Abstract: The Nordic countries have a reputation for having both universal welfare systems and high housing standards. However, demographic development and ageing in place policies present challenges to the current housing and care services for the older population. During the last few decades, there has been a significant decrease in the coverage of care for older adults. This is related to the increase in older adults as well as challenges related to the availability of the workforce and raising care costs. This development is leading to increasing demand for various supportive housing solutions for seniors and older adults. The objective of this paper is to provide a comparative overview of existing housing solutions for seniors and older adults in Nordic countries. The objective of the comparative descriptive analyses is to point out the challenges and future possibilities for housing. This is illustrated by some new cases, all of which show solutions that enable older adults to continue being a part of city life in their own neighbourhoods. They also show a variety of solutions that, at the same time, give possibilities to live independently and live interdependent in different kinds of co-housing and neighbourhoods. This paper highlights the need for a more systematic evaluation of housing solutions for older adults across the Nordic countries, to be able to learn from each other and to be able to manage the impacts of an ageing society on the welfare system.

Keywords: housing design; older adults; inclusion

1. Introduction

The demographic development is challenging the housing and care service structures for the older population. Since the 1990s in the Nordic countries, there has been a strong trend towards deinstitutionalization, which has led to radical transformations, especially in Sweden and Denmark (Daatland, Høyland and Ottes, 2015). Due to the trend of deinstitutionalization, the share of older adults living in residential care has decreased (Szehely and Meagher, 2018; Socialstyrelsen, 2021a). In Finland, the number of residents has remained the same since 2014 (THL, 2021). This indicates that fewer older adults have access to residential care. This trend contributes to an emerging need for alternative housing solutions that are adapted to the different needs of the heterogeneous group of older persons. All Nordic countries have high housing standards. However, many older adults live in dwellings with a large number of environmental barriers and a socio-spatial environment that does not support their needs (Iwarsson et al. 2006). One way to solve these challenges is to make home modifications (Tanner, Tilse, and de Jonge, 2008) and accessibility renovations with subsidies are widely used but differ locally (Boverket, 2020, ARA, 2021). The dwellings may also be located in neighbourhoods with poor access to services and social support (De Donder, Buffel, Dury, and De Witte, 2013; Ahrentzen, 2010; Cramm and Nieboer, 2013). As many older adults live in housing or residential areas that don’t fit their needs, they may feel lonely or insecure (Berglund-Snograss and Nord, 2019), which may affect their ability to manage activities of daily living (ADL). In addition, there is a demand for housing solutions for older adults wanting to
live a self-contained life as an integrated member of a community (SOU, 2008:113, ME, 2020). The current policies in the Nordic countries have increased the number of older adults living at home alone, which may affect the level of loneliness among older adults. A Finnish study revealed that 36% of older adults in home care reported being alone always or more often than they wished (Alastalo et al., 2016). A Norwegian study shows that a good social network protects against loneliness and that this, in turn, contributes to better health (Veenstra et al., 2019). Moreover, a recent study in Sweden showed that living alone at an old age appears to negatively affect those who have the most disadvantaged social and functional status (Shaw et al., 2018). Therefore, the need for the development of a more communal way of living is increasing.

The Nordic welfare model has attracted international interest since the 1970s due to welfare services funded from general taxes. Nordic universalism refers to the principle that the right to service is the same for all citizens and that services are publicly provided (Szebehely and Meagher, 2018). The housing services for older adults have been funded by municipal income tax. The municipalities are responsible for ‘promoting’ and ‘facilitating’ housing development, that will accommodate the housing needs of the citizens (Berglund-Snodgrass et al., 2021). Health and social care services are distributed through needs assessments, and may vary locally (Valbo and Burau, 2011). Access to residential care (24/7) is based on needs assessment, and e.g., in Finland, the majority (80%) of the residents living in residential care have memory disorders (MSAH, 2020). The situation is similar in other Nordic countries.

