefore seem that dressing nicely and in line with one's preferences and style from earlier in life should continue to be significant for one's well-being when living in a nursing home (Twigg 2010; Twigg and Buse 2013).

Hobbies and parlour games were also found to be associated with thriving, but the prevalence of such engagement was curiously low. These results are in line with those of previous studies that also reported limited resident engagement in such activities (Smit et al. 2014; den Ouden et al. 2015). As residents are largely dependent on staff for arranging their engagement in activities (Cook et al. 2008), the low observed participation in hobbies and parlour games could indicate that staff tend to consider activity programmes easier to arrange or that they lack knowledge of residents' interests and capabilities (Harmer and Orrell 2008; Haugland 2012). One way that staff could improve such knowledge would be to systematically collect information on each resident's capacities, wishes, and interests regarding engagement and to take account of those attributes when organizing their everyday activities and/or in everyday life in general. The results indicated that the final model (paper III) explained only approximately 25% of the variance in thriving, indicating that a great deal of the variance depends on other factors. This calls for further research into other factors that could contribute to resident thriving. One particular area that could be of interest is care

quality and caregiver quality, which constitute one of the core dimensions in the concept of thriving in nursing homes (Bergland and Kirkevold 2006; Bergland et al. 2015). Consequently, future studies exploring thriving in relation to caring practices such as person-centred care seems needed.

Thriving in relation to the environment

As outlined in the Umeå Model of Nursing, care takes place within a particular context and is influenced by a range of factors, the environment being one of them (figure 5).

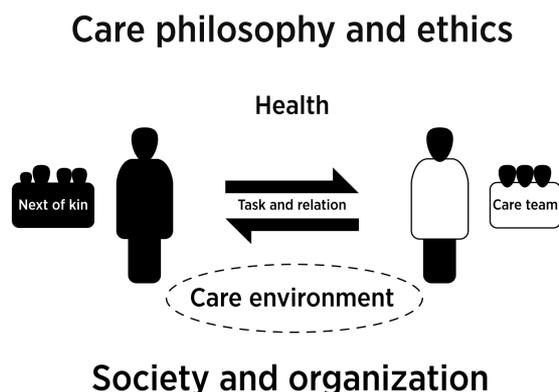


Figure 5. Care environment highlighted in the Umeå Model of Nursing.

The present results showed that a positive psychosocial climate in the unit, having access to newspapers, living in an SCU, and living in a facility that was unlocked during the day were positively associated with nursing home resident thriving, even when controlling for resident characteristics (paper IV). This suggests that both physical and psychosocial aspects of the environment, intertwined to form a whole, are important to resident thriving. The care environment seems to influence, create and affect health and can regulate behaviours, interactions, and emotions and is thereby of significance for nursing. According to Haight et al. (2002), the physical environment can affect the person directly or have an impact on the initiation and development of relationships with other people. The results further displayed that thriving was a place-related phenomenon, so further studies exploring whether thriving can be influenced by interventions in the surrounding environment would be valuable.

Living in an SCU was positively associated with resident thriving (paper IV). However, approximately 50% of the nursing home residents with cognitive impairment were residing in general units (paper I). According to Bergland and Kirkevold (2006), thriving in nursing homes includes residents' experiences of well-being in relation to living in an institutional environment and in prolongation, that thriving residents have been able to adjust well to life in nursing homes. A tentative explanation could therefore be that residents with cognitive impairment could have had difficulties adjusting to the less-than-ideal environment of general units. High demands are placed on the physical and psychosocial environment to compensate for these residents' functional and cognitive losses in order to meet their complex needs. SCUs are also supposed to have higher staff–resident ratios and provide environments and everyday activities specially adapted to their residents (Weyerer et al. 2010). In this, staff have an important role as guides for residents in their everyday life, mediating between the residents and certain aspects of the nursing home environment (Rämgård 2009). Locked doors that prevent residents from coming and going as they wish can limit residents' feelings of autonomy and freedom (Graneheim and Jansson 2006; Heggstad et al. 2013), which could also have an impact on their thriving.

