Ca' Foscari
University
of Venice

Working Paper

Michele Bertani
Michele Marzulli
Andrea Pastore

How older residents
experience the
Age-friendliness of Venice.
Insights from a quantitative
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Address for correspondence:
Michele Bertani
Department of Economics
Ca' Foscari University of Venice
Cannaregio 873, Fondamenta S.Giobbe
30121 Venezia - Italy
e-mail: michele.bertani@unive.it

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Insights from a quantitative study

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Abstract

Venice represents a distinctive case study, situated at the nexus of diverse socioeconomic and demographic dynamics. This makes it an invaluable laboratory for investigating medium- and long-term trends in Italy and other Western countries. Despite its status as an economically advanced region, Venice has been experiencing a twofold demographic crisis: depopulation of the historical areas and an aging of the resident population, which present a significant challenge to sustainability and social cohesion. The city of Venice has one of the highest percentages of individuals aged 65 years and over in Italy. It is of the utmost importance that local policies be based on empirical evidence in order to construct economically and socially resilient cities that will be equipped to meet the challenge of demographic change. This paper presents an analysis of the AFCCQ dataset, which is based on a survey conducted in Venice. The findings demonstrate notable discrepancies in demographic characteristics, including sex, age, socio-economic status, receipt of care support, and utilization of mobility aids. The paper puts forth a series of recommendations for the policymaking process, with the aim of adapting city policies in a manner that aligns with the scientific findings of the research

1. Introduction

The challenge facing Western societies as a result of the ongoing process of ageing is to consider a range of factors and viewpoints while developing a unified approach and direction for public policy. As the age of the population grows and the reproductive capacity of society shrinks, in accordance with a long-term trend that has been in place since at least the end of the Second World War, it is becoming increasingly evident that existing welfare systems are unable to respond adequately to the growing social demand for personal services. In order to develop effective policy responses, it is therefore essential to gain a deeper understanding of the major risk factors and the resources available to individuals in order to cope with the growing need for health services.

The sociological perspective, which is supported by a consistent economic and statistical analysis, takes into account the socio-relational aspects of the processes that are currently underway. In doing so, it identifies the social actors and their mutual influences. In particular, the sociology of health, from the standpoint of "social constructionism" (Nettleton, 2020), encompasses an examination of the very concept of well-being. Indeed,

the scientific literature has begun to define health in terms of well-being. This shift in perspective is necessary because a simplistic definition of health (as the absence of disease) does not account for the multitude of factors that contribute to a complex existential condition. In the case of the older population, there is a tendency to view them as passive recipients of health or economic interventions, rather than as active participants in socio-relational support networks or as individuals with resources and capabilities. The notion that medicine is the sole solution to all problems, as posited by an exclusively technological and biological approach to medicine, has been superseded by a more realistic paradigm. This paradigm recognizes that health and well-being are the result of a multiplicity of factors, including medical, psychological, and social elements. This paradigm is known as the bio-psycho-social paradigm, as first proposed by Engel (2009). In this context, health in terms of well-being represents a condition that is compatible with older age and the presence of one or more chronic illnesses.

In sociology, the concept of well-being is typically defined as a positive physical and psychological disposition, or a state of optimal mental and physical health. However, it is also defined as the sense of being able to meet the demands of daily life, including the capacity to maintain positive relationships with others and a sense of connection to one's community (Blakeman & Ford, 2012). In essence, the perception of belonging and acceptance within a community serves as a pivotal indicator of the prevalence of ageism and age discrimination (Swift et al., 2018).

In light of the aforementioned factors, it becomes imperative to examine a crucial aspect of well-being: the friendliness of the surrounding environment. The fundamental assumption is that, when all other health conditions are held constant, residing in a community where one feels a sense of belonging and social support is a significant advantage for one's health, particularly among the older population.

The study on age-friendly cities considered a number of factors, including the potential presence of a chronic illness and its compatibility with a fully satisfying life. This compatibility extends to primary relationships, including those with family and the wider community, as well as professional ones. Italy represents a significant case study for a number of reasons, which will be elucidated in this article.

The scientific community is questioning the combined effects on the health of a particular population, particularly in Italy (United Nations, 2024), which is characterised by the most evident signs of demographic and epidemiological transition (Billari and Liefbroer, 2004; Caltabiano, Comolli and Rosina, 2017). The population in question exhibits a high life expectancy, which is not necessarily indicative of good health. Moreover, there is a notable prevalence of conditioning factors, including a transformed family structure, that align with the Mediterranean welfare model (Ferrera, 2019; Moreno-Fuentes and Marí-Klose, 2016). However, this may prove inadequate in compensating for the deficiencies of public welfare (Dalla Zuanna and Micheli, 2004).

It thus became evident that public policies designed for a population with distinct socio-demographic attributes may not be optimal (Bertin, 2020; Da Roit, 2020). The challenge is to effect change in a manner that is both equitable and maintains the quality of care, particularly when public regulations must define the vulnerable older population and implement, for instance, long-term care (Brugiavini et al., 2017). It is noteworthy that the European Recovery Plan (NextGenerationUE1) in Italy posits that policies designed to enhance economic performance should be accompanied by two specific measures aimed at improving the health of the population. This is on the basis that the health of Italy's increasingly ageing population is a crucial factor in enhancing economic performance.

It is therefore of interest to cite a specific project designed to enhance the quality of life for

future generations of the elderly. This is the Age-It2 (Ageing Well in an Ageing Society) initiative, which is also connected to the present research. Italy and the city of Venice face the challenge of promoting a healthy ageing process. In the aforementioned project, health is explicitly referred to in terms of well-being, specifically in the context of ageing well. It is therefore of interest to undertake a scientific study of the state of the older population, with particular attention paid to the context in which they live. The process of ageing in an urban environment presents a dual challenge. Firstly, the nature of social relations in urban areas, which are intrinsically linked to the well-being of individuals, can prove particularly challenging to maintain for older adults, who often reside in isolation. The case of Venice is particularly worthy of examination due to the specific characteristics of this city, which is unique in many aspects.