Today, in four of the Nordic countries, approximately twenty percent of the population is 65 years old or older (Norway: 18%, Denmark and Sweden: 20%, Finland: 22%). Iceland has a slightly younger population (14% of the population is 65 years old or older). The population projections for the year 2050 show an important increase in the population cohort aged 80 years and older, which is likely to need a supportive home environment. The share of the oldest age cohorts will be twice as large as in 2020 and represent up to 10% of the population (Table 1.).

<table>
<thead>
<tr>
<th>Country</th>
<th>Population 2020, % of people over 80 years old and over</th>
<th>Population projection for 2050, % of people 80 years old and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Finland</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>Iceland</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Norway</td>
<td>4%</td>
<td>10%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Therefore, there is a need to find new housing solutions that meet both the current and future requirements of the older population and respond to their various needs and preferences. To evaluate the current housing solutions targeted at older adults and to understand the potential for development, more studies are needed. This article contributes further knowledge on housing alternatives for seniors and older adults in Nordic countries. In this article, seniors refer to persons 55 years old and over and older adults to persons in the age cohort 80 years old and over. The paper describes some new concepts of housing for seniors and older adults, with a few illustrative examples, that have emerged and expanded during the last decades.

2. Background
The policy of Ageing in place is implemented in all Nordic countries. Denmark became a pioneer country in 1987 due to the Housing for the Elderly Act (Ældreboligloven), which focused on the improvement of the quality of life of older adults, allowing them to live at home. The care system was transformed from an institutional long-term care model to one with a wide range of home care services, home adaptations, and health care solutions. The objective was to strengthen the continuity of care, self-determination, and independence of older adults (Gottschalk, 1995). Since then, this transformation has taken place in all other Nordic countries. Denmark was a pioneer in the field of co-housing (bofællesskab) especially in co-housing for the elderly (Durett, 2005). Similar co-housing projects are also
found in Finland, Sweden, and Norway. It refers to a housing solution with shared common areas, where residents participate in daily tasks, social activities, and joint decision-making in a non-hierarchical process.

Research shows that the social environment provided by these co-housing solutions has great significance, especially for older adults. Previous studies showed that residents in co-housing for older adults in Denmark and Sweden reported that they were healthy, satisfied with their housing conditions, and warmly recommended the co-housing model to other older adults (Choi, 2004). Moreover, Forbes (2002) argues that co-housing communities lead to closer social ties and greater participation, which in turn may contribute to happier and healthier ageing. The benefits of communal housing for older adults are mutual support, increased acceptance of ageing, a sense of security, fewer worries, and less social isolation (Pedersen, 2015).

A recent study in Norway (2020) shows that the residents in private co-housing projects experience that the housing solution contributes to their quality of life through 1) increased self-efficacy (coping), the opportunity to manage themselves longer, 2) easy access to activities and an environment that inspires participation, 3) an experience of security and safety, and 4) multiple social relations. The informants of the study lived in age-homogeneous co-housing and appreciated this, but many also saw disadvantages with it and preferred the possibility of living together with people of different ages. Building relationships between generations has been found to be beneficial for both young and old. However, not all older adults are interested, e.g., having common activities with children (Ukkonen-Mikkola, 2011, p. 153).

In all Nordic countries, work on legislation for accessibility has increased considerably during the last few decades. Universal design has become a standard in nearly all newly built housing projects and helps the older adults live in their own independent home and get help at home. Therefore, a key question is whether we really need special housing for older adults in the future. As the studies and public discussion show, we agree that accessibility is not enough. Older adults should experience this last phase of life by living in housing that promotes a sense of safety, residents’ activity, and participation in social life.

3. Aim and Methods

This article is based on collaborative work between the authors, who have conducted research in the field of housing for older adults in different Nordic countries. It is based on long-term research work. The lack of an overview of the housing solutions in the Nordic countries was identified, and the need for this joint study came up in a collaborative research meeting of the Nordic network for research on housing for older people in Reykjavik 2017. The objective of this article is to describe emerging Nordic housing solutions for older adults.

