IDŐSBARÁT VÁROSI TÁJAK

Esettanulmány a szenior lakosság preferenciájáról és használati szokásairól
Koppenhága (Dánia) közhasználatra szánt zöldfelületein

AGE-FRIENDLY URBAN LANDSCAPES

*A case study analysis of senior residents' usage behaviour and preferences
regarding open green spaces in Copenhagen (Denmark)*

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ABSZTRAKT

A világ népességének öregedésével párhuzamosan a városokat adaptálni kell az eltérő igényekkel és képességekkel rendelkező öregedő lakosság befogadására. Egy idősbarát városi táj akadálymentes, ergonomikus, "inclusive" kialakítású, azonban nem elegendő a fizikai kényelem megteremtése, hiszen az emberi jólét szubjektív dimenziója is jelentősen befolyásolja az életminőséget.
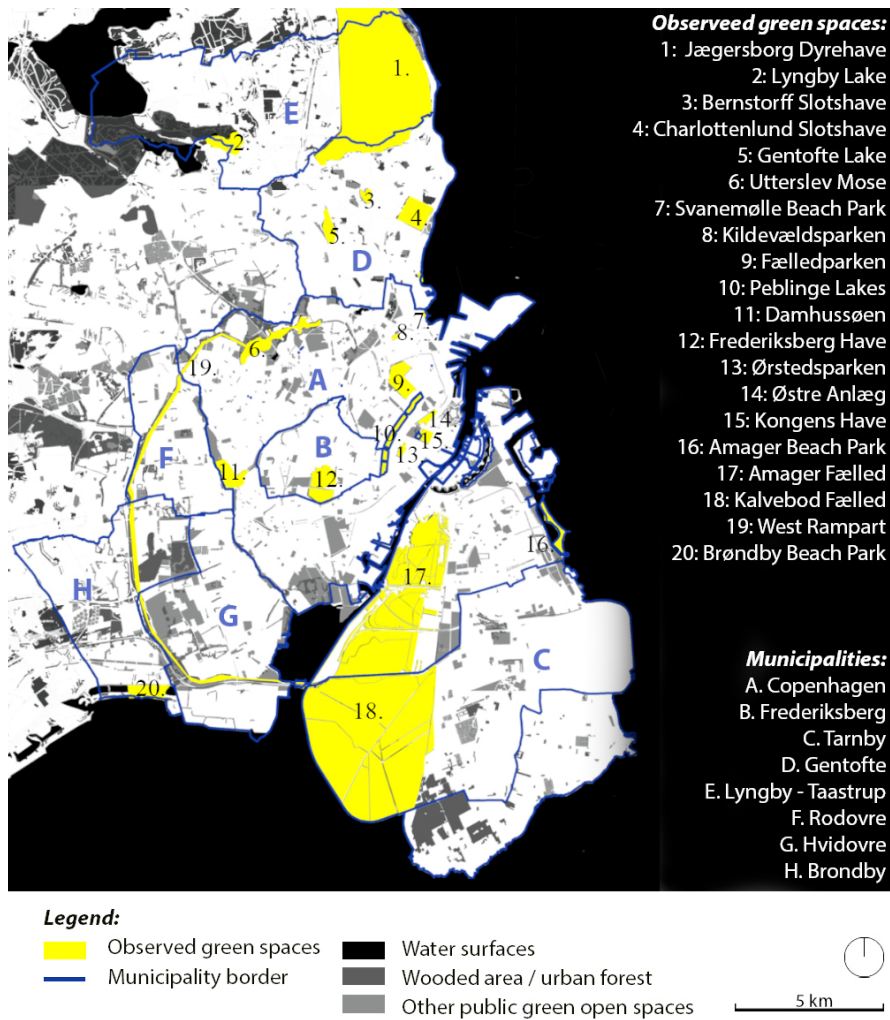
Tanulmányok bizonyították, hogy a mindennapjainkban megjelenő minőségi városi zöldkörnyezet képes többek között csökkenteni a fájdalmat, a verbális izgatottságot, a kognitív hanyatlást, és növelheti az élettartamot. A kutatások azt is igazolták, hogy sokkal szívesebben és gyakrabban használunk olyan tájakat, amelyeket preferálunk, hiszen ilyenkor az agy és a test tudatalatti és azonnali pozitív választ ad már ezen tájak látványára is. Ennek ellenére kevés kutatás foglalkozik annak felmérésével, hogy a 60 év feletti lakosság milyen típusú városi zöldfelületet részesít előnyben. Az esettanulmány célja, hogy felmérje az idősek preferenciáit és használati szokásait Koppenhága városi és elővárosi (17 település), közhasználatra szánt zöldfelületein.