From this perspective, if all countries with advanced industrial economies are called upon to innovate their policies, the Italian case presents distinctive characteristics that render it particularly vulnerable and susceptible to the changes currently underway (Bloess, 2018). In summary, Italy is currently experiencing a pronounced demographic transition, characterised by a decline in its population. However, Italy also spends the greatest proportion of its welfare resources on the pension system, has the highest public debt, and is being required to reduce public spending at a time when it would require greater resources (Ambrosetti and Strangio, 2017; Di Palo, 2019). Italy serves as an illustrative case study, exhibiting distinctive characteristics that warrant attention. Venice, in particular, offers a crucial lens through which to examine the future of the city and its residents.

This paper seeks to examine the outcomes of the Italian adaptation of the Age-Friendly Cities and Communities Questionnaire. The aim is to identify avenues for defining valuable data for policymakers and to inform the development of effective policies for older individuals based on empirical evidence.

2. Background

2.1 The global relevance of Age-Friendly policies and practices

The phenomenon of population ageing is a significant and unprecedented occurrence in the 21st century. This trend has far-reaching implications on a global scale, as an increasing number of individuals reach old age, often in a state of suboptimal health. Furthermore, there has been a notable increase in the proportion of older individuals relative to the total population (Khan 2019; Edmonston 2021; Mahmood, Dhakal 2023). Furthermore, it is estimated that over half of the global population (56.5%) currently resides in urban areas, with this figure projected to reach approximately 68% by 2050 (UN 2022a, UN 2022b). The distribution of urbanisation patterns across the globe is highly variable. The most urbanised regions are North America and Europe, where over 75% of the population resides in urban areas. In accordance with the projected long-term trends, the population of the European Union is expected to continue ageing and to decline significantly over the coming generations (European Central Bank, 2023).

Italy is leading this global ageing population trend, with the highest percentage of older adults in Europe: 24.1% of Italy's population is aged 65 or above (United Nations Population Division, 2022). Furthermore, the city of Venice has one of the highest percentages of population aged 65 years and over in Italy (28.35, year 2024, ISTAT). Italy boasts one of the highest life expectancies globally, with an average of 84.1 years at birth in 2024. The convergence of increasing urbanisation and ageing societies has prompted the World Health Organization (WHO) to implement an initiative on age-friendly cities and

communities (WHO 2007a; 2007b; 2023). This movement advocates for solutions that facilitate active ageing and enhance the quality of life for older individuals, facilitating their socio-economic participation (Fig. 1). As Emily Greenfield (2018: 41) notes, discussions on communities and ageing have traditionally focused on the availability, accessibility, and quality of local services to support older individuals in need. Recently, a global 'age-friendly' movement has expanded the concept of community support for ageing societies beyond mere service delivery.
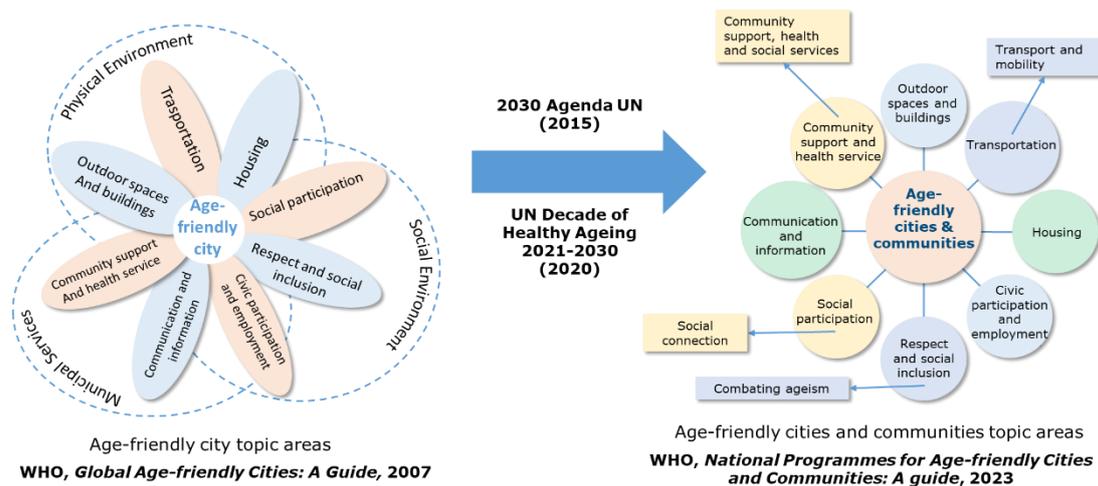

Figure 1. The World Health Organization's "Age-friendly Cities" Framework. From 2007 to 2023.

The term 'age-friendly' encompasses a range of community-level factors that either facilitate or hinder the health and well-being of individuals as they age. Age-friendly frameworks consider the provision of health and community services for older adults, including the physical design of outdoor spaces and buildings. Furthermore, the WHO (2022) highlights the significance of citizen engagement, a process that involves the active involvement of citizens in the formulation of policies, thus fostering public interest, enhancing comprehension of evidence-based decision-making, and strengthening the legitimacy of policy decisions and societal trust. However, a crucial point that has emerged from the ongoing debate is the diverse methodological approaches that are being used to assess the age-friendliness of cities and communities, and the significant differences that can be observed across socio-political landscapes, both between and within countries and continents (Greenfield and Buffel, 2022: 5-6). For example, Black and Oh (2022) employed a qualitative research method based on content analysis of formal reports to assess the progress made by American communities in becoming age-friendly. In Hong Kong, Wong et al. (2015) developed a survey to compare the age-friendliness of different neighbourhoods. Hiu-kwan Chui et al. (2022) employed a mixed-methods concurrent parallel design, utilising questionnaires and focus groups, to examine changes over time in perceived age-friendliness among community-dwelling older adults. In Italy, two recent studies have analysed different aspects of the subject. The initial study assessed the age-friendliness of the city of Macerata, adapting the survey devised by Wong et al. (2015) to align with the local context. The second study concentrated on urbanistic and architectural elements. Luciano et al. (2023) developed the Italian Age-Friendly House Scorecard (IAHS), a tool designed to facilitate the assessment of the age-friendliness of existing housing environments by housing owners and designers. A further method of studying the age-friendliness of cities and communities has been outlined by van Hoof et al. (2021).

In Europe, numerous urban communities are aligned with the age-friendly city agenda,

actively participating in the WHO-promoted network. Nevertheless, there is still a dearth of reliable and standardised empirical tools for measuring the age-friendliness of cities. One potential solution to this issue is the Age-Friendly Cities and Community Questionnaire (AFCCQ), which was developed by Dikken et al. (2020). This tool employs the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) criteria to assess age-friendliness. The instrument has been employed to examine the age-friendliness of The Hague over time (van Hoof et al., 2022; 2024). The questionnaire has been translated and validated in a number of languages, including Turkish. Özer et al. (2022) conducted a study in Japan, while Yamada et al. (2023) did so in Japan and Romania. Ivan et al. (2024) conducted a study in Macedonia. (Pavlovski et al., 2024).