The abilities to make choices and to engage in everyday activities have been described as highly valued by nursing home residents (Popham and Orrell 2012), and residents have expressed that they miss their independence (Graneheim and Jansson 2006; Mjørud et al. 2017). Residents may accordingly benefit from nursing home environments that enable them to make choices and continue with their own habits and routines (Cronfalk et al. 2017). Providing newspapers and having the front door open could help in this and therefore be important for thriving. It is not necessarily that unlocked nursing homes facilitate thriving by providing opportunities for residents to get out more; rather, it could be possible that unlocked nursing homes organize their care differently, for example, by staff being closer and more visible to their residents, making the type of restraint of locked doors unnecessary.

The findings of paper IV indicate that a positive psychosocial climate seems to be a key component for thriving. A climate of everydayness, safety, and community could be essential for establishing high-quality relationships between nursing home residents and staff. Such relationships could be important for resident thriving, giving staff access to information about key aspects of residents' past and present life; staff can incorporate that knowledge and support residents so they can continue to live their lives as the persons they have always been.

The studies included in this thesis have explored thriving in relation to some of the components of the Umeå Model of Nursing, i.e., residents' characteristics (the person in need of care), activities (tasks and relations), and the physical and psychosocial environment (care environment). Specifically, this thesis confirms that thriving is a place-related phenomenon (paper IV), contributing to the concept of thriving by providing knowledge of the extent to which residents' characteristics are associated with thriving. The Umeå Model stresses the influence of other components of the care context on nursing. Consequently, future studies exploring thriving in relation to caring practices (e.g., person-centred care), staff education in dementia care, as well as organization and leadership are warranted.

Methodological considerations

Design

All four studies included in this thesis are based on cross-sectional data. It is well known that cross-sectional study designs have certain inherent weaknesses. The most fundamental weakness concerns the problem of differentiating between cause and effect, due to the simultaneous collection of outcome and possible explanatory variables in such studies. The major strength of cross-sectional studies is that they permit comparison between many variables at the same time, exposing associations between them. Knowledge gained from cross-sectional studies can be used to guide the design of longitudinal and intervention studies.

Sample and procedure

As only 35 out of the 60 municipalities initially contacted joined the study, the SWENIS study's response rate at the municipal level is 58.3%. However, this is close to the generally accepted limit of 60% and is therefore considered acceptable (Johnson and Wislar 2012). How municipalities and units were recruited for participation in the SWENIS study could have affected the results and therefore also the possibility of generalizing them. It is possible that municipalities experiencing problems in nursing home care may have declined participation. Whether or not the contact details for all nursing homes in the municipalities were obtained is also unknown. There is the risk that contact information for nursing homes with poorer care may have been withheld. It is also possible that units declining to participate in the study may have had problems. A weakness of the SWENIS study is that no attempts were made to approach non-participating municipalities or units to ascertain their reasons for not participating. Such data would have been essential for evaluating the representativeness of the SWENIS study (Johnson and Wislar 2012).

Instruments

Thriving of Older People Assessment Scale

Residents with cognitive impairment were excluded from the thriving study by Bergland and Kirkevold (2006). As a result, the concept of thriving from which TOPAS was developed was based solely on lucid residents' own perceptions of factors contributing to their thriving in nursing homes. Even so, studies have repeatedly demonstrated that residents with cognitive impairments who have the capacity to communicate can speak for themselves about their experience of nursing home life and also can assess their own well-being (Thorgrimsen et al. 2003; Hoe et al. 2005; Graneheim and Jansson 2006; Mjørud et al. 2017). Recent studies indicates that nursing home residents are more frail nowadays than before and that cognitive impairment is common (Ernst Bravell et al. 2011; Gustafsson et al. 2015). The population of older people living in nursing homes seems to have changed since the concept of thriving in nursing homes was presented in 2006, and the instrument was developed and tested. Furthermore, residents with cognitive impairment were excluded from the Norwegian study (Bergland and Kirkevold 2006). Consequently, the implication would be that this needs to be considered a limitation of the concept of thriving and it seems possible that this could also be a limitation of the TOPAS scale. One could of course argue that there is no evidence that points towards a suggestion that thriving should differ for residents with cognitive impairments or that the factors supporting thriving should differ for them. This possibility could be supported by a recent study reporting that contentment with nursing home life for residents with cognitive impairment is based on their acceptance of certain facts of reality and on their ability to adjust their expectations (Mjørud et al. 2017). Still, residents with cognitive impairments have not had the opportunity to give their own views of what is important for their thriving. A study of the psychometric properties of TOPAS has reported strong agreement between the proxy ratings and self-ratings (Bergland et al. 2014); nevertheless, TOPAS would gain in trustworthiness if it were also tested in a population of cognitively impaired residents.

