Diego Sánchez-González
Vicente Rodríguez-Rodríguez   *Editors*

Environmental Gerontology in Europe and Latin America

Policies and Perspectives on Environment and Aging

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Preface

The field of environmental gerontology seems to play different roles in gerontology over time, oscillating between prominent contributions versus operating more in the backyard of aging research. Environmental gerontology as the research stream within social and behavioral aging research that addresses and analyzes the physical-spatial context of aging was much on the agenda of gerontology in the 1970s and 1980s. The landmark work of M. Powell Lawton (among others such as Francis Carp, Eva Kahana, Graham Rowles, and Rick Scheidt; see Wahl (2001) for an overview) at the theory as well as empirical level likely contributed much to this prominence. In the 1990s, environmental gerontology lost some of its impact and concentrated much on the demented older adults as a group with particular environmental vulnerability and a strong need for optimized environments, particularly long-term care contexts (Cohen and Weisman 1991). Since the beginning of the new century, fresh impetus has enabled reinstalling the importance of environmental gerontology, the least coming from Europe with empirical work such as the cross-country ENABLE-AGE study (Iwarsson et al. 2007). Indeed, the overall ambition to bring the area forward seems to regain power and dynamics in more recent time (Wahl et al. 2004; Wahl and Oswald 2010; Wahl et al. 2012). However, the emphasis to consider and apply environmental gerontology theory and studies continued mostly to remain a European and North American endeavor. Thus, generalization to other countries and cultures remained limited.

That said, it is excellent to see that the scope, differentiation, and application of environmental gerontology finds major extension in this new volume edited by Diego Sánchez-González and Vicente Rodríguez-Rodríguez. Compiling in a rich way perspectives on how environments shape aging trajectories and outcomes in countries such as Mexico, Chile, Ecuador, and Brazil with views from European countries, but also the USA, Canada, and Israel, is very informative as well as highly innovative and leads to both unexpected new insights and important future research impact.

In particular, I consider it as very helpful and synergy-provoking that this book is based on a broad understanding of environmental gerontology and that a range of relevant person-environment issues is treated. The book, for instance, addresses the

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impact of globalization at large, "aging in place" challenges in a number of countries including the major themes of place attachment and place identity, mobility and migration, housing, and the rural-urban distinction which separates the aging worlds around the globe on a continuing basis. Future key public health challenges such as climate change or the need to develop age-friendly urban environments also find considerable attention in the book. Such a multi-theme and multidimensional approach to environmental gerontology research is also important, because it leads to the treatment of the micro-, meso-, and macro-level of person-environment transactions in similar intensity. This is both a valuable addition to previous environmental gerontology research as well as helps to profoundly anchor person-environment issues in current and future policy agendas. For example, as we see rapidly increasing older migrant populations with pronounced cultural diversity, the glasshouse effect will hit old and very old individuals to a large extent, and the designing of urban habitats in the future will be strongly affected by the full heterogeneity of large numbers of old and very old adults, ranging from those with remaining solid competencies to those with pronounced physical and cognitive limitations. Going further, the book also gives equal emphasis to the role of the objective and experiential part of person-environment transactions as people age in different countries.

A closer look at some of the chapters enables to easily corroborate what has been said in the previous section: For example, Chap. 2 gives an overview of the applicability of theoretical models established in environmental gerontology comparing South European and Latin American countries. Chapter 5 builds string bridges among person-environmental issues and health in the UK. Chapter 9 sheds light on the role of urban aging by relying on intensive case studies conducted in the city of Valparaíso, Chile. Chapter 11 highlights issues of place attachment with data from Mexico, but with an author team that gathers scholars from Mexico and the UK. Chapter 15 elaborates on the challenges and problems of what is frequently called age-friendly environments (WHO), while contrasting Manchester, Ghent, and Brussels.

In conclusion, I expect that this volume will significantly contribute to our knowledge of a range of issues related to the fact that we all age in context, though this context is strongly framed within specific cultures. Thus, the context of aging has meanwhile gained a global dimension, and therefore, environmental gerontology has to turn out international and cross-country comparative. Simultaneously, the enduring importance of environmental gerontology will receive major impulses from this volume and hence will further strengthen the area at large. Even if the oscillation of environmental gerontology continues as described above, we should do everything that it remains a priority on the agenda of future gerontology. This book will help a lot to achieve this goal.

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References

Cohen, U., and G. Weisman. 1991. *Holding on to home: Designing environments for people with dementia*. Baltimore: Johns Hopkins University Press.

Iwarsson, S., H.-W. Wahl, C. Nygren, F. Oswald, A. Sixsmith, J. Sixsmith, Z. Széman, and S. Tomsone. 2007. Importance of the home environment for healthy aging: Conceptual and methodological background of the ENABLE-AGE Project. *The Gerontologist* 47: 78–84.

Wahl, H.-W., and F. Oswald. 2010. Environmental perspectives on aging. In *The SAGE handbook of social gerontology,* eds. Dannefer, D. and C. Phillipson, 111–124. London: Sage.

Wahl, H.-W., R. Scheidt, and P. Windley (eds). 2004. *Annual Review of Gerontology and Geriatrics* 23, Issue on *Aging in context: Socio-physical environments*. New York: Springer.

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

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Chapter 9
Role and Function of Urban Habitat in the Quality of Life of Older People: The Case of Valparaíso, Chile

Giulietta Fadda, Alejandra Cortés, and Alessandra Olivi

9.1 Introduction

This chapter is based on research project FONDECYT No. 1061179, entitled "Quality of Life of Senior Citizens in an Urban Habitat: Valparaíso case study." This research aimed to further our understanding of the interrelationships in Valparaíso, between urban structures, quality of life and ageing, thus contributing to consolidating its theoretical formulation. This implied finding out about the bearing that certain conditions of urban habitats have on the quality of life of the population's oldest age group, the urban habitat being construed as a combination of natural spaces and the built environment, a product of relationships between natural and man-made elements and the social life platform. To explore its relationship with senior citizens' quality of life, we analysed both the physical and objective conditions of the urban environment, and also the subjective and perceptual dimension of the relationship between space and individuals.

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9.1.1   Ageing, Quality of Life (QOL) and Urban Habitats

During the last decades of the twentieth century, the decline in levels of mortality and the relative weight of children and young people has impacted the overall ageing of the world's population. Ageing and urbanization are two global trends that, together, are important factors that characterize the twenty-first century (WHO 2007). Cities are growing, as is the proportion of senior citizens. Although both phenomena are the product of successful development during the twentieth century, their complex structural (demographic, economic and social) implications mean that the theoretical framework defining the concept of urban development has to be rethought.

According to Chackiel (2000), modern societies are marked by two outstanding demographic facts: people live far longer, on average, than ever before and the number of senior citizens is growing significantly. As connected as they may be, both aspects represent different concepts: "the first is the extension of individuals' lifespan; the second refers to population ageing, which is generally expressed by an increase in the proportion of senior citizens."

Human population ageing has turned into one of the most significant demographic processes of the end of the twentieth century and of the next decades. Demographic ageing is defined as the relative increase in the elderly population, and "a phenomenon of such importance and magnitude, so new in human history, that one can only make educated guesses about its consequences" (Solari 1987; Chackiel 2000). The number of people aged over 60 has risen at an unprecedented rate, both in absolute and relative terms. The total number and the proportion of senior citizens are both growing all over the world at a hitherto unknown scale and at a spectacular pace: "in 1950, the number of people aged 60 or more was roughly 204 million. In 1998, the figure has reached 579 million and according to projections, by 2050 it will have risen to 2 billion, and will equal the child population" (WHO 2012a). Meanwhile, the ECLAC (2012) estimates that Latin America will have a total of 113.6 million senior citizens by 2030, representing 16.5 % of the total population.