This paper presents an analysis of the dataset collected for the translation and validation of the Italian version of the AFCCQ1, which was collected in Venice during October and December 2023 (Bertani et al., 2025).

2.2 The demographic scenario in the city of Venice

The city of Venice, situated in north-eastern Italy, offers a distinctive demographic scenario, shaped by its particular geography, a rich historical heritage, and evolving socio-economic trends. Venice is renowned for its intricate canal systems and historic architecture, and is regarded as a globally significant cultural and tourist destination. The Municipality of Venice is constituted by six districts, the result of the amalgamation of the former 13 neighbourhoods (see Fig. 2).
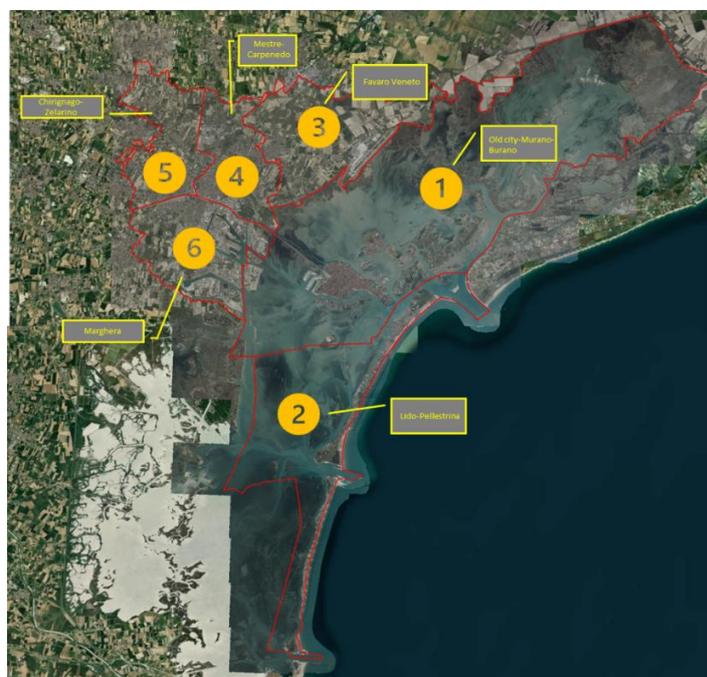

Figure 2: The Municipality of Venice and its six districts

The districts are the following:

1) **Old city-Murano-Burano** comprising the neighbourhoods of S. Marco-Castello-Sant'Elena-Cannaregio; Dorsoduro-S. Polo-S. Croce-Giudecca-Sacca Fisola; Murano-S. Erasmo; Burano-Mazzorbo-Torcello;
2) **Lido-Pellestrina** comprising the former neighbourhoods of Lido-

Malamocco-Alberoni; Pellestrina-S. Pietro in Volta

3) **Favaro Veneto** comprising the former Favaro neighbourhood
4) **Mestre-Carpenedo** comprising the former neighbourhoods of Carpenedo-Bissuola, Mestre Centro
5) **Chirignago-Zelarino** comprising the former neighbourhoods of Cipressina-Zelarino-Trivignano; Chirignago-Gazzera
6) **Marghera** comprising the former neighbourhoods of Marghera-Catene-Malcontenta.

One of the most significant elements of the demographic transition currently underway in Venice is the ageing of the population. The city's demographic shift, characterised by a decline in the number of younger residents and an ageing population, presents challenges to maintaining a vibrant and sustainable urban environment. The demographic profile of the city has undergone significant changes in recent decades, characterised primarily by a decline in the local population and low fertility rates.

The population of Venice has been in decline for several decades. From a population of over 350,000 residents in the period between 1960 and 1970, the city's population has decreased to less than 250,000 today (Fig. 3). This decline is the result of a complex interplay of factors, including high living costs, constrained economic opportunities outside of the tourism sector, and environmental challenges such as periodic flooding and rising sea levels. In particular, the elderly are relocating from the city centre of Venice (the Old City, Burano, Murano) to mainland districts such as Mestre, in pursuit of enhanced healthcare opportunities and a more cost-effective living environment.
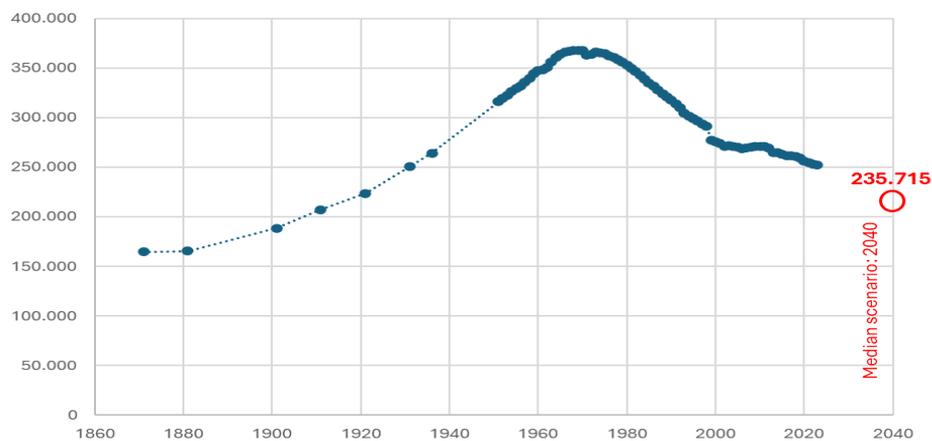

Figure 3: The Municipality of Venice. Population (total) 1871-2023 and median scenario 2041. Source: Our analysis on the dataset of Ufficio Statistica, dati demografici Comune di Venezia - Servizio Elettorale e Leva Militare, Statistica https://www.comune.venezia.it/it/content/statistica-statistiche-popolazione-0

A comparison between Venice and other Italian metropolitan cities reveals that the majority of older adults reside in urban centres and metropolitan areas situated in the northern regions of the country. The old age index in metropolitan cities reached a value of 177.5 older adults per 100 children in 2021, demonstrating a gradual and consistent increase over time (in 2011 it was 142.4). This evidence substantiates the assertion that the population is undergoing a progressive ageing process across the entire territory, with the index for capital municipalities reaching 192.0.