Gottfries Cognitive Scale

The Gottfries Cognitive Scale (Gottfries et al. 1969) is relatively easy to complete. The scale seems to have some advantages compared with the more commonly used MMSE assessment, as the Gottfries scale requires no resident involvement or specific staff training. The cut-off and criterion validities of the scale have been established against the MMSE (Sandman et al. 1988). Comparison of the two scales indicates that the Gottfries Cognitive Scale has a smaller floor effect than does the MMSE (Lövheim 2008).

Neuropsychiatric Inventory – Nursing Home

The NPI-NH (Cummings et al. 1994; Wood et al. 2000) was included in the SWENIS questionnaire even though no validated Swedish version was available. This decision was made based on a Norwegian study that found the Norwegian version to be valid and reliable, with high inter-rater reliability and high values of internal consistency (Selbæk et al. 2008). A Swedish version of the instrument is included in the national quality registry, i.e., the BPSD registry, and is commonly used by Swedish nursing home staff, many of whom are experienced in using it.

Pain Assessment in Advanced Dementia

A Swedish version of the PAINAD instrument (Warden et al. 2003) was available, but no published data on validity were found. The decision to include PAINAD in the SWENIS survey was based on a study reporting satisfactory criterion validity for nursing home residents (Leong et al. 2006), and a study reporting internal consistency values of 0.5–0.65 (Warden et al. 2003). However, as the Swedish version had not been validated, this may impact the validity of the pain ratings in study I. Consequently, further validation estimates of the Swedish version would be valuable.

Trustworthiness of proxy ratings

All assessments of residents in the SWENIS study were made using proxies. Proxy ratings are less than ideal due to questionable alignment between self-reported and proxy ratings. It has been argued that proxy rating data provide information that is filtered through the proxy raters' own opinions (Rabins and Kasper 1996). Staff ratings tend to underestimate, for example, the prevalence of pain when compared with self-reports (Leong et al. 2006; Leong and Nuo 2007). Also, discrepancies between self-reported and proxy ratings of residents' QoL have been reported (Spector and Orrell 2006; Crespo et al. 2012).

However, the ability to identify the prevalence of cognitive impairment, ADL dependency, pain, and neuropsychiatric symptoms in the present type of sample is dependent on proxy ratings due to the expected high prevalence of cognitive impairment in residential aged care facilities. In addition, response rates for the annual survey distributed by the National Board of Health and Welfare to all nursing home residents indicate that only 12% of residents could complete the surveys without help and that up to 65% were completed by proxies (NBHW and SALAR 2017). Although problems are associated with proxy ratings, in this context, in which a majority of residents have cognitive impairment and many of them severely, self-rating was not feasible. Self-rating may therefore have resulted in high drop-out rates as well as elective drop-out due to cognitive and functional impairments. The use of proxies therefore also protects residents from being excluded based on their cognitive function. To assess people in this setting

and to compare people with varying degrees of cognitive impairment, proxy ratings were considered the best alternative. Also, at all nursing homes, the ratings were to be performed by the staff members identified as having the best knowledge of the individual residents to be rated. Efforts were made to ensure that the ratings were based on extensive professional and personal knowledge of individual residents. To understand how well staff members knew particular residents, an item was included asking specifically about this. The analysis found that 57% of the staff who carried out the ratings reported knowing the rated resident very well and interacting with them daily; 42% reported knowing the resident well and interacting with them weekly, and only 1% reported knowing the resident but having limited contact with them.