A kutatást a metropolisz zöldfelületeinek mennyiségi elemzésével kezdtük, ami segített a típusokba sorolásban is. Ezután egy kérdőíves felméréssel meghatároztuk, hogy a 60 év feletti lakosság mely típusú városi vagy elővárosi zöldterületet részesíti előnyben, azt milyen módon használja, és milyen messze található otthonuktól. Az utolsó lépés egy megfigyelésen alapuló vizsgálat volt. Húsz

különböző típusú városi és elővárosi zöldfelület használatát és népszerűségét mértük fel az idősödő lakosság körében Koppenhága metropolis nyolc településén. Vizsgáltuk továbbá a zöldfelületek idősbarát jellemzőit is.

Mind Koppenhága városát, mind a metropoliszt gazdag kék-zöld infrastruktúra jellemez, amely egyenletesen oszlik szét a vizsgált területen. A kérdőíves felmérés alapján – amelyre 80 válasz érkezett – a legkedveltebb zöldterület típus a történelmi villa, főként ha városi környezetben található, biodiverz, különleges látnivalókkal és szervezett tevékenységekkel várja látogatóit. Ennek ellenére az otthonról 5-10 percnyi sétával elérhető zöldterületek a leglátogatottabbak. A megfigyelésen alapuló vizsgálat szerint az idős lakosság körében a legnépszerűbbek a lakóhelyről jól megközelíthető kisebb kék-zöld infrastruktúra elemek, különösen a városi szövetben található tavak, vagy helyi parkok, amelyek lehetővé teszik minden koppenhágai lakos számára, hogy "kapcsolódjon" a zöldkörnyezettel.

*Kulcsszavak: idősbarát, városi táj, egészségtáj,
élhető város, jóllét* ◉

Observeed green spaces:
1: Jægersborg Dyrehave
2: Lyngby Lake
3: Bernstorff Slotshave
4: Charlottenlund Slotshave
5: Gentofte Lake
6: Utterslev Mose
7: Svanemølle Beach Park
8: Kildevældsparken
9: Fælledparken
10: Peblinge Lakes
11: Damhussøen
12: Frederiksberg Have
13: Ørstedsparken
14: Østre Anlæg
15: Kongens Have
16: Amager Beach Park
17: Amager Fælled
18: Kalvebod Fælled
19: West Rampart
20: Brøndby Beach Park

Municipalities:
A. Copenhagen
B. Frederiksberg
C. Tarnby
D. Gentofte
E. Lyngby - Taastrup
F. Rodovre
G. Hvidovre
H. Brondby