Furthermore, the ageing process is reflected in the growing average age, which reached

48.5 years in 2023 in the metropolitan cities as a whole. However, it should be noted that there is some variability in the metropolitan areas, with the highest value of 51.5 observed in Venice and Genoa and the lowest in Naples, where the average age was 46.5. Furthermore, the ratio of older adults to children (Fig. 4) serves to corroborate the aforementioned imbalance in the age structure of the population. The ratio of the older population to children under six years old has increased twofold in urban settings over the past three decades, with the current value of just over five older adults per child (in Italy, the ratio is 5.6). It is notable that the city of Venice, indicated in the figure by the darker red, exhibits a relatively high value.

Figure 4: Italy: metropolitan cities. Ratio of the older population to children under six years old (2023). Source: ISTAT – Statistiche Focus 2 agosto 2023. GLI ANZIANI NELLE CITTÀ METROPOLITANE. Profilo sociodemografico e analisi comparativa fra i contesti urbani https://www.istat.it/wp-content/uploads/2023/08/Focus-Citt%C3%A0-Metropolitane_Anziani_28-07-2023.pdf (access 30 September 2024)

Demographic trends in recent years show a dramatic decrease in the youngest population in Venice - halved in around 40 years - , while the numbers of the older adults remains substantially stable (Fig. 5).
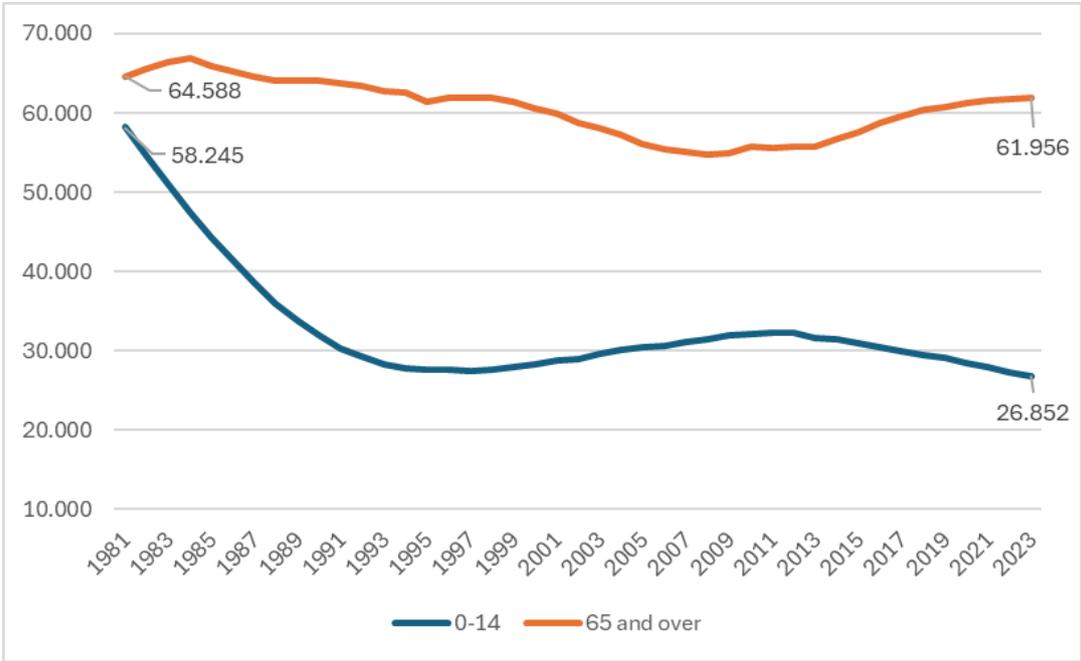

Figure 5: City of Venice. Population (0-14 years and 65 years and over) 1981-2023. Source: Our analysis on the dataset of Ufficio Statistica, dati demografici Comune di Venezia - Servizio Servizio Elettorale e Leva Militare, Statistica https://www.comune.venezia.it/it/content/statistica-statistiche-popolazione-0

The demographic projection elaborated by the Municipality of Venice shows that in 2041 a median older population scenario of about 20,000 more people than in the current scenario is expected (Fig. 6).
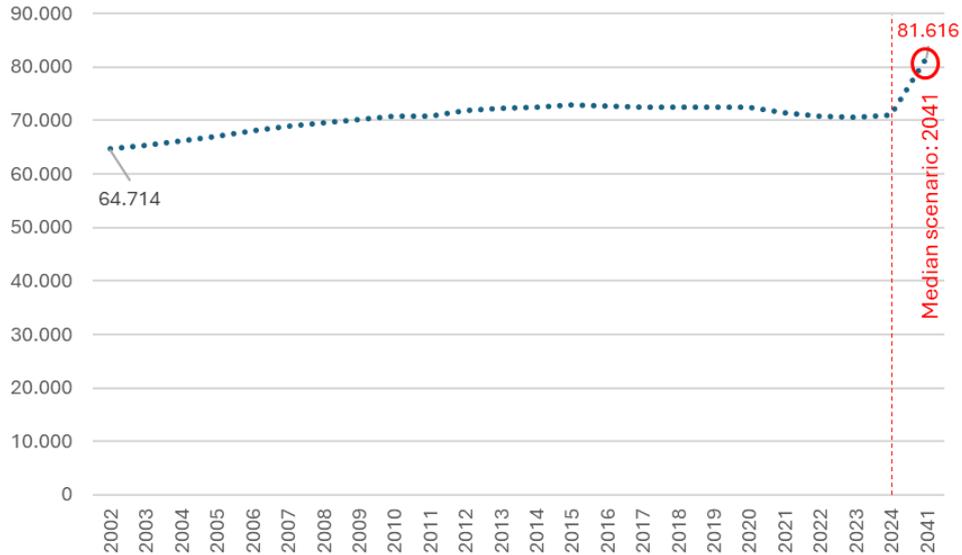

Figure 6: City of Venice. Population (aged 65 years and over) 2002-2024 and median scenario 2041. Source: Our analysis on the dataset of Ufficio Statistica, dati demografici Comune di Venezia - Servizio Servizio Elettorale e Leva Militare, Statistica https://www.comune.venezia.it/it/content/statistica-statistiche-popolazione-0