There is also some concern about inter-rater reliability regarding the proxy ratings of residents. It is impossible to be certain that valid results were obtained since none of the assessors were trained to complete the scales included in the questionnaire and there were many different assessors. Due to the size of the sample and the number of participating sites, it was impossible to train and evaluate the assessors. The inter-rater reliability in the studies included in this thesis remains unknown, which is of course a weakness of the thesis. Since the assessments of residents were to be based on the week preceding the data collection, the possibility of recall bias in scoring cannot be overlooked. This means that symptoms and everyday activities could have been over- or under-reported, permitting false positive or false negative ratings. Consequently, further studies collecting data from direct observation of residents are needed.

Statistical considerations

It is important to be aware of the difficulties of comparing regression coefficients with each other when including different types of variables in regression models. First, both dichotomous and scale variables were included in the regression models in this thesis. A variable such as the PCQ-S sum score will have a very small regression coefficient, because the coefficient measures the effect that follows a change of an increase in one-point in the score. Second, the variance may differ between variables, while dichotomous variables can have only two values. A minor effect becomes difficult to measure if almost all the observations have the same value. This could be the case regarding the non-significant associations between thriving and, for example, a room with personal furniture and outdoor access. It is possible that the variance in the responses to those items was too small (i.e., 98.7% of the residents had a room with private furniture and 96.9% had outdoor access) to allow the effect to be measured. Furthermore, the variable room with private bathroom was found to be redundant in the simple multilevel regression analysis (99.4% of the residents had a room with private bathroom). Likewise, it is questionable to draw conclusions from the multilevel

simple linear regression analysis that unit size and features of small-scale living, such as single rooms and living with one's partner, are unimportant for resident thriving. In the Norwegian study (Bergland and Kirkevold 2006), a room with a private bathroom and personal furniture were clearly identified as qualities of the physical environment contributing to the experience of thriving. Also, residents themselves told of the significance of having a private room with personal objects and furniture (Bradshaw et al. 2012). Furthermore, as thriving is an individual experience, factors supporting thriving will differ from person to person.

It is important to recall that a regression analysis can never reveal causality. Given this fact and the cross-sectional design used in this thesis, the results of papers II–IV do not permit causal relationships to be inferred between neuropsychiatric symptoms and thriving, everyday activities and thriving, or psychosocial climate and thriving. For example, there is the possibility that residents rated as experiencing higher levels of thriving may to a larger extent engage in everyday activities because their experience of thriving drives them to such engagement. This is why longitudinal studies and intervention studies are needed, as they could help sort out the causal relationships and provide evidence that can be incorporated into clinical practice to support resident thriving in nursing homes. Nevertheless, the results certainly identify everyday activities and factors in the nursing home environment that are of interest for further exploration and evaluation.

The sampled nursing home residents were nested in units and facilities. Nested data causes some concerns during analysis, because in assessments of the individuals within a nest, the scores tend to correlate to a higher degree *within* the nest than the scores tend to correlate *between* nests with assessments of multiple nests. Standard regression analysis techniques do not take account of this nesting effect. This is why a multilevel regression analysis technique was adopted in the paper on environment factors associated with thriving (IV). From a multilevel perspective, there were three levels in the paper: the individual nursing home facilities (level-3 units), units of nursing homes (level-2 units), and the residents living in the nursing home units (level-1 units). However, the way that the multilevel linear regression modelling was used in paper IV did not fully take advantage of the capacity of the multilevel technique, since all variables were treated as fixed effects and included at the same level in the analysis. It was also somewhat suboptimal to include the categorical variables at the same level as the PCQ-S sum score. The analysis in Paper IV could therefore benefit from presenting a model without PCQ-S. Several other multilevel analyses could be conducted to further investigate the relationships between variables at the different levels.