In the context of the sweeping changes that have taken place in Latin America in recent decades, Chile too has undergone a substantial transformation in its population age structure, as the growth rate of its oldest age group has increased considerably and its life expectancy index has reached 79.57 years (WHO 2012b). For instance, in the twentieth century, while the total population and the under-60 population rose nearly five-fold, the senior citizens population grew seven and a half-fold, and is expected to have doubled in 20 years' time. According to ECLAC projections (2012: 60), by 2030, the 60 year and over age bracket will account for 23 % of the total population. One of the most crucial results of the latest census (INE 2012) is population ageing: *the number of people aged 60 and over soared from 1,717,478 in 2002, to 2,409,312 in 2012, and from 11.4 to 14 % of the total population, and in Valparaíso this percentage is now 17.11 %. Despite representing a historic achievement, these figures pose a huge challenge.* Alongside the quantum

leap have come other quality leaps, triggering new physical and social needs, and a solution is becoming increasingly necessary by the day. The population age structure "must be tackled with bold public policies, offering broad, caring and efficient coverage, that not only focus their efforts on senior citizens but also contribute to building a society for all ages in which security and QOL in old age are forged from youth" (Guzmán et al. 2003). Senior citizens' situation and QOL will depend heavily on the "importance that society attributes to safe, satisfying and dignified ageing, which in turn depends on the information that is available about senior citizens' expectations, values and living conditions" (Palomba 2003). These considerations point to the need to develop a social consciousness and find out about the experience and subjective experience of senior citizens themselves.

This change in the population's demographic structure involves changes in society as a whole, triggering new physical and social requirements, and a solution is becoming increasingly necessary by the day: health system, education system, job market, pension needs, to name but a few (Oddone 1997). However, in our reality, this ageing process is occurring without a level of development capable of ensuring the conditions necessary to afford the oldest age groups an acceptable QOL, which depends, among other variables, on the features of the place where they live and the constraints specific to their habitat.

The QOL concept emerged in the 1970s as a reaction to the economicist and quantitative criteria employed in "social reports" or standard of living studies, placing the problem outside a purely technocratic approach (Rueda 1997). Although some have kept on using the QOL concept, and only associating it with objective conditions, a more current definition of the concept implies also including aspects that stem both from social relationships, developmental expectations and individuals' perceptions.

From this perspective, the QOL concept encompasses tangible and intangible, objective and subjective, individual and collective aspects that condition people's welfare in a given environment. Proposing a definition, Glatzer and Zapf (1984) suggested that the concept of QOL is a multidimensional welfare term that means the 'objective' living conditions are satisfactory and that there is a high degree of 'subjective' welfare; it also includes the individual satisfaction of needs, collective welfare. So studying a community's QOL means analysing not only the physical and objective conditions, but subjective experiences that individuals have regarding their existence in their habitat or environment. It involves assessing how individuals live, to what extent they expect those conditions to change, and what degree of satisfaction is achieved. "Objective indicators are necessary yet not sufficient, because they require an unquestionable complement: to distinguish how objective aspects, which are largely linked to socioeconomic ones, are expressed within the individual and how much these indicators matter to them" (García-Viniegras 2008). This conception of QOL has been backed by the UN and UNESCO, for studying the welfare of groups living under certain circumstances.

In environmental gerontology studies, which focus on analysing the relationship between environmental resources and maintaining senior citizens' autonomy

and welfare, the complementarity between objective and subjective aspects of QOL is particularly relevant for exploring the individual/environment relationship (Lawton 1999; Wahl and Lang 2004; Wahl et al. 2005; Wahl and Gitlin 2007). Several studies purport that personal life and ageing are invariably linked to specific environmental conditions, which in our case refer to the urban habitat. This relationship is a determining factor in QOL, and can improve or worsen senior citizens' quality of life, and even have a bearing on the prevention or worsening of disabilities.

The multiple dimensions of the QOL concept consider a set of conditions that are required for an environment to favour senior citizens' welfare (Wahl et al. 2005). The key aspects of a city that have a bearing on QOL include: segregation and isolation; density; the neighbourhood or environment's demographic profile; the location of amenities, services and infrastructure; urban traffic; citizen participation; water and air pollution; and risks of floods or landslides. It should be added that these problems do not affect all groups of inhabitants equally, because some groups are far more vulnerable, including senior citizens, the conclusion drawn being that there is inequality and discrimination in "the right to the city". To provide more specific details about these elements that negatively impact, and therefore restrict senior citizens' ability to function in the city, one could mention: limitations in availability and access to infrastructure and facilities; dispersion and segregation of the places of residence, supply, services and entertainment; the shortage of public transport, insecurity and the fact that decision-makers fail to take their opinions into account. The poor and oldest sectors are doubly discriminated against in terms of urban QOL. That is why, in certain circumstances, the urban environment leads to some activities becoming too difficult or even impossible to do, especially for the most vulnerable groups, and some authors go so far as to speak of "coercion of urban environments."

From an ecological perspective, which explains an optimal functioning in old age as an interaction between individual adaptation and environmental change (Bronfenbrenner 1979), various initiatives and trends in urban design and planning services for senior citizens have emerged. Some of the most outstanding, to name but a few, are: universal design, accessibility, healthy cities, livable communities, walkable communities and ageing in place. Emphasizing other determining factors of urban ecology, the WHO (2002) pointed out that a physical environment that takes account of older people's needs can be crucial in determining whether they are dependent or independent.

For its part, the Madrid International Plan of Action on Ageing (UN 2003) believes that creating an enabling environment for older people can encourage family and community structures and networks, supporting this age bracket's ageing process. Regionally, the Action Plan for Latin America and the Caribbean considers that a key course of action for coping with ageing is to promote an elderly-friendly urban environment. This shows why it so important to study the situations that senior citizens face in big cities, so as to make improvements to urban design, renovating public spaces and urban settings to build elderly-friendly neighbourhoods and friendly cities (ECLAC 2003).

9.1.2 Valparaíso and Its Neighbourhoods

Due to its very peculiar characteristics, Valparaíso's topography has played a decisive factor in the city's very existence and development, making it very special both in terms of its physical form, urban structure, and its socio-cultural life. Valparaíso is "a city divided into a flat area (known as the 'plan') … and an area of coastal relief, formed by a chain of hills of similar heights" (Waisberg 2000), with the cliff separating the Plan from the hills. Valparaíso city has been around a bay open to the north, on a narrow coastal plain and an "amphitheatre," formed by 42 hills, facing the Pacific Ocean. On account of this layout, one always comes across seascapes and viewpoints, and the city's architecture spans from monumental buildings to small houses scattered all along the amphitheatre of hills, forming a colourful and varied landscape, steeped in identity (Jiménez 2000). This range of hills is connected to the sea by a network of roads, and is crossed by a system of ravines that converge towards the city's flat area or plain (Álvarez 2001), a fact that turns each hill into an independent unit.

The Plan, with 5 % of the resident population and 80 % of the services and goods production activities, is home to the city's amenities, while the hills, with 95 % of the population and about 15 % of the services and goods production activities, have historically been limited to neighbourhood amenities. Its amphitheatre-like shape means that the commercial and financial district is not centrical, but spread out along a longitudinal axis, to which all of the hills' roads lead on a distributed, proportional and even basis. So the centre is not polarized or encapsulated at a single point or an edge of the city, and can be reached in similar ways from all the surrounding hills.

This layout could be regarded as a physical barrier to free movement of senior citizens, because they find it harder to get around, yet these urban elements could also be friendly, rewarding or positive for their QOL.