3. Research design

The research design and sampling are described in detail in Bertani et al. (2025), and a summary of the most relevant aspects is provided here. The study was conducted within the territorial boundaries of the Municipality of Venice. A representative sample of individuals aged 65 and over residing in Venice was selected based on demographic data from January 2024 (Table 1). In order to ensure that the sample was representative of the municipality of Venice, it was necessary to obtain the responses of at least 383 individuals, with a 5% margin of error and a 95% confidence level. The recruitment and participation period spanned the months of November and December 2023. To be eligible for participation, individuals were required to meet three criteria: (i) be 65 years of age or older, (ii) reside independently (i.e., not in institutional care), and (iii) possess the ability to communicate in Italian. To ensure representativeness, respondents were required to reflect the demographic characteristics of the older population residing in Venice. The gender ratio of the sample was required to mirror that of the municipality as a whole, and participants were drawn from all districts within the municipality. The study population included individuals living alone or with a spouse, those receiving care services such as house cleaning or personal care assistance, individuals with chronic diseases, and users of mobility aids such as walkers or wheelchairs.

Table 1: Italy and the Municipality of Venice. Population registered at 01.01.2024. Source: Italian National Institute of Statistics – DEMO demografia in cifre. https://demo.istat.it/

	Population (total)	Population (65+)	Population (% 65+)
Italy	58,989,749	14,357,928	24.3
Venice	250,369	70,975	28.3

The Italian version of the Age-Friendly Cities and Community Questionnaire (AFCCQ), developed by Dikken et al. (2020), was employed for the purposes of data collection. The data were collected via a simple random sampling method utilising the municipal population database, as provided by the research agency Demetra Opinioni.net in Venice, Italy. The research agency utilised computer-assisted telephone interviewing (CATI) for the purpose of collecting data pertaining to the AFCCQ-IT.

4. Data and methods

4.1 The data

The data presented in this paper refers exclusively to the Municipality of Venice. Two cases were excluded from the analysis, as the district of residence was not available for these individuals. In the remaining 405 cases, both the neighbourhood and the area (i.e., the island or the mainland) were taken into account in order to describe the residence.
In addition to the variables required for the measurement of the AFCCQ and its domains, as well as the variable denoting residence, the following variables were considered:
- sex
- age
- country of birth (Italy, other countries)
- educational level (low/middle-high)
- type of dwelling (owner occupant, other)
- living together with a spouse or partner (Y/N)

- receiving care (Y/N)
- living with one or more chronic conditions (Y/N)
- using a wheeled walker or a wheelchair (Y/N)
- life satisfaction[1] (on a 1:10 scale).

The variable "education level" was dichotomized into two categories: low (ISCED 0-2) and medium-high (ISCED 3-4 and 5-6). This was done due to the low observed frequencies of ISCED level 5-6. With regard to the variable "type of dwelling", the categories "social housing" and "private rent" were subsequently merged into the category "other" due to their low frequencies.

4.2 Methods

In addition to the conventional summary statistics, the table proposed by Dikken et al. (2020, Appendix A) was obtained to facilitate the interpretation of the AFCCQ total score and individual domains at the neighbourhood and area levels (island and mainland).
Furthermore, the aim was to identify statistically significant differences at both the neighbourhood and area levels in the mean values of both the AFCCQ total score and the individual domains. This was achieved through the use of the non-parametric Kruskal-Wallis rank sum test.
A regression model was constructed for the total AFCCQ score, utilising the aforementioned covariates. The proposed model was identified through a stepwise forward approach in the selection of covariates, using Akaike's information criterion (AIC) as the optimality criterion, as outlined by Burnham and Anderson (2002).
In the identification step, models were considered with:

- presence of a nonlinear link for the only quantitative covariate (life satisfaction), through orthogonal polynomials, up to the third degree;
- presence of interactions up to the second degree, for categorical covariates;
- presence of a spatial effect, defined alternately by the distribution in neighbourhoods and the two areas (island and mainland), also exploring the presence of interactions with the other variables.

5. Results

The socio-demographic profile of the interviewed sample can be summarised as follows. The majority of the sample is comprised of women (60.3%) and individuals over the age of 75 (with an average age of 76.3), the vast majority of whom were born in Italy. Summary statistics for the covariates considered are given in Tab. 2.
The distribution of the sample's level of education is relatively uniform, spanning both medium and low levels. This is consistent with expectations for Italy, where older generations tend to have less education. It is noteworthy that the figure for the highest level of education (ISCED 5-6) is particularly low (14.3%) in the Venetian sample when compared with the figure found in other cities in the same survey, namely the cities of Verona and Palermo.

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1 Life satisfaction measures how people evaluate their life as a whole rather than their current feelings. It is an item used by the OECD to generate the Better Life Index, see https://www.oecdbetterlifeindex.org/topics/life-satisfaction/ (Access 27 November 2024).

Table 2: Demographics of participants (sample size = 405).

Sex	Male	n=161	(39.85%)
	Female	n=244	(60.3%)
Age	Mean (std. dev.)		76.3 (7.3)
	65–69	n=80	(19.7%)
	70–74	n=91	(22.5%)
	75+	n=234	(57.8%)
Country of birth	Born in Italy	n=397	(98.0%)
	Born in another country	n=8	(2.0%)
Educational level	ISCED 0–2	n=177	(43.7%)
	ISCED 3–4	n=170	(42.0%)
	ISCED 5–6	n= 58	(14.3%)
Type of dwelling	Owner-occupant	n=371	(91.6%)
	Social housing	n=20	(4.9%)
	Private rent	n=14	(3.5%)
Living together with a spouse or partner		n=284	(70.1%)
Receiving care		n=129	(31.9%)
Living with one or more chronic conditions		n=177	(43.7%)
Using a wheeled walker or a wheelchair		n=43	(10.6%)
Life Satisfaction		Mean (std. dev.)	7.3 (2.1)