This research was carried out using the case study method (Yin, 1994). The study was conducted as follows: The first phase included a description of the different housing models that exist in the Nordic countries, policies, rules, and regulations related to housing services for the older population. The first phase aimed to discuss and define the similarities and differences in available housing services for older adults in each country. In the second phase, the aim was to identify the current trends that could be discerned within the field of housing for seniors and older adults. This was done through descriptive analyses of recently built housing models. In the third phase, we discussed and decided upon a categorization of the housing concepts and came up with three different main categories (see Results). Lastly, we decided to give illustrative examples of the results through a case study approach using the categorization developed in the third phase. The selection of cases was made by choosing those well known by the authors, as they had previously conducted studies or study visits on site. Moreover, some evidence from user studies was available for the chosen cases.

3. Results

There are three broad categories of housing for older adults in the Nordic countries: a) special housing with 24-hour care distributed by needs assessment (residential care, sheltered housing), b) housing with supportive services available (extra care housing, ordinary sheltered housing) and c) housing targeted for the age cohort 55+ without supportive in-house services (senior housing, co-housing for seniors, multi-generational housing). The first category is not discussed in this paper. The second category includes housing solutions for independent living, such as Ældre boliger in Denmark, Omsorg Pluss boliger in Norway, Tavallinen palveluasuminen in Finland, and Trygghetsbostäder in Sweden (Table 2.). These apartments provide the possibility for independent living with assistive
technology, affordable meals, and personal support on request. In general, the personnel are available daily during working hours to organise social activities with residents. The residents pay monthly fees for the apartment and may purchase service packages separately. Apartments are mostly for rent, and residents can get allowances, subsidies, or service vouchers for their living costs from the municipality. There are minimum regulations on the size of the apartments as well as accessibility.

The third category refers to, e.g., self-managed seniors and senior co-housing, where residents live independently and may give mutual assistance between seniors or between generations (Table 3). The co-housing concept also supports community building, peer support, and social activities. The eligibility criteria for moving into senior housing is the resident’s age. There are no services in these buildings. However, residents may get home care services from the municipality. Senior housing has no particular regulations for construction. However, they are built with accessibility in mind. In senior co-housing, private and non-profit companies (NGO) as well as residents themselves have been the developers and hence influenced the design choices. Residents in co-housing also commit to a more communal way of living.

Table 2. Housing with supportive services, Nordic models

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of Housing</th>
<th>Service providers</th>
<th>Tenure type</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Ældre boliger</td>
<td>NGOs, Private developers</td>
<td>Rental apartments</td>
<td>Needs assessment</td>
</tr>
<tr>
<td>Finland</td>
<td>Tavallinen palvelusasuminen</td>
<td>Municipality NGOs, Private companies</td>
<td>Rental apartments</td>
<td>Needs assessment Age +65</td>
</tr>
<tr>
<td>Norway</td>
<td>Omsorg +</td>
<td>Municipality NGOs</td>
<td>Rental apartments</td>
<td>Needs assessment Age +75</td>
</tr>
<tr>
<td>Sweden</td>
<td>Trygghetsboende</td>
<td>Municipality NGOs</td>
<td>Rental apartments Tenancy right</td>
<td>Needs assessment Age +75</td>
</tr>
</tbody>
</table>