Statistical validity

The proportion of missing data for activity items was between 0.8% and 2.4%. The proportion of missing data at the TOPAS item level was between 2.1% and 3.1%, which meant that 640 participants were excluded from the regression analysis in paper III. The proportion of missing data for individual NPI-NH items ranged from 8.5% to 17.2% (mean 11.4%), while the item eating changes had the greatest proportion of missing data. For paper II, a missing value analysis (Little's MCAR test) was performed, confirming that data were missing completely randomly in each cognitive impairment subgroup. This meant that the missing data constituted a random subset of the data and that the analysis could be performed as usual. However, as missing data may reflect a lack of staff ability to thoroughly assess neuropsychiatric symptoms using the NPI-NH instrument, the matter should be taken into account in future research.

The structured SWENIS data collection and the large sample are strengths in this thesis. However, A large sample needs consideration in different ways. The main advantage is that it provides a better representation of the population studied and thereby increases the possibility to generalise the results. A consequence of a large sample is the possibility to find statistical significances that has no practical significance (Lantz 2013). calculating effect sizes is one way of displaying the practical significance of the findings (Berben et al. 2012). Therefore, *p*-values were presented with their corresponding effect sizes in study I. The use of a large number of statistical tests in this thesis probably produced a number of type-I errors, i.e., random significances, while the large sample makes it possible to easily detect significance without clinical relevance. In papers I and III, the $p < 0.01$ significance level was used to adjust for the risk of making type-I errors. In papers II and IV, the samples were smaller and the more conventional $p < 0.05$ significance level was used. Throughout the four papers in this thesis, most associations were significant at much higher levels, such as $p < 0.001$. Furthermore, effect sizes were presented along with the *p*-values.

Implications for practice

The present findings suggest that activities are important for resident thriving and that nursing homes could work towards prioritizing staff–resident relationships, creating a welcoming psychosocial climate of everydayness, safety, and community. Nursing homes might also consider organizing daily work so that staff can be closer to residents. The extent to which all these aspects can be implemented and evaluated is worth considering in order to facilitate resident thriving in nursing homes.

A range of activities associated with thriving has been presented and could form part of an important approach to facilitate thriving. These activities could be conceptualized and implemented as nursing interventions. Residents could, for example, be encouraged to engage in games that they like together with peer residents and staff. Such games could benefit both residents and staff by building relationships, functioning as a tool for reminiscence, and supporting residents' social engagement. Implementing games could be a simple and low-cost intervention that could support resident thriving, and could potentially be conceptualized as a daily nursing "task" to facilitate thriving. Managers and staff need to be aware of the significant relationship between the psychosocial climate and resident thriving. Though the physical environment may to some extent set boundaries, what is created in the interplay between people seems to have a stronger relationship with resident thriving in nursing homes. This stresses the importance of joining in everyday activities and valuing and prioritizing high quality relationships between staff and residents in nursing homes. Assessed thriving can be used as a measure of place-related well-being. Nursing home residents could benefit from continuous assessment, as low thriving scores could indicate a need to reassess residents' care and activity plans to ensure that they are consistent with residents' preferences and complex needs.

Further research

Research gaps remain and there are still questions to answer. Could the lower thriving scores in nursing home residents with cognitive impairment indicate that the interaction between residents and staff is unsatisfactory? Do the staff's own assumptions of what it is like to live with cognitive impairment colour their assessments (Winzelberg et al. 2005)? Also, could the negative associations between neuropsychiatric symptoms and thriving indicate that staff ratings of thriving are coloured by the residents' neuropsychiatric symptoms? Such associations have previously been reported in studies of proxy-rated QoL (Gräske et al. 2014). There is very limited knowledge of the judgement processes when proxy rating thriving in residents in general and in residents with cognitive impairment in particular. One way to explore such associations and processes would be by performing cognitive interviews (Rand et al. 2017) with staff when they are conducting proxy rating of residents with cognitive impairment, as this would shed light on the proxy-rating processes.