It is of particular importance to consider the correlation between educational level and economic conditions, as well as health outcomes. Another area of interest with regard to socio-cultural dynamics is the type of dwelling. The vast majority of the sample can be categorized as owner-occupiers (91.6%), a typical characteristic of Italian families (Eurostat, 2022). These figures align with those found in Verona and Palermo (close to 90%) but differ significantly from the results of some AFCCQ data collection in Europe, where the percentage of owner-occupiers is lower, as is the case in The Hague (59.9%) (Dikken et al. 2020) and Wrocław (83.1%) (Perek-Białas et al. 2024). In light of the significant impact that loneliness can have on an individual's health, it is notable that a considerable proportion of the population (70.1%) resides with a spouse or partner. In conclusion, with regard to health conditions, nearly half of the respondents indicated that they live at least with one chronic disease (43.7%), and 10.6% reported the use of a wheeled walker or wheelchair for mobility. Furthermore, one-third of the sample (31.9%) indicated that they habitually receive assistance from family members, friends, or acquaintances to perform activities of daily living, including tasks such as cleaning, paying bills, and washing. Additionally, quality of life was assessed using a conventional methodology, inquiring about overall satisfaction with life. The average value for Venice was found to be 7.3 on a scale of 1 to 10, indicating a high level of satisfaction. Tab. 3 shows the interpretation of the AFCCQ total score and individual domains, as suggested by

Dikken et al. (2020). The table also contains the p-values of the Kruskal Wallis tests, for comparisons at both the neighbourhood level and the area level (island and mainland).

Table 3: AFCCQ and individual domains score, for the city of Venice, the six neighbourhoods and the areas.

		Total AFCCQ	Housing	Social Participation	Respect and social inclusion	Civic participation and employment	Communication and Information	Community support and health services	Outdoor spaces and buildings	Transportation	Financial situation
Range		-46 to 46 (23 items)	-4 to 4 (2 items)	-8 to 8 (4 items)	-4 to 4 (2 items)	-4 to 4 (2 items)	-4 to 4 (2 items)	-10 to 10 (10 items)	-4 to 4 (2 items)	-4 to 4 (2 items)	-4 to 4 (2 items)
Venice (n=405) [mean (std. dev.)]		14.60 (10.80) (++)	2.20 (1.34) (+++)	2.36 (2.95) (++)	2.42 (1.45) (+++)	1.42 (1.38) (++)	0.84 (1.75) (+)	1.61 (3.82) (+)	0.74 (1.84) (+)	1.97 (1.60) (++)	1.06 (1.88) (++)
Neighborhoods [mean (std. dev.)]	(1) Old city Murano Burano (n=63)	13.70 (9.85) (++)	2.27 (1.37) (+++)	2.19 (3.21) (++)	2.27 (1.64) (+++)	1.54 (1.38) (++)	0.46 (1.85) (+)	1.71 (3.48) (+)	0.37 (1.73) (+)	1.87 (1.41) (++)	1.05 (1.80) (++)
	(2) Lido Pellestrina (n=28)	13.00 (9.15) (++)	2.04 (1.53) (++)	2.21 (2.88) (++)	2.50 (1.48) (+++)	1.11 (1.40) (++)	0.89 (1.81) (+)	0.93 (3.92) (+)	0.46 (1.82) (+)	1.82 (1.61) (++)	1.07 (1.59) (++)
	(3) Favaro Veneto (n=26)	13.60 (9.37) (++)	2.31 (1.01) (+++)	2.12 (2.34) (++)	2.58 (1.03) (+++)	1.23 (1.50) (++)	1.08 (1.90) (++)	1.38 (3.63) (+)	0.50 (2.10) (+)	2.15 (1.41) (+++)	0.23 (2.10) (+)
	(4) Mestre Carpenedo (n=158)	15.50 (10.90) (++)	2.22 (1.29) (+++)	2.84 (2.71) (++)	2.25 (1.56) (+++)	1.54 (1.22) (++)	0.89 (1.67) (+)	1.78 (3.85) (+)	0.96 (1.78) (+)	2.02 (1.58) (+++)	1.04 (1.94) (+)
	(5) Chirignago Zelarino (n=72)	14.50 (11.60) (++)	2.22 (1.46) (+++)	1.75 (3.41) (+)	2.71 (1.25) (+++)	1.43 (1.43) (++)	0.78 (1.74) (+)	1.74 (3.88) (+)	0.75 (1.96) (+)	1.74 (1.95) (++)	1.43 (1.67) (++)
	(6) Marghera (n=58)	14.40 (12.00) (++)	2.10 (1.39) (+++)	2.14 (2.82) (++)	2.57 (1.23) (+++)	1.21 (1.61) (++)	1.03 (1.81) (+)	1.29 (4.14) (+)	0.77 (1.85) (+)	2.24 (1.48) (+++)	1.02 (2.03) (+)
	Kruskal-Wallis rank sum test p-value	0.8	0.9	0.2	0.4	0.4	0.4	0.8	0.2	0.6	0.2
Areas [mean (std. dev.)]	(3+4+5+6) Mainland (n=314)	14.90 (11.2) (++)	2.20 (1.32) (+++)	2.40 (2.90) (++)	2.44 (1.31) (+++)	1.43 (1.37) (++)	0.90 (1.72) (+)	1.65 (3.88) (+)	0.84 (1.86) (+)	2.01 (1.64) (+++)	1.06 (1.93) (++)
	(1+2) Island (n=91)	13.50 (9.60) (++)	2.20 (1.42) (+++)	2.20 (3.10) (++)	2.34 (1.59) (+++)	1.41 (1.39) (++)	0.59 (1.84) (+)	1.47 (3.62) (+)	0.40 (1.75) (+)	1.86 (1.46) (++)	1.05 (1.73) (++)
	Kruskal-Wallis rank sum test p-value	0.4	0.9	0.9	0.8	0.8	0.13	0.7	0.027	0.2	0.8

Tab. 3 illustrates the total score range obtained by the city of Venice in accordance with the AFCCQ model. The total score ranges from -46 to +46 points. It should be noted that the number of points awarded for each dimension depends on the number of questions posed within that domain (Dikken et al., 2020, p. 14). The score indicates the level of satisfaction expressed by the respondents with respect to the city and the specific domains of the questionnaire. To facilitate the interpretation of the results, the cells are coloured from the level of very unsatisfied (----) on a red scale to the level of satisfied (++) to very satisfied (++++) on a green scale. As evidence amply, the use of colour in communication with policy makers facilitates more effective dialogue, enabling the identification of priority areas for action to enhance the city's friendliness (Ivi).