Table 3. Housing without in-house supportive services, Nordic models

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of Housing</th>
<th>Service providers</th>
<th>Tenure type</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Seniorbolige Senior bofællesskab</td>
<td>NGOs Private developpers</td>
<td>Rental apartments Owner-occupancy</td>
<td>Age +55</td>
</tr>
<tr>
<td>Finland</td>
<td>Senioriasunnot Yhteisöllinen asuminen</td>
<td>NGOs Private companies</td>
<td>Rental apartments Right to occupancy Owner-occupancy</td>
<td>Age +55 (Age +48)</td>
</tr>
<tr>
<td>Norway</td>
<td>Seniorbo Bofellesskap</td>
<td>NGOs Private developers</td>
<td>Rental apartments Tenancy right Owner-occupancy</td>
<td>Age +55</td>
</tr>
<tr>
<td>Sweden</td>
<td>Seniorboende Kollektiveboende</td>
<td>NGOs Private developpers</td>
<td>Rental apartments Tenancy right</td>
<td>Age +55</td>
</tr>
</tbody>
</table>

These categories are not strictly defined and overlap. Further, we observed a trend showing an increased interest in mainstream housing with qualities that promote older persons’ independence, e.g., housing with extra services (such as providing common
spaces or activities, staff, or co-housing). The following paragraphs illustrate such housing concepts.

3.1. Housing with supportive services

Trygghetsboende Bifrost is an extra care housing project owned by the municipal landlord Mölndalsbostäder. Mölndal is a municipality on the west coast of Sweden with 70,000 inhabitants. The housing was finalised in 2017 and comprises 66 fully equipped rental apartments (1.5–4 rooms, between 53-100m²) for seniors (+65). All apartments have a large balcony, which is partly glazed and partly open. On the ground floor, there is a lobby, a communal living room and large kitchen, a guest room, and a library. Outside of the lobby, there is a terrace (Figure 1), a greenhouse, and a boules court. On the 9th floor, there is a gym, a room for small groups, a sauna, and a roof terrace with nice views of a meadow and the woods.

A hostess, in charge of activating the residents, is working in the extra care housing on weekdays. The building has many communal areas for various activities. The residents create and participate in activities such as a walking group, book club, yoga, game evenings, coffee meetings, joint celebrations of holidays, etc. Moreover, bus stops outside the entrance enhance the mobility of residents. A small grocery store as well as a residential care home offering lunch for a reasonable price are located within walking distance from the premises.

Pastor Fangens vei 22, also called Seniorhuset, is a living and activity centre for older adults in Oslo. The aim is to build a community where residents care about each other. Residents rent independent apartments with assistive technology, such as a wearable alarm, door monitoring, fall detection, etc., that can be adjusted depending on their personal needs for help. All residents have access to a shared kitchen, living room, and fitness room. The house has 29 rental apartments on 4 floors (Figure 2). The apartments are bright, one-bedroom apartments that all have a spacious balcony. Each floor also has a common living area. On the 2nd floor, there are 7 apartments for people with mild or moderate dementia.

The Seniorhuset offers activities for older adults in the district and wants to become the meeting place for those living in the district. Outside the block, there is a beautiful garden with a hen house, a climbing wall, tables, and benches. A kindergarten is located in the immediate surroundings (Figure 3). It provides a great activity for both young and old.
The Seniorhuset has two apartments for students, who work 30 hours a month as "co-residents". They participate in social activities together with the older residents in the shared spaces. So far, the presence of students has felt natural, and the experience has been successful. The employees take responsibility for guiding the students on confidentiality, ethical guidelines, etc.

There are two permanent staff members in the house: a nurse manager and a public health consultant. Furthermore, home assistance is provided when needed. The home assistance focuses on daily coping, and the residents are able to continue to live the way they were used to but within a safer framework. It’s just a more social form of housing. The manager emphasises new ways of working, which are considered necessary for strengthening networks and enhancing volunteering.

3.2. Multi-Generational housing

*Generationernes Hus* (Aarhus, Denmark) is a joint initiative within the municipality (Health and Care, Children and Adolescents, and Social Affairs and Employment) and a public housing association (Brabrand Housing Association). The building contains 304 rental apartments: 100 apartments for older adults living independently (43m²), 100 apartments divided into seven group homes for 14-15 older persons with high care needs, 40 apartments for families (60m² - 80m²), youth housing for 40 persons (rooms 21m² - 28m²), and 24 apartments for people with a physical disability (39m²). A kindergarten for children between 0 and 6 years old is also located in the building (for 150 to 190 children). In addition to the homes and institutional spaces, the building also contains a few common functions such as a fitness centre, assembly kitchen, playground, conference hall, multipurpose hall, etc.