In order to devise a tool for analysing Valparaíso's urban habitat, the authors developed a theoretical approach to the neighbourhood concept, which has underpinned and complemented the production of the cartographic maps and the urban and architectural attribute registration forms, so as to define and characterize the neighbourhoods that make up Valparaíso city.

A first approach to the neighbourhood concept points to its exclusively urban nature (Gravano 2003) and, in this regard, there is a broad consensus among authors. A neighbourhood is a fragment of a conurbation, and is one of the parts, sectors, areas or portions into which a city is divided, regardless of its size. A neighbourhood is also characterized by its inclusiveness, as part of a whole, of a larger scenario, namely the city that encompasses it.

The researchers reviewed by Gallestegui and Galea (2004), place different degrees of emphasis on the delimitation of a neighbourhood. There is talk of more or less defined and more or less imprecise physical and/or symbolic boundaries, and ones that do not always match administrative boundaries. Reference is also made to the combination of topographic and/or administrative factors, with others of a

sociological nature. The latter are based on the proximity and neighbourhood notion. Alternatively, some talk about boundaries produced by a road system, which often do not match those created in the general public's mind.

Although "spatiality is the most tangible variable, a neighbourhood is not an organic, natural or purely physical community or spatial unit. Its significant symbolic and identity-related character downplays the problem of scale" (Gravano 2003). So even though a neighbourhood is usually defined by spatial markers that define it, those external markers are not enough. A neighbourhood is not a finished unit, but instead structured from a close relationship between its physical and social elements.

Another defining feature of a neighbourhood is its functionality, as it is "primarily residential, associated with industrial and commercial sites and also with cultural and social functions that form more general categories, such as lifestyle" (Gravano 2003). Additionally, a neighbourhood could be a unit with "its own personality" and an urban-social concept, which could constitute a "family of families", representing a "micro city". It could also represent be a step between a city and an individual, an environment that its inhabitant knows perfectly and is familiar with, that they feel is their own and defined through personal and social perception. What's more, its surface area would be limited to walkable distances.

In short, the notion of a neighbourhood denotes differentiation and inequality within a city, serving as an indicator of the process of segregation in the use and structuring of the urban environment, and contributing to build values and ideals associated with the environment and its social fabric.

For the purposes of our research, the boundaries of Valparaíso's neighbourhoods have been defined, first of all, by the city's division into six longitudinal sectors or zones, predefined by the Modification to the Master Plan. The Report regarding the "Modification to the Valparaíso Master Plan-Historic Preservation Zone" (O.J. 10th October 1997), divides the city into six "levels", that run from the sea to the top of the hills and which are:

1. Sea Level Zone.
2. Plan Zone between Sea Level and Cliff Level.
3. Cliff Level Zone or foothill chain.
4. Zone between Cliff Level and Avenida Alemania.
5. Zone between Avenida Alemania and Nuevo Camino del Agua (current city limit).
6. Cima Level Zone (between city limit and La Pólvora).

Therefore the whole city is divided lengthways into six zones or levels (Fig. 9.1).

However, these zones still do not meet the dimensions required by a neighbourhood unit, where inhabitants feel familiar with their surroundings, know it perfectly, perceive it as their own or can explore it on foot. To try to meet these requirements, what is proposed is to overlay another zoning, perpendicular to the first, formed by the lines that cut through these levels and are represented by the main ravines that separate the different hills (Fig. 9.2).
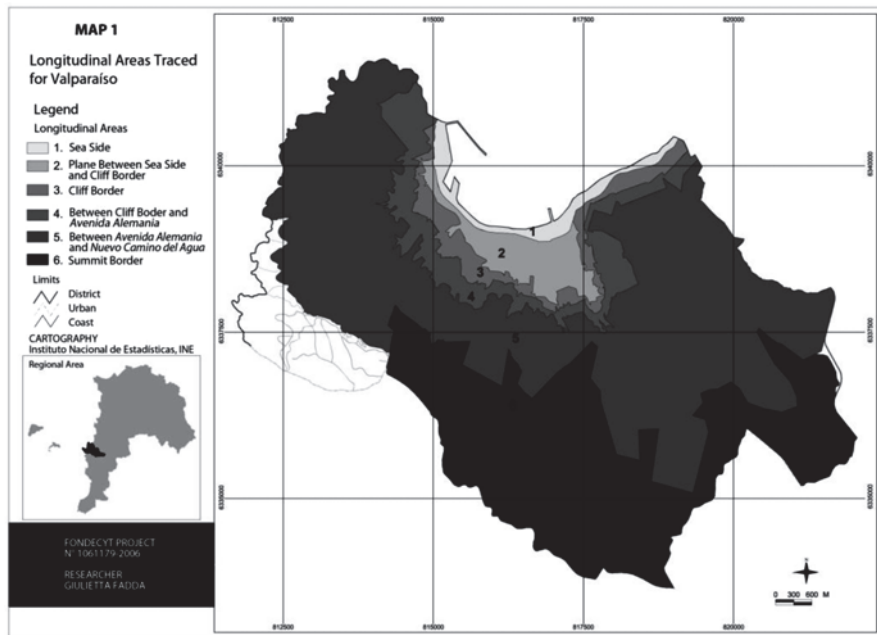
Fig. 9.1 Longitudinal zones in Valparaíso (Source: author)
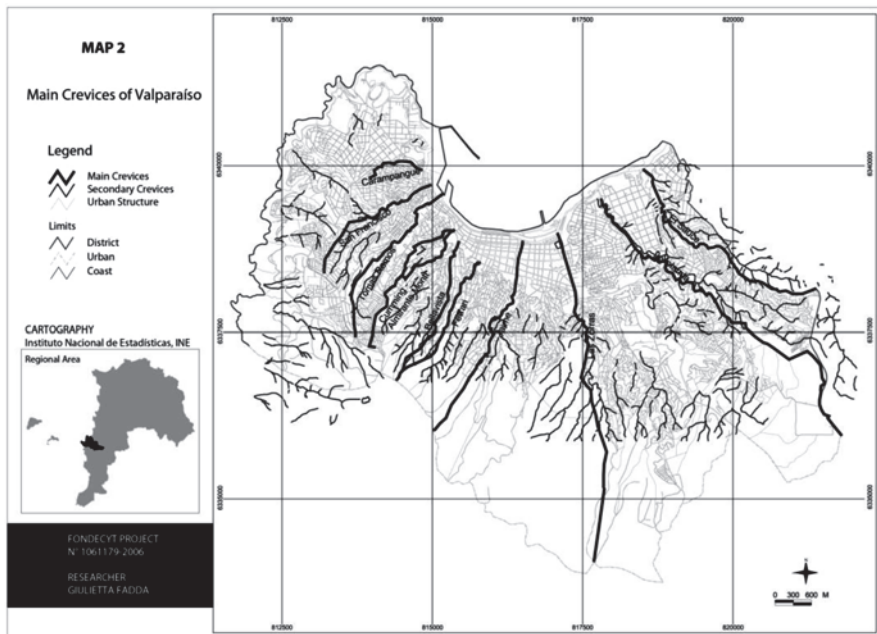
Fig. 9.2 Valparaíso's main ravines (Source: author)

So the resulting 98 neighbourhoods (Fig. 9.3), could potentially be units with "their own personality", each one forming a "family of families" and representing a "micro city". As well as representing a step between a city and an individual, an environment that its inhabitant knows perfectly and is familiar with, that they feel is their own and defined through personal and social perception. In general, they would mainly play a residential role, except in a few zones of the plan, where part of this role would be played by the financial, commercial and industrial sectors. Each of them could be a sociological reality based on the notion of proximity and neighbourhood.