Legend:
Observed green spaces
Municipality border
Water surfaces
Wooded area / urban forest
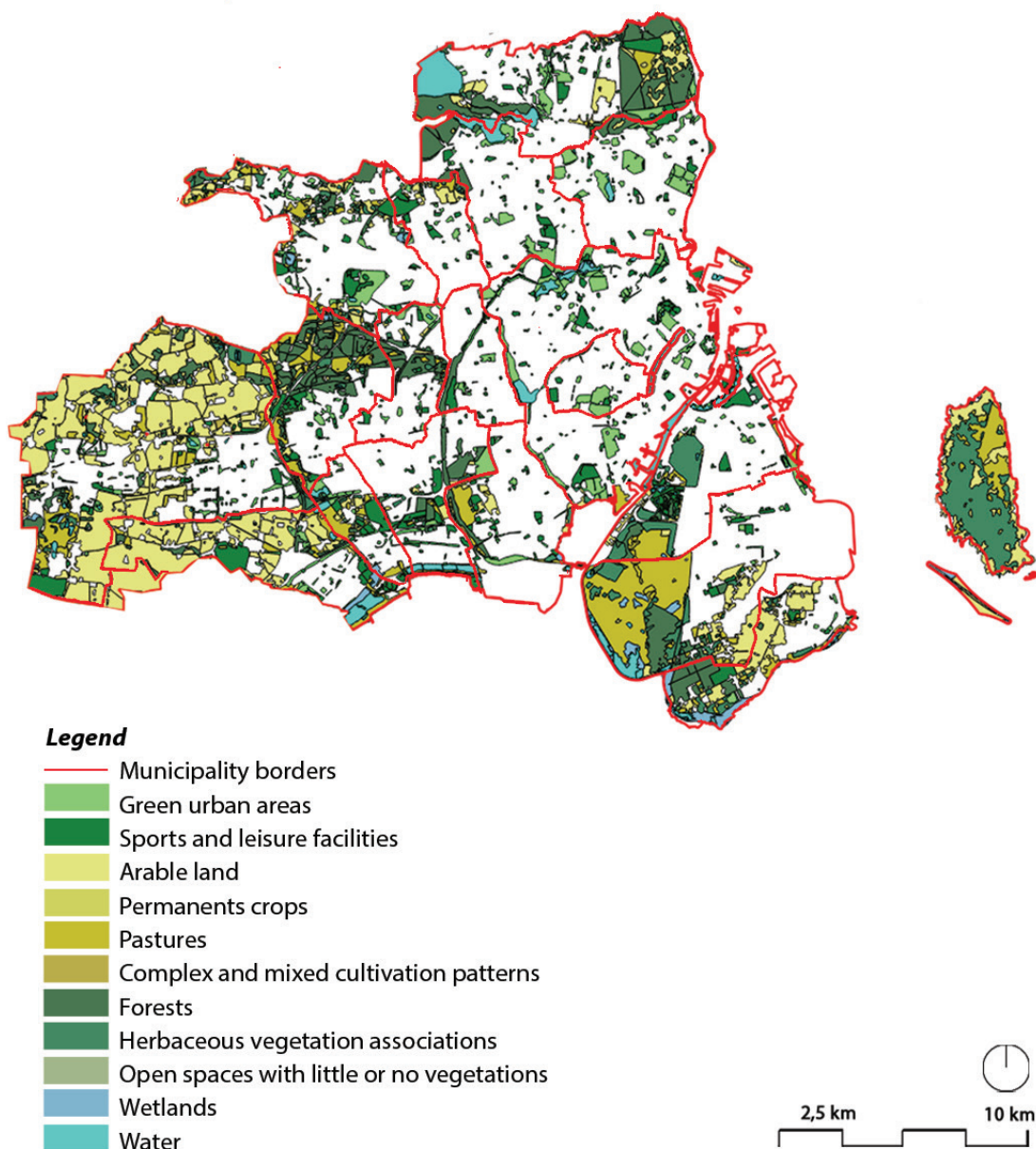Other public green open spaces
5 km

Figure 1: The location of the observed green spaces. Based on the University of Copenhagen database, 2018