*Generations Block* is a new cross-generational housing development in Finland (Helsinki, Jätkäsaari area). It comprises 47 owner-occupied housing units, 113 rental housing units for seniors (+55), 102 apartments for students, and 20 apartments for people with disabilities. It is developed by three non-profit organisations: the Foundation for Student Housing (HOAS), Settlement Apartments (Setlementtiasunnot Oy), and the Housing Foundation (Asuntosäätiö). It provides housing and shared spaces for its residents. A laundry room and a gym are used by all residents. The people living in the neighbourhood can access the coffee shop at street level, and they can rent the common-use spaces for meetings or events. All shared spaces are located on the ground level and open to the street or courtyard. The courtyard is designed for shared use. Moreover, the Settlement Apartments provide “Living Service Coordinators”, who enhance the community building, provide information, and plan the activities and special events, such as excursions, and season festivities, together with the residents.

3.3. Senior co-housing

*Kotisatama* is a communal senior housing project realised by the City of Helsinki based on the initiative of the Active Seniors' Association. It is located in the new urban area of Kalasatama. The owner-occupied apartments are subsidised by City of Helsinki.
(Hitas). Hitas’ owner-occupied housing system is aimed at ensuring that housing prices are based on real production costs. The maximum prices of Hitas units are regulated. The proximity of the metro station, a shopping mall, and a health care centre enhances the independence and mobility of the seniors. The building was inaugurated in 2015. The nine-story apartment building has 63 fully equipped apartments, ranging from 38m² studio apartments to 77m² three-room apartments. There are over 500m² common-use spaces: a dining room, library, hobby room, gym, sauna, roof garden, etc. The age limit for residents is currently 48 or older. The residents are distributed into six groups and sign an agreement to participate in preparing food, organising common activities, and cleaning the shared premises.

![Figures 4 and 5. The common dining room (photo Verma) and the communal kitchen (photo Høyland)](image)

The residents call the building a “self-service house”. In the beginning of 2015, there were approximately 80 residents ranging in age from 55 to 80 years of age. According to Jolanki et al. (2017), the majority of residents reported a high level of wellbeing (94%) and feeling part of the community (87%). Due to the long period of planning and construction, the residents knew each other before moving into the building. The main goal of the residents was to maintain physical and social health, be active, and be integrated into city life. Jolanki et al. (2017) found that a few residents found these duties and communal living too demanding. This will also be a challenge when the residents grow old together.

4. Discussion

The overall goal for age-friendly communities is that new mainstream housing developments and housing renovations would encourage older adults to remain in their ordinary housing as long as possible. Age-friendly cities and communities promote older adults’ inclusion and participation in community life, respecting older adults’ decisions and lifestyle choices (WHO, 2015). Means (2007) argues that housing policies must seek to improve mainstream housing and enhance the development of a wide range of housing options with care in later life. He points out that many older adults, especially those on low incomes, are vulnerable because they live in vulnerable housing situations (accessibility issues, affordability, etc.). People wish to maintain a normal life and be integrated into society at an older age. The chosen cases show that communal housing solutions can be successful and support the social needs of older adults. Architectural solutions create a platform for common activities. The geographical location and spatial organisation of the housing for older adults influence the opportunities for spontaneous and informal social contact with neighbours (Berglund-Snodgrass & Nord, 2019). Examples of this are housing solutions for older adults in multigenerational neighbourhoods (Høyland et al. 2020), service blocks (Verma et al., 2017), and extra care housing (Lindahl, 2015, Lindahl, Andersson & Paulsson, 2018; Berglund-Snodgrass & Nord, 2019).