The Plan distinguishes between three districts: Puerto, Comercio and Almendral. In the hills, it defined four longitudinal zones, matching zones 3, 4, 5 and 6 of the Valparaíso Master Plan. The result is 98 neighbourhoods: 3 in the Valparaíso plan and 95 in the hills.

After dividing the city into neighbourhoods this way, supplementary information was drawn from GIS maps that identified concentrations of substandard housing and densities of senior citizens per census block. To make the selection, the authors looked for neighbourhoods that met the following conditions: (1) higher densities of senior citizens; (2) socio-economic differences according to housing quality (financially stable and financially vulnerable); and (3) topographic locations: in the hills or in the plan. The selected neighbourhoods are illustrated in Fig. 9.4. After making this division and selecting the 13 neighbourhoods, qualitative and quantitative data surveys were conducted.
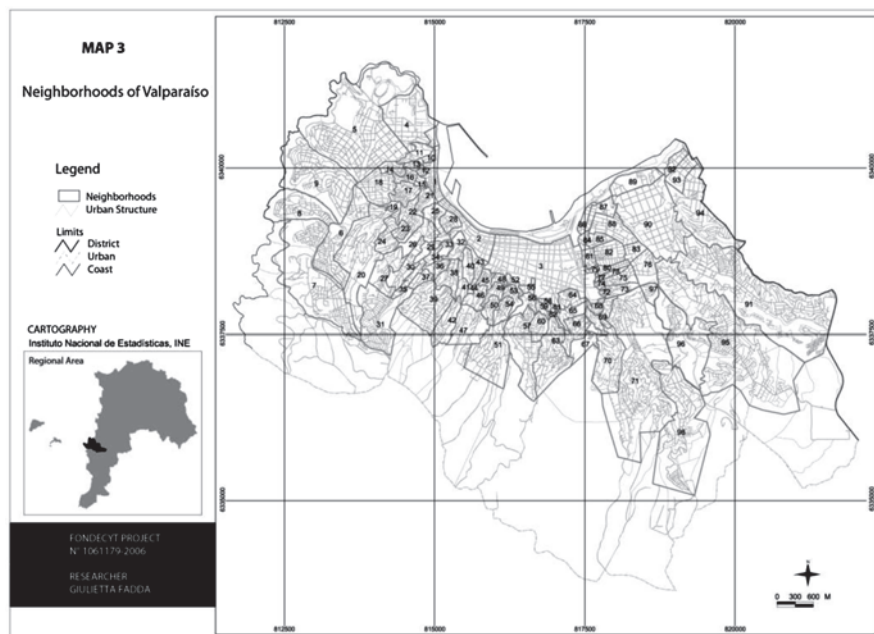
Fig. 9.3 Valparaíso's neighbourhoods (Source: author)
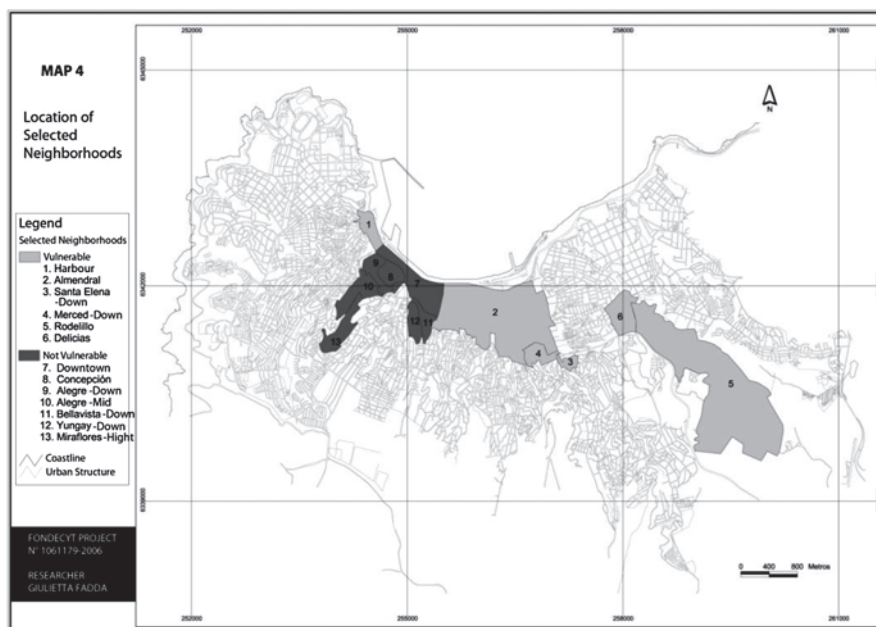
Fig. 9.4 Location of the selected neighbourhoods (Source: author)

9.2   Proposed Methodology for Analysing the Socio-spatial Dimension of Senior Citizens' QOL

To tackle the challenge posed by the complexity of the relationship between physical environment and senior citizens' QOL, the research resorted to the triangulation methodology option. Triangulation has proved a particularly effective strategy for analysing complex systems, insofar as it is not oriented merely to validation, but strives to broaden the boundaries of understanding of the reality under study. It helps to purify the inherent weaknesses of a single data collection method and control any personal bias by researchers. Triangulation of methods is often used in social sciences. Here it has been used to afford a comprehensive vision of the countless aspects involved in the relationship between urban habitats and senior citizens' QOL.

In line with the methodological approach adopted, a broad array of data collection methods and tools has been used, through the sequential and complementary use of qualitative and quantitative techniques. Taking into account the research interest descriptors, the data collection focused first on gathering information with which to characterize the objective conditions of the urban environment and socio-economic indicators regarding senior citizens. Secondly, on reconstructing the subjective perceptions and expectations that senior citizens have about their life in relation to the environment where they live.

So as to define and characterize the urban environment in question, the initial phase involved producing a map database, taking into account both the ecological and socio-demographic perspectives of the problem being researched. The vector geographic information system Arcview 3.2, combined with the Redatam+G4 system developed by CELADE/ECLAC (UN), were used to process the demographic, territorial and socio-economic information contained in the country's official statistics, regarding Valparaíso's senior citizens. This process produced 127 maps, divided into five thematic series[1] which have been the primary baseline for delimiting the neighbourhoods and selecting the areas in which to apply methodological tools chosen for the research.

In addition to the cartographic maps, urban and architectural attribute registration forms were drawn up, based on direct observation in 13 neighbourhoods in the city. The forms were used to record physical and topographic features, available amenities and/or infrastructure (nodes, landmarks, urban landscape features that are symbolic, representational, referential or of relevant interest; connection/disconnection networks) and information on the ways in which senior citizens use and interact with the urban environment. Some of the techniques used for recording the urban and architectural conditions were photographic recording, planimetric recording, GIS maps and sketches. A total of 232 records were produced (120 factsheets and 112 data analysis maps) and proved very useful in analysing and systematizing the study findings, as well as in selecting the neighbourhoods in which to apply the techniques for gathering information on senior citizens' subjective perceptions about their QOL in relation to their residential habitat.

Phase two of the research focused on gathering information to design the QOL Perception Survey questionnaire, through Focus Groups (FG) and a Delphi survey. The FG group dynamics served to identify the key elements, in conceptual and terminology terms, considered important or to define senior citizens' QOL in relation to the urban environment, which provided information that proved relevant for designing the survey. Focus group discussions revolved around the following main subjects: relationship with the physical environment (housing, neighbourhood, city) and relationship with the significant environment (formal and informal networks). A total of 4 FG were held with an intentional sample, based on four different criteria: density of senior citizens in each area of Valparaíso, socio-economic difference reflected by housing quality, ecological areas and location in different neighbourhoods of the city (plan/hill). To ensure maximum heterogeneity within the homogeneity, and project a comparative analysis capable of providing in-depth information

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[1] Series A and B (21 maps) spatially represents the 2002 Population Census data. Series C (8 maps) represents the distribution of senior citizens by district, while Series D (78 maps) spatially represents 16 categories regarding senior citizens' QOL: health, education, housing, employment, cultural level, gender, community amenities, environmental features, transportation, political-administrative division, safety and security, property, demographic characteristics and basic services. Series E (20 maps) provides geographic information on indicators regarding construction sector investments, providing indications on trends in Valparaíso's urban development process.

on a larger number of issues, a certain balance was sought in the gender of participants and in the presence of both age groups (third and fourth age).