ABSTRACT

As the world's population ages, cities must be prepared to adapt their urban forms, to become inclusive for elderly people with different needs and capacities. Studies have shown that exposure to qualitative natural urban settings may reduce pain, verbal agitation and cognitive decline, accelerate recovery from certain disabilities and increase longevity. Research has also proved that people are more likely to make use of the landscapes they like the most, while brains and bodies give a subconscious and immediate positive response to these landscapes. However, very little research has been conducted on seniors' preferences regarding nature-based urban or suburban recreation. The aim of this study is to assess elderly people's preferences and usage behaviour regarding urban and suburban public green spaces in Copenhagen. The research started with a quantitative green space analysis of the metropolis, which also helped me to divide the green spaces into types. A questionnaire was distributed to obtain information from elderly citizens (over 60 years' old) about their preferences and usage of urban or suburban parks and the proximity of these spaces to their homes. An observation study was conducted to evaluate the popularity among older adults of different types of urban or suburban green spaces in the Danish capital and to examine the characteristics of those parks nominated as the most popular in the questionnaire. Copenhagen is rich in green and blue spaces, which are evenly distributed across the region. According to the questionnaire, in which 80 elderly citizens took part, the favourite park type is the historical villa, located in urban areas or with special attractions, nice natural areas, organised activities and biodiverse. These villas also remind elderly people of their childhood. Nevertheless, parks that are within a 5–10 minute walk of their homes are more frequented. Based on the observation study, the most popular and most used by fragile elderly people are the smaller green and blue spaces, especially the urban parks with lakes or neighbourhood parks, located all around the region, which give every citizen, no matter where they live, easy access to green and blue spaces.

Keywords: age-friendly, healthscape, well-being, urban public green spaces, preferences, usage behaviour

Legend

— Municipality borders
— Green urban areas
— Sports and leisure facilities
— Arable land
— Permanents crops
— Pastures
— Complex and mixed cultivation patterns
— Forests
— Herbaceous vegetation associations
— Open spaces with little or no vegetations
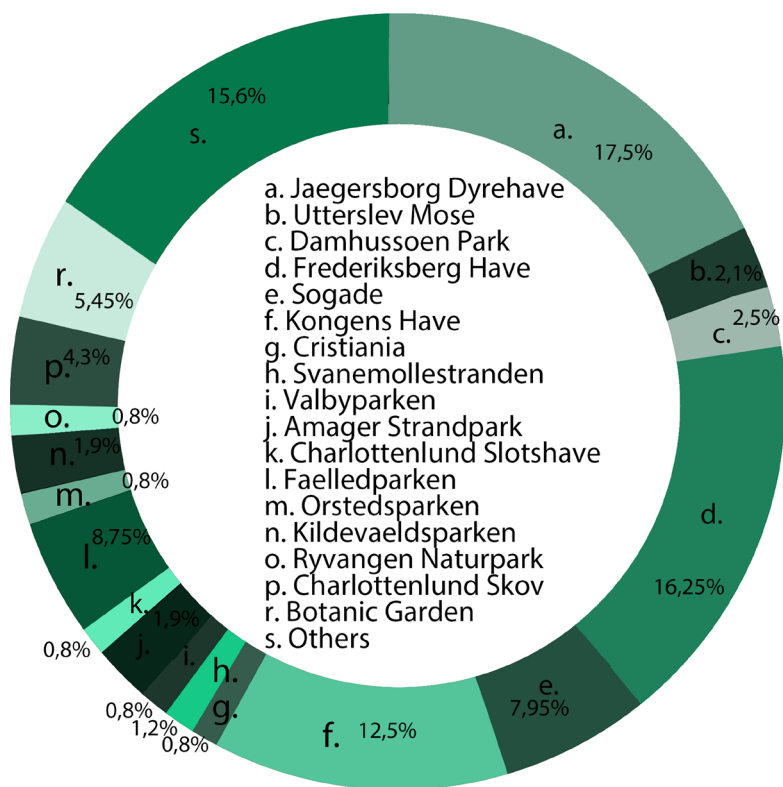— Wetlands
— Water

2,5 km   10 km

INTRODUCTION

The world is both urbanising and ageing. Cities must become inclusive for elderly people with different needs and capacities. I strongly believe that redesigning the ever-changing urban landscape with the elderly in mind might be the key to urban regeneration [1]. Although age-friendly urban outdoor design must be accessible, ergonomic and inclusive, the subjective dimension of human well-being, which affects "quality of life", should also be considered [5].