Older adults are a heterogeneous group of people, who have diverse needs, lifestyles, and housing choices. Therefore, a variety of solutions that support daily living, social activities, and peer support are needed. Multigenerational housing solutions may help to avoid the spatial segregation of older adults and increase their inclusion in the community. Ng et al. (2020) found that self-acceptance and interdependence are two factors that are most pertinent in old age and promote longevity. They suggest that interventions to support these should be added as factors of wellbeing and ageing health. Metze (2016, p. 192) suggests solutions where people are allowed to be old and increasingly frail, and still maintain their relational autonomy and individual preferences. She argues that solutions appealing to older adults are empowering and focus on reciprocity, peer-to-peer support, and solutions instead of problems.
Housing policy and urban planning are important strategic tools to enhance the inclusion of older adults in the community. The major concepts related to multigenerational neighbourhoods where older adults can remain living in their own apartments are based on the Universal Design of the urban environment and the renovation of existing housing for older adults (Høyland et al., 2020, Verma, 2019).

In 2016, Denmark started to collect data and strengthen its knowledge base regarding the quality of life and housing conditions of older adults. This was carried out with five preliminary analyses. After that, the Realdania organisation formed an initiative called “Rooms and Communities for Seniors” to test and create new housing solutions through partnerships with senior co-housing communities (Realdania, 2022). The collaboration focused on promoting new frameworks for communities that strengthen common venues to promote social relationships and inclusive, equal communities. Realdania sought to stimulate the market through partnerships with private investors and the general housing sector. They approached the main real estate developers in the country with the proposal of collaborating on the creation of senior community-based housing. In turn, Realdania committed to supporting the research and development for each of the projects, including the housing prototypes. This illustrates an interesting approach how to influence the housing market other than only financial support or regulations.

In Finland, the Implementation of the housing development program for older people (Ministry of the Environment, 2020) emphasises accessibility renovations of existing apartment buildings, multigenerational and communal housing developments, and enforcement of age-friendly communities. The aim is to provide alternatives to 24-hour residential care. The future challenge is to provide a safe and inclusive living environment also for older adults with cognitive decline. In Norway, Universal Design is implemented as a national strategy, and new apartments should be accessible to people with mobility impairments. Moreover, the benefits of social participation are well-known. Despite that, there is a lack of political programmes supporting co-housing.

5. Conclusions

The objective of this comparative descriptive analysis is to point out the challenges and future possibilities for new housing strategies. The implementation of Universal Design in rules and legislation in housing construction is making many older adults able to stay at home longer. Case studies show, however, that loneliness is also a growing challenge. Therefore, defining an age-friendly environment as a question of low thresholds or wheelchair accessibility is too narrow. It is an important challenge to find solutions that promote activity, participation, and a feeling of safety. These are important aspects from a health promotion perspective. As the number of people with memory decline increases, we also need to critically consider which is the best housing environment for them.

The cases chosen for the paper illustrate some new concepts, all of them showing solutions that enable older adults to continue being a part of city life in their own neighbourhoods in different ways. They also show a variety of solutions, which reflects the diversity of people’s needs and wishes. However, we need further knowledge and comparative analyses on the effectiveness of various housing solutions on the wellbeing, health promotion, and coping of older adults. This paper highlights the need for a Nordic programme that supports innovation and a more systematic evaluation of housing solutions. We also propose spreading the good examples across the Nordic borders. Policies for housing and services for older adults are an important tool to promote this development. Moreover, in the Nordic countries, where housing construction is highly regulated, we also need to allow more pilot projects and experiments in the housing sector. This would give us new knowledge on how to promote inclusive communities, and how we can meet the implications of demographic change for the Nordic welfare model.

Contributor statement

Author 1: editing, writing, investigating
Author 2: writing, investigating
Author 3: writing, investigating
References