The information obtained from the research subjects through the FG technique was supplemented by experts' opinion on the matter, by consulting them via a Delphi survey. The Delphi method relies on individual consultation of a group of experts, through successive questionnaires, to reveal converging options and endeavour to reach a consensus. In order to obtain information for drawing up the general survey questionnaire, 30 experts from different fields of specialization (architects, town planners, doctors, nurses, sociologists, educators, social workers, economists, anthropologists and government officials) were consulted, about the following aspects: the main factors affecting senior citizens' QOL in urban habitats; which urban habitat elements or processes contribute to the senior citizens' segregation and/or marginalization in the city; priorities for an urban intervention policy to improve senior citizens' QOL in the city.

After the qualitative and quantitative information gathered by applying the aforementioned techniques were systematized, senior citizens' QOL fields and their respective indicators and sub-indicators were defined, and then served as the basis for designing the survey questionnaire. The survey covered five areas:

(a) The human field, defined by the abilities, knowledge, job skills and health, included indicators such as: use of leisure time, privacy at home, the neighbourhood's needs, state of health, level of education, expectations, emotional support and perceived age-based discrimination.

(b) The socio-cultural field, regarding social networks, capacity to take action (empowerment), roots and identity, consisted of indicators such as: their perception of the neighbourhood, neighbourhood insecurity issues, consideration of their opinions, their opinion about their neighbours, participation in organizations and offering support to others.

(c) The natural field, concerning issues such as the environment, pollution, environmental health and vulnerability to disasters.

(d) The physical field, regarding amenities and infrastructure, comprised the indicator called quality of neighbourhood services. This consisted of sub-indicators such as street cleaning, street lighting, garbage collection, sewers, fire and police service, road maintenance, health centres and clinics.

(e) The financial-economic field, inherent to financial resources, was limited to indicators such as household income and perceived economic situation. The latter broke down into four sub-indicators: possibility of indulging oneself, possibility of saving moving, managing one's own money and financial freedom.

The survey, devised as a structured questionnaire, consisted of a set of preferably closed, multiple choice and degree-of-approval (attitude scale) questions, with regard to events and actions, and also to QOL opinions and perceptions, inquiring about respondents' perception of physical, socio-cultural and subjective elements and aspects of the urban environment. A total of 480 questionnaires were given to senior citizens (65.6 % men and 34.4 % women) living in the 13 districts selected according to the aforementioned study variables. In order to weight the survey

results, QOL indices were developed for each of the indicators and sub-indicators considered.

To complement the information provided by the survey, and shed further light on the most fundamental aspects of the urban habitat-senior citizens' QOL relationship, the ethnographic method was used, by conducting 27 in-depth interviews with key players, and holding informal conversations with senior citizens, engaging with them in public spaces and accompanying them on their daily trips around the city. This method also entailed using audiovisual recordings, not only as a recording tool, but as an interpretative tool. The interviews focused on rebuilding senior citizens' perception of their life in the city of Valparaíso, placing particular emphasis on the following dimensions: spatial representations and their significance; place making processes; access, use and control of urban spaces; spatialization of social networks. The information gathered through the ethnographic records provided relevant information about senior citizens' subjective experience in Valparaíso's urban fabric, exploring the attitudes, opinions, values, expectations, apprehensions, feelings and/or subjective perceptions of their QOL in relation to the city's structure and morphology.

Crossing the information provided by each of the instruments applied has helped produce relevant information about the research problem that will be discussed below.

9.3   Analysis of Factors that Condition Senior Citizens' Quality of Life

The research findings are the result of triangulating the different methodological tools employed. Although the questionnaire provides the quantitative framework of the analysis, its results have been interrelated with those of the other instruments: GIS maps, urban-architectural morphology observation forms, Focus Groups and in-depth interviews, placing special emphasis on the latter two on account of their qualitative nature.

After a statistical analysis of the survey data, QOL indices were developed for each of the indicators and sub-indicators, giving a quantified assessment of the results. Applying the result triangulation method, the assessments obtained were crossed with other qualitative data, to closer examine the meanings and interpretations that underlie the opinions expressed by the interviewed senior citizens.

The QOL index was constructed by selecting the survey questions that pointed directly to senior citizens' QOL. Each answer was assigned a QOL score: Very Poor (0–0.24); Poor (0.25–0.49); Good (0.50–0.74) and Very Good (0.75–1).

The results were broken down by sex, age, location (hill/plan), socio-economic status (vulnerable/stable) and ecological zone (financially stable hill/plan, financially vulnerable hill/plan) to obtain results for each of these categories.

Table 9.1 Senior citizens' QOL field index

Field	Index
Economic-Financial	0.48
Natural-Environmental	0.48
Socio-Cultural	0.52
Physical	0.59
Human	0.68

Source: author
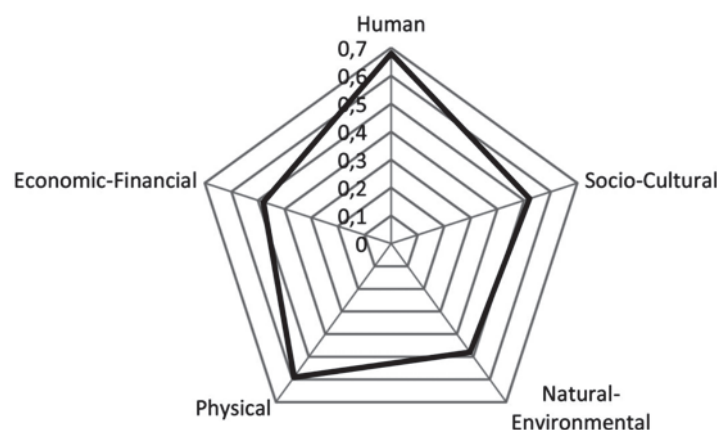
Fig. 9.5   Senior citizens' QOL field index (Source: author)

Based on the broader aspects, and what it says about the five major fields into which the senior citizens' QOL indicators were grouped, the Economic-Financial and Natural fields scored the worst, while as shown in Table 9.1 and Fig. 9.5, the Human field, which combines aspects such as the respondents' abilities, knowledge, job skills and health, scored the highest.

To facilitate further analysis of the data, Tables 9.2 and 9.3 and Fig. 9.6 illustrate the results of the 21 indicators included in the 5 fields selected to assess the QOL of senior citizens in Valparaíso. Due to the large amount of information, the figures do not include the details of the sub-indicators mentioned above. These figures show the Indexes per indicator sorted in ascending order, from the worst-scoring (Participation in Organizations), to the best-scoring (Use of free time).

Table 9.2 breaks down the indices by Ecological Zone[2] plus the General Index value. Figure 9.6 displays the indices without discriminating by category and Table 9.4 distinguishes between them by Location (Hill and Plan) and differentiates the difference by ecological zone (Hill and Financially Stable Plan, Hill and Financially Vulnerable Plan).

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[2] Name given in the project to designate internally homogeneous areas according to their location and socioeconomic status.