Tab. clearly presents a relatively positive situation, indicating a general satisfaction among the elderly population with the friendliness of the city of Venice. The average total score is 14.60 (++), indicating a good level of satisfaction across all dimensions and territorial entities examined. The level of satisfaction ranges between "neutral to slightly satisfied (+)", with the value (++). The dimensions that subsequently demonstrate a superior score are "Housing" and "Respect and Social Inclusion". As anticipated in the presentation of the socio-demographic picture of the city, Venice, like many other Italian cities, presents a housing market in which the majority of households are homeowners (73.7%), with a rate higher than the EU average (69.9%) (Eurostat, 2022). Indeed, the data indicates a general

satisfaction with the accessibility of one's home for oneself (Q1) or for any guests one may wish to receive (Q2). The mean score obtained is 2.20 (with a range from -4 to +4), with no significant territorial disparity. The highest score was recorded for the dimension of 'Respect and social inclusion', with a mean value of 2.44 and 2.34 for the Mainland and Island samples, respectively (range -4 to +4). It is important to highlight that the items included in this dimension investigated the extent to which individuals experienced negative comments or outright discrimination based on their age (items Q7 and Q8 inquired about the frequency of negative remarks or discrimination faced by respondents due to their age).

It is therefore evident that, while Venice appears to offer a relatively favourable environment for the elderly population, it is important to acknowledge the existence of discrepancies across different territorial areas. As might be anticipated, a distinctive aspect of Venice is the contrast between the experiences of living on the Mainland, which resembles a typical European city, and residing primarily on the Island, where architectural constraints (notably, the characteristic Venetian bridges and the narrow streets of the historic centre) present challenges for the entire population with reduced mobility.

Furthermore, various social phenomena, including mass tourism, may also have influenced the decision to settle in some areas of the city or in others, depending on income. It can be observed that areas with a lower concentration of tourists tend to have a lower cost of living than those with greater economic investment. Indeed, if the AFCCQ score is observed to be relatively homogeneous across the various municipal districts of the city, the dimensions of "Transportation" and "Financial Situation" present a notable exception. With regard to the transport dimension, the overall assessment is predominantly positive, with values ranging from + to ++. However, in the more peripheral areas of the Mainland, satisfaction levels are higher (2.1) than in the Island (1.86). This can be attributed to the fact that older individuals in the Island area are compelled to utilize maritime transportation, which can present a greater challenge for some individuals than other modes of travel (such as buses or automobiles).

The financial dimension is more complex, yet the more peripheral areas of the Mainland exhibit a diminished level of satisfaction. For instance, Area 3 (Favaro Veneto) displays a value of 0.23, in contrast to the value of 1.06 observed in Venice Murano-Burano.

The results of the Kruskal-Wallis test also demonstrate the absence of statistically significant differences between municipalities and between areas (Island vs. Mainland). The exception is the dimension "Outdoor spaces and buildings", which exhibits a significantly lower score in the Island area. It may be hypothesised that this is due to the architectural barriers typical of the historic and old parts of the city. Indeed, the questions relating to this dimension (Q18 and Q19) investigated the accessibility of the city for people moving with a wheeled walker or wheelchair. Additionally, there is inconclusive evidence of a higher score for the dimension "Communication and information" in the mainland area. The questions investigating this dimension (Q11 and Q12) pertained to the comprehensibility and accessibility of institutional communication by the municipality and other local authorities. Tab. 4 shows the parameter estimates for the identified regression model.

A statistically significant relationship exists between the AFCCQ and "quality of life". The dependence is non-linear (second order orthogonal polynomial). It is evident that AFCCQ and Life Satisfaction exert a mutual influence. Consequently, Life Satisfaction may be regarded as a *proxy* variable representing other individual factors (not necessarily related to the city of Venice) that may influence AFCCQ, other than the available covariates.

Table 4: Results from the regression analysis.

Variable	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	12.51	1.89	8.61	1.214e-10 ***
Life Satisfaction (poly, 1)	69.60	9.90	7.03	8.994e-12 ***
Life Satisfaction (poly,2)	34.46	9.82	3.51	0.0004978 ***
Sex (F)	-2.83	1.03	-2.73	0.0065800 **
Chronicity (Y)	-1.85	0.98	-1.88	0.0603443
Using a wheeled walker or a wheelchair (Y)	4.41	1.63	-2.70	0.0072361 **
Educational level (high)	2.19	1.02	2.16	0.0314783 *
Living in insular area (Y)	-2.53	1.18	-2.15	0.0320920 *
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				
Residual standard error: 9.68 on 397 degrees of freedom				
Multiple R-squared: 0.216 , Adjusted R-squared: 0.202				
F-statistic: 15.6 on 7 and 397 DF, p-value: <2e-16				

The other variables included in the model are two-level categorical, so the values of the estimated coefficients are directly comparable. Among the categorical variables included in the model, the one with the largest effect is "Use of a wheeled walker or wheelchair" (around -4.4 points), which is not surprising given the comments on Tab. 3, but perhaps the most surprising effect is that of gender. In fact, there is a penalty of about -2.8 points for women. This would confirm another characteristic of the Italian older population, which is made up of a majority of women with a higher life expectancy than men, but in poorer health (ISTAT, 2021). However, the significance of the effects related to the presence of chronic diseases (around -1.9 points) and medium-high educational qualifications (around +2.2 points) are worth mentioning, although they do not represent a real surprise, but rather a confirmation of more general trends and of the reliability of the model itself.

From a spatial perspective, the model shows that living on an island has a relatively large negative effect (around -2.5 points). Again, this is in line with the considerations above in relation to the AFCCQ score. The structural characteristics of Venice (but this is a characteristic feature of other historic cities in Europe) are an important factor to consider when formulating policies, which are much more complex than in other urban contexts. The covariates not included in the identified model are age, country of birth, type of dwelling, living with a spouse or partner, and receiving care. This does not mean that these variables have no relationship with the AFCCQ, but that their relationship becomes statistically irrelevant given the variables included in the model.

6. Conclusions

Despite an overall positive age-friendliness score in a city where elderly residents do not perceive discrimination and feel included by the community, this study reveals significant disparities in the perception of age-friendliness influenced by gender, spatial factors (lagoon islands vs. mainland), level of education and the need for mobility aids (such as wheelchairs or walkers).

Our findings highlight that older women often report greater challenges in accessing services and navigating the city, reflecting a pronounced gender gap in age-friendly experiences. Women's unique needs should be prioritized in policy design to ensure equitable access and inclusivity.