Exposure to high-quality natural urban settings has been demonstrated to reduce pain, verbal agitation, cognitive decline [2] and cardiovascular morbidity [3] as well as increasing longevity [4]. The relationship between landscape preference and human well-being has also been evidenced [6]. Preferred spaces have often restorative qualities, aid stress recovery [7], provide attention and

restoration and improve pro-social behaviour [8]. People are also more likely to make use of the landscapes they like the most [9]. Some studies suggest that many landscape elements are universally preferred – savannah-like landscapes, water, squares, openness of the landscape [10], while the importance of certain levels of human involvement and higher levels of biodiversity have also been highlighted [11] (pp. 16-18). Some pieces of research argues that landscape preference varies according to age, socioeconomic factors [12] and cultural background [13]. Unfortunately, very so little research has been conducted on senior citizens' perceptions and preferences regarding urban landscapes.

The aim of this study is to assess elderly people's preferences and usage behaviour regarding different types of urban and suburban public green spaces. The main goal is to support urban and landscape planners by improving

a. Jaegersborg Dyrehave
b. Utterslev Mose
c. Damhussoen Park
d. Frederiksberg Have
e. Sogade
f. Kongens Have
g. Cristiania
h. Svanemollestranden
i. Valbyparken
j. Amager Strandpark
k. Charlottenlund Slotshave
l. Faelledparken
m. Orstedsparken
n. Kildevaeldsparken
o. Ryvangen Naturpark
p. Charlottenlund Skov
r. Botanic Garden
s. Others

Why do you like your favourite park more than others?

Figure 2: Green and blue spaces of the Metropolis of Copenhagen (17 municipalities included). Based on Copernicus Atlas, 2018
Graph 1: Park popularity among participants, %. Based on questionnaire
Graph 2: Reasons why the elderly choose a park as their favourite. Based on questionnaire
Graph 3: Analysis of accessibility of preferred parks. Based on questionnaire
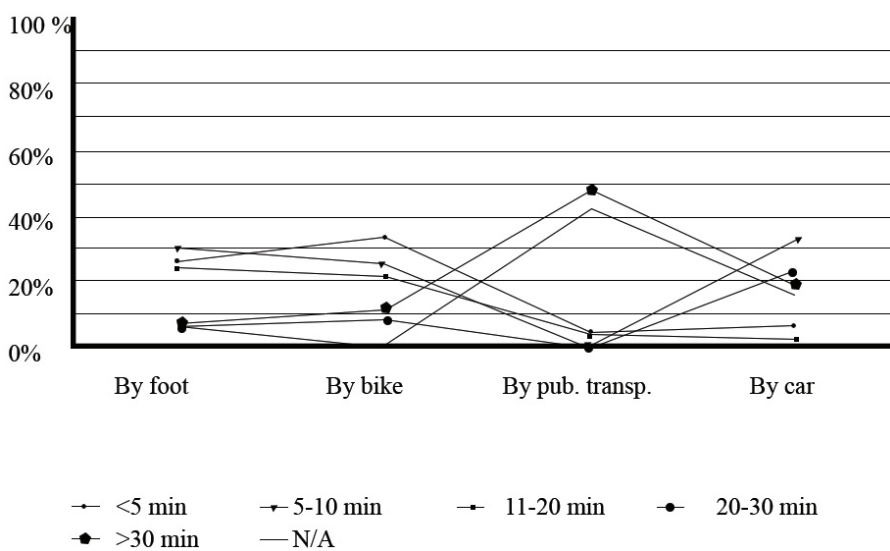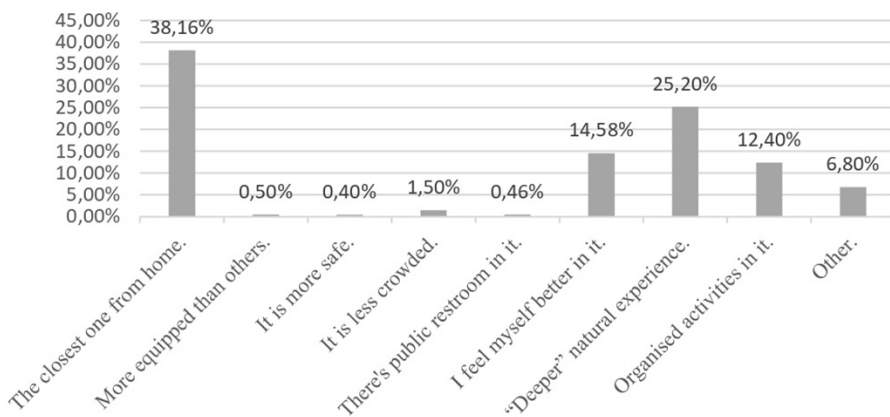
their understanding and enabling them to adopt an approach that takes into account older citizens' needs and therefore promotes inhabitants' health and well-being. The null research hypothesis supposes that the small neighbourhood parks closest to seniors' homes are the most favoured and frequented. As the Danish capital is well known for being one of the world's greenest, most cycle-friendly and healthiest cities, I used it as a Living Laboratory.