Table 9.2 Senior citizens' perceived QOL index

Perception	Indicator	Index value by urban zone				General index
	Urban zone	HS[a]	HV[b]	Pl S[c]	Pl V[d]	value
Very poor	Participation in organizations	0.09	0.06	0.11	0.08	0.09
	Neighborhood needs	0.23	0.09	0.19	0.27	0.20
	Neighborhood safety	0.33	0.17	0.18	0.17	0.21
Poor	Environmental contamination	0.33	0.35	0.22	0.20	0.28
	Your opinions taken into account	0.52	0.39	0.35	0.46	0.43
	Educational level	0.57	0.35	0.44	0.45	0.45
	Vulnerability to catastrophies	0.55	0.39	0.42	0.44	0.45
	Economic situation	0.50	0.43	0.39	0.5	0.46
	Family income	0.57	0.31	0.47	0.52	0.47
Good	Quality of services in your neighborhood	0.61	0.58	0.55	0.56	0.57
	Future expectations	0.69	0.56	0.60	0.59	0.61
	Health status	0.68	0.57	0.61	0.67	0.63
	Evaluation of your life experience	0.72	0.59	0.68	0.68	0.66
	Public hygiene	0.72	0.60	0.62	0.70	0.66
	Perception of your neighborhood	0.86	0.55	0.67	0.64	0.68
	Affective support	0.79	0.69	0.66	0.68	0.70
	Opinion of your neighbors	0.82	0.72	0.75	0.70	0.75
Very good	Age discrimination	0.88	0.82	0.78	0.81	0.82
	Support offered to others	0.88	0.74	0.91	0.87	0.85
	Privacy in the home	0.96	0.94	0.94	0.91	0.94
	Use of free time	1.00	0.96	1.00	0.96	0.98

Source: author
[a]HS: economically stable hill
[b]HV: economically vulnerable hill
[c]Pl V: economically vulnerable plan sector
[d]Pl S: economically stable plan sector

The figures underscore how differently the range of aspects involved in senior citizens' QOL in Valparaíso are rated. The spiral in Fig. 9.6 shows that the lowest-scoring items (those closest to the centre=0) have to do with participation in organizations, amenity requirements and safety in the neighbourhood. They are followed, in ascending order, by pollution, lack of consideration of their opinions, household income, financial situation, educational level and vulnerability to disasters, whose scores remained below the midline of 0.5. On the other end of the scale, and perceived as very good, lack of age-based discrimination, the support that the elderly can give to others, privacy at home and the use of their free time. In general, it could be inferred that, unlike the worst-scoring items, the best-scoring ones depend more on senior citizens' individual initiative and social environment than actions by public authorities.

Table 9.3 Valparaíso senior citizens' QOL indicator index

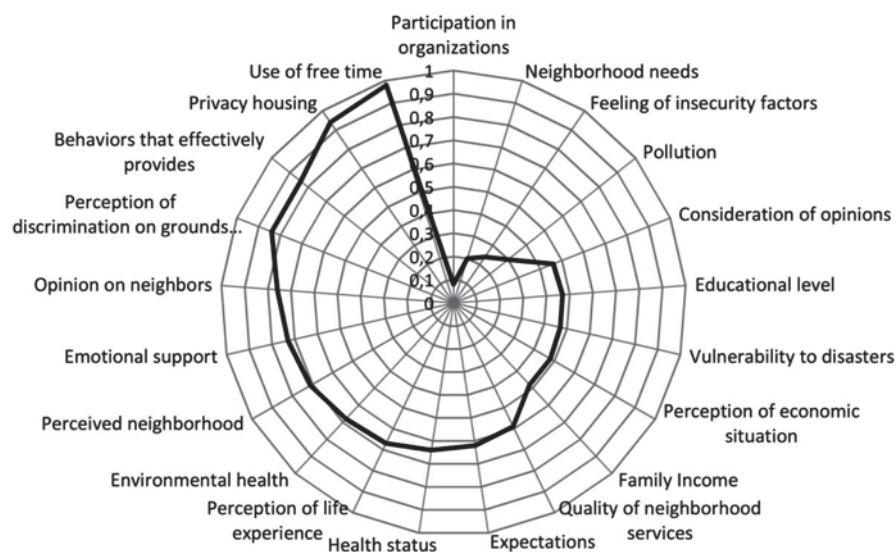| Indicator	QOL indicator index
Participation in organizations	0.08
Needs of the neighborhood	0.20
Factors of insecurity in the neighborhood	0.24
Contamination	0.30
Consideration of views	0.46
Educational level	0.47
Vulnerability to disasters	0.47
Perception of economic situation	0.48
Household income	0.48
Quality of services of the neighborhood	0.59
Expectations	0.62
Health	0.64
Perception of life experience	0.67
Environmental health	0.68
Perception of neighborhood	0.71
Emotional support	0.73
Opinion concerning neighbors	0.76
Perception of discrimination on grounds of age	0.84
Behaviors that effectively provides	0.84
Privacy housing	0.94
Use of leisure time	0.98

Source: author

Fig. 9.6 Senior citizens' QOL indicator according index total in Valparaíso (Source: author)

Table 9.4 Indices per senior citizens' QOL indicator according to ecological zone in Valparaíso

Indicator	Index			
	Hill financially Stable	Hill economically Vulnerable	Plan financially Stable	Plan economically Vulnerable
Participation in organizations	0.09	0.06	0.11	0.08
Needs of the neighborhood	0.23	0.09	0.19	0.27
Factors of insecurity in the neighborhood	0.33	0.17	0.18	0.17
Contamination	0.33	0.35	0.22	0.20
Consideration of views	0.50	0.43	0.39	0.50
Educational level	0.52	0.39	0.35	0.46
Vulnerability to disasters	0.55	0.39	0.42	0.44
Perception of economic situation	0.57	0.35	0.44	0.45
Household Income	0.57	0.31	0.47	0.52
Quality of services of the neighborhood	0.61	0.58	0.55	0.56
Expectations	0.68	0.57	0.61	0.67
Health	0.69	0.56	0.60	0.59
Perception of life experience	0.72	0.59	0.68	0.68
Environmental health	0.72	0.60	0.62	0.70
Perception of neighborhood	0.79	0.69	0.66	0.68
Emotional support	0.82	0.72	0.75	0.70
Opinion concerning neighbors	0.86	0.55	0.67	0.64
Perception of discrimination on grounds of age	0.88	0.82	0.78	0.81
Behaviors that effectively provides	0.88	0.74	0.91	0.87
Privacy housing	0.96	0.94	0.94	0.91
Use of leisure time	1.00	0.96	1.00	0.96