Another consideration is that neither quality of care nor the caregivers' or residents' intention to thrive was explored in this thesis. Together with resident attitude, the care quality and caregiver quality constitute the core component of the thriving concept (Bergland and Kirkevold 2006; Bergland et al. 2015). Consequently, future studies exploring thriving in relation to other aspects of the Umeå Model of Nursing, such as caring practices (e.g., in relation to person-

centred care) and organizational features (e.g., the staff–resident ratio and staff education in dementia care) would be valuable as well as studies exploring thriving in relation to organization and leadership are warranted. Also, Interviews and observational studies of factors important to the thriving of residents with cognitive impairments would be valuable. Such knowledge is essential to the development of nursing home care and environments that facilitate resident thriving. Further longitudinal and intervention studies could focus on factors associated with changes in resident thriving. The longitudinal cross-sectional design of U-Age SWENIS, with the next data collection planned in 2018, will to some extent make such analyses possible. However, it is unlikely to facilitate more detailed insight into individual perceptions, change in thriving, and factors related to change in thriving at the individual level. As such information is essential for developing interventions intended to facilitate residents' experience of thriving in nursing homes, further longitudinal studies exploring these relationships at the individual level are warranted.

There are also several possibilities for further scale development. The instrument for measuring thriving, the TOPAS, has been developed from the concept of thriving in nursing homes and covers each dimension with a subscale. TOPAS seems to be theoretically situated in the nursing research life-world tradition, providing a life-world based measurement of well-being in relation to living in an institutional environment. It has displayed satisfactory inter-rater reliability between self-reported and proxy ratings (Bergland et al. 2014, 2015). However, anecdotal reports from an ongoing research study staff suggest that staff find it difficult to proxy-rate items related to the core dimensions of thriving (i.e., residents' attitude towards living in nursing homes and residents' experience of care quality and caregiver quality), particular for residents with cognitive impairments that do not have the capacity to communicate their experiences. One option for exploring and gain further knowledge on these matters would be to test the inter-rater reliability of the TOPAS instrument in a population of residents with cognitive impairments, preferably with triads of residents, staff, and family members as used in a previous study of inter-rater reliability (Bergland et al. 2014). Another possibility could be development of a short version of the TOPAS as it comprises 32 items and it seems that the length of the scale may limit the extent to which it can actually be applied in clinical practice. A shorter version would take less time and effort to complete, and it seems as that could be beneficial when TOPAS is used for repeated assessments and might also to some extent enable self-ratings. A shorter version might also be favourable when administered as part of a composite survey comprising several questionnaires. Consequently, if a shorter version of TOPAS were developed, it might prove useful in both clinical practice and research.

Conclusions

The present findings suggest that engagement in everyday activities is of importance for resident thriving and that various factors in the nursing home environment can support thriving, of which the psychosocial climate of units seems to have a great influence. It seems that nursing homes could work towards prioritizing staff–resident relationships, creating a positive psychosocial climate of everydayness, safety, and community. Nursing homes might also consider organizing daily work so that staff can be closer to residents. As resident data were based solely on proxy ratings, future research exploring residents' own perspectives on thriving would be valuable.

The population living in Swedish nursing homes displayed a high prevalence of cognitive impairment, ADL dependency, pain, and neuropsychiatric symptoms and were residing in environments that may not always be adapted to their cognitive capacities (papers I and II). These findings might be an indication that nursing home care and environments do not entirely fit the needs of this population. Care and caring environments for this population need to be tailored to meet the residents' complex needs. The results of papers I and II do not indicate that the care provided was of deficient quality, but may be interpreted as indicating that the nursing home care and environment could be increasingly tailored to meet the complex needs of residents, as demonstrated in paper one.

The findings (paper II) indicate that attending to aggressive and depressive behaviours in residents seems to have a priority as they could be possible indicators that a resident is not experiencing thriving in the nursing home. The research also demonstrates the significance of psychosocial environment and activities as factors supporting resident thriving (paper III-IV). These factors could for example be addressed through developing and implementing psychosocial interventions, though it is advocated that the associations between these factors and thriving should be further explored. In particular, longitudinal qualitative and quantitative studies are needed in order to determine what factors are related to changes in thriving.

The findings presented here can provide benchmark estimates for further research, quality assessment activities, as well as further clinical development work.

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