The analysis also underscores the influence of territorial factors, particularly in a city with a historic urban context like Venice. Residents in peripheral islands and areas with limited infrastructure report higher levels of dissatisfaction compared to those in more centrally located districts. This calls for targeted interventions that address the uneven distribution of resources and services.

Moreover, mobility challenges are exacerbated for those requiring wheelchairs or walking frames. The old city's distinctive physical environment - characterized by bridges and narrow pathways -poses significant barriers to accessibility, underscoring the urgent need for infrastructure adaptations that accommodate mobility aids. It is important to note, however, that although Venice is a unique case in the world, or almost unique, there are numerous other European cities with historic centres whose urban layout dates back to medieval times and, as a result, may exhibit similar characteristics and suffer from analogous problems.

To enhance the quality of life for Venice's older adults, policies must follow a *multidimensional* approach that accounts for gender disparities, territorial inequities, and mobility needs. A more inclusive social framework that integrates these factors is essential to fostering a truly age-friendly Venice.

References

Ambrosetti E., Strangio D. (2017), Public policies towards the family in Italy. An analysis of the evolution of the Italian welfare state and its impact on gender and generations, in Bloess T. (ed.) Cit.

Bertani, M., van Hoof, J., Dikken, J. (2025), Getting Older People's Voices Heard: A Quantitative Study Using the Validated Italian Age-Friendly Cities and Communities Questionnaire in Venice, Verona and Palermo, Journal of Cross-Cultural Gerontology (s*ubmitted)*.

Bertin G. (2020), Invecchiamento: orientamenti della Commissione Europea e politiche degli stati membri, Salute e Società, XIX, 3, pp. 15-31.

Billari, Francesco C., and Aart C. Liefbroer. 2004. "Is the Second Demographic Transition a Useful Concept for Demography? Introduction to a Debate." Vienna Yearbook of Population Research 2: 1–3.

Blakeman, P., Ford, L. (2012), Working in the real world: a review of sociological concepts of health and well-being and their relation to modern mental health nursing. Journal of Psychiatric and Mental Health Nursing, 19: 482-491. https://doi.org/10.1111/j.1365-2850.2011.01818.x

Bloess, T. (ed.) (2018), Ageing, Lifestyles and Economic Crises. The New People of the Mediterranean, Routledge, Milton Park, New York.

Brugiavini, A., Carrino, L., Orso, C. E., Pasini, G. (2017), Vulnerability and Long-term Care in Europe. An Economic Perspective, Palgrave Pivot Cham, https://doi.org/10.1007/978-3-319-68969-2

Burnham, K. P., Anderson, D. R. (2004), "Multimodel inference: understanding AIC and BIC in Model Selection" (PDF), Sociological Methods & Research, 33: 261–304.

Caltabiano, M., Comolli, C.L., and Rosina, A. (2017). The effect of the Great Recession on permanent childlessness in Italy. Demographic Research 37(20): 635–668. doi:10.4054/DemRes.2017.37.20

Dalla Zuanna, G., Micheli, G.A. (eds.) (2004), Strong Family and Low Fertility: A Paradox? New Perspectives in Interpreting Contemporary Family and Reproductive Behaviour, European Studies of Population, Vol. 14. Berlin: Springer Science & Business Media.

Da Roit B. (2020), Traiettorie delle politiche di long-term care in Europa: protezione, familizzazione e lavoro di cura, Salute e Società, XIX, 3, pp. 32-48.

Dikken, J. van den Hoven, R.F.M., van Staalduinen, W.H., Hulsebosch-Janssen, L.M.T., van Hoof, J. (2020), How older people experience the age-friendliness of their city: Development of the Age-Friendly Cities and Communities Questionnaire. International Journal of Environmental Research and Public Health 2020;*17*(18):6867 doi: 10.3390/ijerph17186867

Di Palo, C. (2019), Impact of Population Ageing on the Italian Pension Expenditure. Journal of Applied Economic Sciences, 14(4), 1203–1215. https://doi.org/10.14505/jaes.v14.4(66).26.

Engel, G.L., The Need for a New Medical Model: A Challenge for Biomedicine, in Holistic Medicine, vol. 4, n. 1, 6 luglio 2009, pp. 37–53, DOI:10.3109/13561828909043606.

Eurostat (2022), Housing in Europe - 2022 interactive edition, doi: 10.2785/798608 https://ec.europa.eu/eurostat/cache/digpub/housing/index.html?lang=en

Ferrera M., *Le politiche sociali*, Il Mulino, Bologna, 2019.

ISTAT (2021), Le condizioni di salute della popolazione anziana in Italia. Anno 2019, Statistiche Report 14 luglio 2021. https://www.istat.it/it/files/2021/07/Report-anziani-2019.pdf

Ivan, L., Dikken, J., van Hoof, J. (2024), Unveiling the experienced age-friendliness of older people in Bucharest: A comprehensive study using the validated Romanian age-friendly cities and communities questionnaire and cluster analysis, Habitat International, Volume 143, 2024, 102973, https://doi.org/10.1016/j.habitatint.2023.102973

Moreno-Fuentes F.J., Mari-Klose P. (2016), The Mediterranean Welfare Regime and the Economic Crisis. Taylor & Francis. 2016. https://doi.org/10.4324/9781315766706/

Nettleton, S. (2020). The sociology of health and illness. John Wiley & Sons.

Perek-Białas, J., Skórska, P., Maj, M., Kazak, J.K., Dikken, J., van Hoof, J. (2024), The experienced age-friendliness in two Polish cities: An in-depth analysis of the views of older citizens, Habitat International, Volume 153, https://doi.org/10.1016/j.habitatint.2024.103201

Porcu S. (2019), Presentazione, in Giarelli G., Porcu S. (eds.), Long-term care e non-autosufficienza. Questioni teoriche, metodologiche e politico-organizzative, FraneAngeli, Milano.

Swift H.J., Abrams D., Marques S., Vauclair C.M., Bratt C., and Lima M. L. (2018). Agisem in the European Region: Finding from the European Social Survey, in Ayalon, L., & Tesch-Römer, C. (eds). Contemporary perspectives on ageism. Springer Nature.

United Nations, Department of Economic and Social Affairs, Population Division (2024). World Population Prospects 2024: Summary of Results. UN DESA/POP/2024. https://population.un.org/wpp/Publications/

World Health Organization (WHO), 2023, "National programmes for age-friendly cities and communities: a guide", https://www.who.int/publications/i/item/9789240068698