Source: author

When discriminating by location (hill/plan), the values are seen to be more positive on the hill than in the plan (Figs. 9.6 and 9.7), which would indicate that, broadly speaking, senior citizens living in the hills perceive a better QOL. The aspects that contribute most to this advantage are: the fewer factors of insecurity in the neighbourhood, the lower level of pollution, a better perception of the neighbourhood itself and better emotional support.
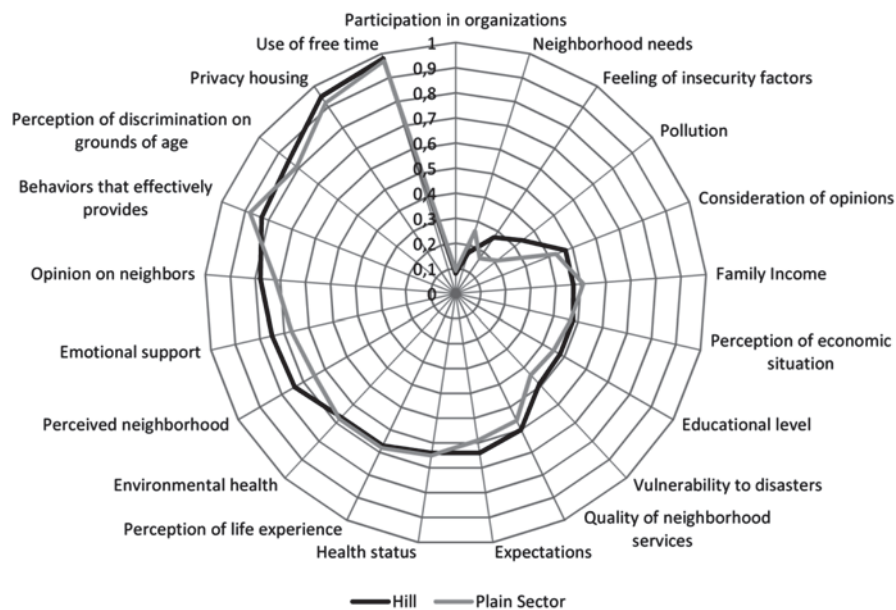
Fig. 9.7 Senior citizens' QOL indicator according index to location in Valparaíso (Source: author)

Nevertheless, after adding the socio-economic factor (Tables 9.2 and 9.4), the conclusion drawn is that the advantages of the hill are not homogeneous, and instead there is a big difference between the Financially Stable Hill and the Financially Vulnerable Hill. This implies that many advantages and just as many disadvantages have a different impact, depending on the inhabitants' socioeconomic status.

The general trends identified point to the existence of different degrees of relationship between the objective and subjective aspects of senior citizens' life context and the degree of autonomy and wellbeing that they experience. Crossing the survey data with the stories collected by conducting the Focus Groups and in-depth interviews[3] shed further light on the spatial and social dimension of senior citizens' QOL and on the internal connections that spring up between these dimensions.

The neighbourhood, defined as the actual place inhabited by neighbours (Phillipson et al. 2001), is directly related to senior citizens' perception of their QOL. Senior citizens generally tend to view the neighbourhood where they live in positive terms. 67.3 % consider that their neighbourhood is not poor. Around 75 % consider their own neighbourhood a nice place, 75 % deem it an ideal place to live, about 65 % believe it is a safe place, and approximately 57 % would not be willing to change. Although considerable differences are seen between one socio-economic

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[3]The following abbreviations are used in quotations taken from the interviewed senior citizens: FG/P (Plan Focus Group); FG/C (Hill Focus Group); I/P (Plan Interview) and I/C (Hills Interview).

area and another, the process of identifying with and feeling attached to one's own neighbourhood is far more marked in the hills.

> …I was 22 when I came to live on this hill, in a house that's run down, has been hit by an earthquake and all that, but if they moved me from there, I'd die. Just imagine it: more than 60 years there, living in the same neighbourhood, on the same hill, I adore it. It doesn't matter that the houses aren't pretty anymore, because you get used to it (FG/H).

When senior citizens talk about it, the hills take on a positive dimension, unlike the plan, seen as a place where there is far less community life.

> In the plan that doesn't happen, because nearly everyone from the plan works and comes home in the afternoon or evening, whereas on the hills we live more like a family, and there are closer ties between neighbours (FG/H).

The hill defines the space where places and meanings are shared; the subjects run into one another and meet up, forging daily and permanent ties. The fact that the hill feels like a community is valued highly, because it represents a way to "feel part of", to participate without having to move.

> There is more communion among people who live on the hill, people get together more […] either on the street corner or they get together in someone's house, there is more activity than in the plan, because here [in the plan] sometimes you don't even know who lives next door or talk to one another but up there[4] almost everyone knows each other. They get together for one thing or another (FG/P).

The hill's very morphology seems to contribute to foster neighbourly relations, encouraging neighbours to interact with one another: the narrow streets, viewpoints, and the entrances through common steps and alleyways mean that people run into each other, fostering ongoing relationships that lead to ties of various kinds.

The fact that senior citizens rate their own neighbourhood positively is mirrored in the "Opinion about Your Neighbours" indicator (score of 0.75), showing an overall positive perception. 84 % of the respondents express the opinion that their neighbours are not conflictive. Despite no major differences being seen in this regard between the hill and the plan, in the financially vulnerable area there is a greater perception of neighbours as agents of conflict. Moreover, a significant percentage of senior citizens regard their neighbours to be friendly (70.8 %) and supportive (68.3 %). These opinions are more frequent among the senior citizens living on the hill and in the financially stable area because, as we have seen, such conditions make it easier to maintain stable ties and reciprocal relationships with neighbours.

The importance that senior citizens attach to relationships with neighbours is corroborated by the "Emotional Support"—related indicator (score of 0.70). Even though the most positive opinions focus on relatives (66 % feel very supported by their children, 53.9 % by their grandchildren and 34.6 % by a partner), senior citizens also attach great importance to friends and neighbours. 47 % of senior citizens feel very supported by friends and 40 % feel very supported by their neighbours, and the support provided by the latter is most appreciated in financially stable areas, a trend that is even stronger in the hills.

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[4] The term "top" refers to the hills.

To assess the importance that senior citizens attach to the emotional support, and in many cases material support, of friends and neighbours, one must consider that almost half of senior citizens (49.8 %) do not have a partner and a fifth (19.6 %) live alone. To make up for or prevent their loneliness, often associated with the age condition itself, senior citizens tend to establish significant non-family ties.

> I've got friends, see? When I was ill, they came to visit me at home … they took me to see the doctor, because I don't have any children, and my relatives are dead (FG/H).
> When I've had accidents, all the neighbours, that's 20 people … coming running because I don't have anyone to me, now that I'm 80, I don't have anyone to me (FG/H).

The support of friends and neighbours helps to meet senior citizens' needs. For people who reach old age living totally on their own, these neighbourhood networks become crucial. Due to the lack of adequate social care, these networks become the only guarantee of conditions minimum of wellbeing.

> We know that there are plenty of senior citizens who feel abandoned, others are bedridden, and if the neighbours weren't so supportive … neighbours sometimes do work that isn't their responsibility […] that's what the state agencies should be doing, yet the neighbours take on that work and the neighbours make sure he gets breakfast, look after him, sometimes wash him […] That's why neighbours play such an important role in a senior citizen's life (FG/P).

Underlying these support networks is a reciprocity mechanism that not only lets them cope with life more confidently but also feel useful, helping to promote a positive perception of one's own age. The "Support Offered to others" indicator (score of 0.85) is generally assessed positively, especially in relation to patterns of behaviour such as: experience, allowing them to give good advice or make suggestions (31.5 %) and do things better (22.3 %) and the companionship and affection that are capable of giving (20.4 %). The ability to support others creates a virtuous circle that makes the present more satisfying on a personal level and the future less uncertain.

> We have learned to be supportive too with our next-door neighbour, because we used to be sitting here and not have any idea what the guy next to us was called (FG/H).

The role that informal mutual support networks, formed by relatives and neighbours alike, play in the lives of this age group matters even more because senior citizens tend to take very little part in formal organizations. The "Participation in Organizations" indicator, regarding senior citizens' participation in neighbourhood associations, mothers' clubs, political parties, senior citizens' clubs, religious groups, sports clubs, block parties and local fetes, social gatherings, music or dance groups and other activities, is the worst rated and the lowest scoring at only 0.09. When discriminating by socioeconomic status, the senior citizens living in financially vulnerable areas, both on the hill and in the plan, are seen to be the least involved in formal organizations. This situation leads to further segregation of the most financially vulnerable people who, as we have seen, are the group that also receives less support from informal support networks.