MATERIALS AND METHODS

I began the research by analysing the quantity and accessibility of urban green spaces in the Metropolis of Copenhagen – including 17 municipalities – with a focus on the city of the Danish capital. I examined the urban planning tools, the spatial green space planning system, and the quantity, type and distribution of green spaces. Examined sources were: "Urban Nature in Copenhagen; Strategy 2015-2025", Municipality Plan 2019, Copenhagen Green Accounts, Copenhagen's Green Structure Plan, official statistical data on green spaces in Copenhagen [14], Copernicus Urban Atlas, 2018. This in-depth study helped me gain an overview of the green space system and also to divide the green spaces into types.

As a second step, I distributed a questionnaire to obtain information from older citizens (over 60 years' old) about their usage behaviour and preferences regarding urban or suburban parks and the proximity of these spaces to their homes. The questionnaire contained ten questions with multiple choice, checkboxes or rating scale questions, with the "Other" answer option for comments. Respondents were asked about their favourite parks and the way they use them (Questions 1-5), if their favourite park is the one closest to their home (Questions 6-7), where they live (Questions 8-9) and how old they are (Question 10). In order to overcome language difficulties, the questionnaire is written in both English and Danish (translated by Dorthe Djernis – Ph.D. student at University of Copenhagen, Danish mother tongue). The survey was first conducted on-site and respondents were encouraged to ask for explanations if questions were unclear. The online version of the survey was created with Surveymonkey®, and I shared it with associations and social housing organisations working with seniors in Greater Copenhagen. Data were gathered from May-September 2018. Data were also processed with cluster analysis to identify seniors' preferences in terms of green space types.

Moreover, a naturalistic, covert observation study was conducted to evaluate the usage and the popularity among older adults of different types of urban or suburban green spaces in the Danish capital (eight municipalities were included) and to examine the age-friendly characteristics of those parks nominated as the most popular in the questionnaire. During this study, 20 green and blue spaces from Greater Copenhagen were selected (1-6 representative cases for each green space type), from which data were collected (Figure 1). Observations were

Figure 3: Naturepark Amager
PHOTO: ADRIENN CARONTE-VEISZ, 2018
Figure 4: Gentofte Lake, with the nursing home Plejehjemmet Salem in the background.
PHOTO: ADRIENN CARONTE-VEISZ, 2018
Figure 5: Charlottenlund Castle Park
PHOTO: ADRIENN CARONTE-VEISZ, 2018

conducted between May-July 2018. During this period, each selected place was visited at least on two occasions at different times of the day. I gathered data about the age-friendly characteristics of the place, the number of elderly users in 30 minutes and the way they use these green spaces. The following age-friendly characteristics were determined: type, size, accessibility, presence of toilets and benches or other age-friendly amenities, signage and maintenance [1]. Green space usage was classified with the following categories: low- (e.g. sitting, eating, observing), moderate- (e.g. walking small distances), or high-intensity (e.g. running, swimming, gardening) usage.

RESULTS
Overall analysis: the quantity and accessibility of urban green spaces

The Metropolis of Copenhagen is rich in green and blue spaces, which are evenly distributed across the region. Not including agricultural fields, the surface area of the forests, green urban areas, areas with herbaceous vegetation associations, wetlands and areas covered with water (which may function as recreational areas) amounts to 107.3 km2, that is 20.4% of the total surface area, of which 62% are green urban areas and forests (Figure 2). Thanks to Copenhagen's Green Structure Plan (Finger Plan) – the last version came into force in 2019, and related to 34 municipalities in the region –, uncontrolled sprawling development has not occurred in the metropolis, and

people are always able to access open spaces, parks and undeveloped, natural areas on a regional scale.

Thanks to green space planning in the City of Copenhagen, which ensures the city's green structure is incorporated into every phase of urban planning, the amount and distribution of public urban green spaces are appropriate. In the municipality of Copenhagen, the overall green space per person was 31.91 square metres in 2018, of which 15.54 square metres per person related to park and 6.22 to forest & woodland [15]. With the City Council recognising the importance of green space in terms of health, climate and biodiversity [16] (p. 15), access to green areas (measured as recreational areas within walking distance) became a top priority. With the availability of smaller green spaces and pocket parks, the percentage of the population that may benefit from green areas rises to almost 90% [17].

Questionnaire survey

During the questionnaire, I collected 80 responses, of which 34 participants live in the municipality of Copenhagen, eight in Frederiksberg, 12 in Gentofte municipality and 26 in other municipalities in the metropolitan area. Respondents aged between 70-80 seem to be overrepresented (32.5%) in this study, 28.75% of the participants are aged 60-65, 22.5% are aged between 65-70, and just 7.5% are over 80. Most participants live in private homes without home care (72%), but 10% live in cohousing units. Given that older elderly people are considered

hard-to-reach populations, I consider this survey as representative, even if the number of elderly people (over 60) in Greater Copenhagen was 253,546 in 2018 [18].

The four most popular parks were (Graph 1): Deer Park (17.5%), Frederiksberg Have (16.25%), Kongens Have (12.5%) and Amager Fælledparken (8.75%). The first three are historical villas, of which respondents may have nice memories from childhood. The fourth is an expansive agricultural/natural area, which may be popular because the neighbourhood lacks other urban parks and because it hosts some organised activities. Seniors' preference for urban or suburban parks depends on their location (the closest to home, 44.16%), whether it offers a "deeper" natural experience (29.16%), organised activities (16.4%), and whether they simply feel better in it (14.58%). No association was found between preference and the presence of equipment (Graph 2). Moderate- (take a walk: 50.6%) and low- (simply enjoy the weather and get some fresh air: 44.3%) intensity usage is predominant. Most participants cycle or walk to the park if it can be reached within a maximum of 20 minutes from their home (Graph 3). If I filter the answers for those who frequent their favourite park at least once a week in the summer, we can analyse

the habits of the more active older adults. They like the parks of Jægersborg Dyrehave (20.41%), Amager Fælledparken (10.2%) – suburban green spaces – the most, as these are the closest to their homes (58.33%), they can walk there in a maximum of 10 minutes (79.59%) and it is the one they visit more often than others (85.42%). They go there to take a walk (53.06%), do sport (34.69%) or simply to get some fresh air (40.82%). It means, that elderly people living in the suburbs probably remain more active in later life than those who live more centrally.

Observation study

The western side of Greater Copenhagen and a large part of the city's Amager district are covered with *agricultural fields*. Most of these areas do not serve any recreational purpose, but some are still often visited by people living close by and have great potential to become leisure parks or sport fields, like Naturepark Amager - Kalvebod Fælled (Figure 3). Nonetheless, these green spaces are extensive, located at less urbanised sites, difficult to access, have neither signage nor age-friendly amenities, and can be used mainly for high-intensity workouts, so they do not contribute directly to the quality of life of fragile senior citizens.

Figure 6: Jægersborg Dyrehave, The deer population
PHOTO: ADRIENN CARONTE-VEISZ, 2018
Figure 7: Jægersborg Dyrehave, Jægersborg castle and a group of senior cyclists
PHOTO: ADRIENN CARONTE-VEISZ, 2018
Figure 8: Seniors with their grandchildren at Hellerup Beach Park
PHOTO: ADRIENN CARONTE-VEISZ, 2018

Expansive *natural areas* – like the area of Lyngby Lake, Bagsværd lake and Furesø in the north of the region – host several activities, offer a calm, healthy and natural environment with rich biodiversity. However, most of these areas are less frequented by older adults. This could be because of their marginal location, as they are moderately accessible, have neither signage nor age-friendly amenities and because elderly people do not like jungle-like atmospheres. Nevertheless, some alluring natural areas, located in urbanised areas – like Utterslev Mose Park or Gentofte Lake (Figure 4) – are popular among seniors. Older adults are attracted by water surfaces and frequented natural spaces where they can observe others in a quiet environment.

There are several *historical villas* with recreational functions. Many of them are in the northern suburbs, like Charlottenlund Castle Park (Figure 5) and Bernstorff Castle Park. Everyone, including elderly people, likes these villas, especially those located in urban areas, like Kongens Have and Frederiksberg Have. Most of them are accessible, small-scale, easily walkable, offer a wide range of activities, support social cohesion while contributing to biodiversity, have age-friendly amenities (benches, rest

rooms, etc.) and signs that indicate attractions, and are well-maintained. They may therefore be considered age-friendly. Based on my questionnaire, the favourite villa is Jægersborg Dyrehave (Figure 6-7). The Deer Park is used for several interesting activities (golf, adventure park, old castle, etc.), has signage and age-friendly amenities. Despite its vastness and peripheral location, it can be considered as partially accessible, as most services and many attractions are located in marginal areas, close to the train station or parking places. Nonetheless, I did not observe it as being popular among the elderly, but due to its scale, it is difficult to quantify the number of visitors with the observation method.

Furthermore, there are several *green corridors* in the region. One of the longest is the almost 15 km-long West Rampart, part of Copenhagen's Fortifications, which passes through the suburbs of Copenhagen, providing a large recreational area but mainly used for soft mobility. Several *urban beach parks* are located along the coastline, and even in the city centre, offer citizens closer contact with the sea, to swim or sunbathe. These waterfronts are very popular spots among seniors (Figure 8), especially if they are equipped with bars, cafés and rest rooms (most

have these facilities). One of the most famous and large-scale urban beaches is Amager Strandpark, which is considered wheelchair-friendly.

Based on my observations, the most popular and most used among fragile elderly people are the smaller green and blue spaces, especially the *urban parks with lakes* or *neighbourhood parks* (Figure 9), located all around the region. These give every citizen, no matter where they live, easy access to green and blue spaces. They are often characterised by well-maintained tree-covered areas, benches, accessible walking paths, public areas for barbecuing with benches. Even if pocket parks could be considered age-friendly (accessible, equipped, small in size), I did not notice that they were popular among the elderly, which may be because of their limited possibilities of use.

Limitations and further research
The limitations of this study offer opportunities for further research. First, I examined the preference among elderly people for urban or suburban green space types, but informal street greenery and tree canopies were not analysed. Second, even if the questionnaire sought to overcome language barriers, onsite data collection by Danish

mother-tongue volunteers might reach a bigger sample size. Third, during the observation study, I found it difficult to quantify the number of elderly visitors in expansive green spaces. Furthermore, the age of the visitors was defined based on visual inspection, which may not be sufficiently objective.

Overall, the three-step, mixed method of this study could be considered effective, and provides a verified, objective and comprehensive picture of elderly citizens' usage behaviour and preference regarding open green spaces. ◉

Figure 9: An elderly couple walking on the shore of the Lakes in Copenhagen– Peblinge Lake
PHOTO: ADRIENN CARONTE-VEISZ, 2018

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