Another aspect that contrasts and reinforces the importance of the ties and consideration that senior citizens enjoy in their immediate environment, is their lack of

recognition from society in general. While 73.5 % of senior citizens feel that their opinions are taken into account enough at home and 52.5 % in the district where they live, 57.5 % said that community organizations did not listen to their opinions and 53.5 % said that the Municipality did not take their opinions into account at all.

It can be said that, broadly speaking, senior citizens have a positive perception of the social and relational dimension associated to the neighbourhood and that this perception is stronger in the area of financially stable hills. Instead, their opinions about the environmental, physical and amenities dimension are not very homogeneous, marked differences appearing in terms of the residential areas, service area and socioeconomic status.

Of all the factors included under the "Quality of Neighbourhood Services" indicator (score of 0.57), lighting, the rubbish collection service, health service, and the police and fire brigade services rate highly overall. Yet their opinions about the quality of the road maintenance service differ a lot more: 50.4 % rate it positively (good and very good), while 49.2 % rate it negatively (very poor and poor).

The poor state of public roads is the issue that senior citizens identify as most problematic insofar as it hinders pedestrian movement, endangering people's physical integrity when they move about the urban habitat.

> The street that goes down there, that stretch has never had a handrail and some steps are shorter, and others longer, so I've never been able to walk down it, I go down other streets to get there (FG/H).

Since the majority of the city's services are located in the plan, senior citizens living in the hills constantly "go down" to the plan to run their errands or do their shopping, transactions and purchases, either using public transport or walking, or both. To save on the cost of transport, people who are less well-off financially tend to walk down to the plan, and in doing so are more heavily exposed to the risks associated with the precarious roads and urban infrastructure.

> We're getting older and the city is deteriorating, the roads, you're walking and fall over (I/H).
> They forget about the streets, then come and resurface them but badly, then go off, take out the lampposts and dig up the street, the pavement and don't leave it like it was before. Here there's a huge hole. Why don't they leave it the way it was? They leave holes all over the place and you fall down time and time again. Here it's dangerous if an elderly person falls down, because they'll roll all the way down the street, and then it's goodbye (FG/H).

Despite the overall positive rating of neighbourhood services, these are insufficient to meet real needs. The "Neighbourhood Needs" indicator, which assesses urban amenities such as means of transport, green areas, clubs and health, sports, cultural and commercial facilities, is rated very negatively (score of 0.20). The residents of the financially vulnerable hills are who have the worst opinion, especially regarding means of transport, green areas and squares.

Another negatively rated indicator is "Neighbourhood Safety Factors" (score of 0.21). The main elements that result in the elderly seeing their neighbourhood as unsafe are crime, drugs, alcoholism and lack of street lighting. This perception is more negative in the plan than on the hills, this difference being especially stronger

with respect to the financially stable hill. The community and relational dimension, which characterizes the hill's habitat, is mentioned as a factor that makes senior citizens feel safer. The fact that people know each other personally, or have a friendly relationship with someone, operates as a protection mechanism.

> I think it's safer here on the hill because everyone knows you, the "gang members" who live here on the hill know you, they say hello as if you're their auntie, so it's like having loads of nephews and kids.... the school children and even everyone else looks after you, yet down on the plan nobody knows you (FG/H).

Even the hills are seen as being a safer place, the stories shows that, generally speaking, senior citizens have a feeling of insecurity in public spaces, a feeling that they associate both with the environment itself, and to their age. In fact, they see themselves as a vulnerable group and easy target for urban petty crime. It is precisely this sense of insecurity and vulnerability that conditions what senior citizens do, determining the use of certain urban areas and preferably at certain times of day, leading in extreme cases to transform their perception of the neighbourhood itself and encouraging patterns of behaviour that denote distrust and self-segregation.

> Another problem is that nowadays violence is so fashionable, right? That's terrible, because there are plenty of people who don't dare leave their homes. Senior citizens find it hard to go out because there's so much violence around (FG/P).

Another negatively regarded indicator is "Pollution" (score of 0.28). The main pollution factors that affect senior citizens are: rubbish, noise, animals and the smog. According to the results, the Plan is regarded as a more highly polluted area than the hills. While the Plan scores worse in terms of these four factors, the hills appear to be more affected by stray animals, insects and, to a lesser extent, drainage problems and bad smells.

> The elderly are always complaining about how hard it is to get up the hill, about the street lighting, and about all the stray dogs, which is a really big problem, not only at the top but also at the bottom (I/P).
>
> The dogs, mainly, and the other problem that is often has to do with the rubbish. Even though lots of policies have been adopted in this respect, but there's still a lot to been done before people understand how to act in that regard (FG/P).

Pollution from rubbish and smog is seen to mainly affect residents of the financially vulnerable areas, while noise pollution and the animals and insects problem is perceived as problematic factor in financially stable areas. Although nowhere is free from the pollution problem, air and noise pollution generally has far less of an impact on the hill, which is perceived as a healthier place.

> The positive thing about living on the hill is the view, there's not so much noise and smog as in the plan, because in the plan you can hardly hear one another with all those cars ..you can't even hear yourself … (I/C).

The negative perception associated with the "Vulnerability to Disasters" (index 0.45) is strongly connected with Valparaíso's morphology and climate, and earthquakes and storms are the phenomena that senior citizens perceive as most threatening. The perception regarding earthquakes is similar for all the areas: around 40 %

feel threatened by this type of phenomenon. As for sea-related disasters, and on account of Valparaíso's coastal position, it is the plan's inhabitants who perceive a greater sense of danger. Diversely, storms pose a greater threat to people who live in the financially vulnerable hill, a condition associated to the poor housing and the fragile sloping terrain, unsuitable for building on. Conversely, the better living conditions of the senior citizens who live in the financially stable hill and its relative distance from the coastline makes them less vulnerable to potential natural disasters. Broadly speaking, it can be said that an evident correlation exists between vulnerability and socio-economic situation.

As a corollary of the relationship between the objective and subjective aspects of the level of wellbeing and satisfaction of older people, it is clear that the life experience is judged far more positively in the financially stable areas, and more negatively in financially vulnerable areas. In addition, living conditions on the financially stable hill mean that senior citizens living in this sector have a more positive view of the future itself.

Analysing senior citizens' perception highlights the multidimensionality of the QOL concept. The conditions imposed by the physical environment and the socio-economic context are particularly important issues that affect the welfare and degree of satisfaction of senior citizens in urban areas. Their impact on defining the opportunities for creating social and reciprocal relations make them central factors in the process of identity construction and land appropriation of the population's oldest age group.

9.4   Conclusions

This study on how Valparaíso's senior citizens perceive their QOL, has shown a close relationship with the socio-spatial characteristics of the habitat in which they operate as active subjects. Their level of welfare is directly related to the process of territorial identification and appropriation. The important role that the spatial component plays in senior citizens' identity means that their experience varies in line with the characteristics of the socio-spatial context in which people age (Laws 1997). The characteristics of the environment, understood as the set of physical and morphological factors upon which social relation systems and structures materialize and form, have a strong impact on the ageing process and on senior citizens' QOL.

The evidence produced by the study shows that senior citizens constantly refer to the categories of neighbourhood and district as socio-spatial units that favour or hinder the social relationship-building process. For this age group, the neighbourhood idea is central to the individual and collective construction of their identity and their way of experiencing and perceiving old age (Phillipson et al. 2001).

The dimensions of Valparaíso's hill and plan are identified by senior citizens as two bodies that are physically and socially different, yet complementary at the same time. These bodies have different effects on the character and composition of social networks, defining the spaces in which older persons participate. In this hill-plan

division, topographic and administrative elements, together with physical, and sociological symbolic references, overlap one another. The plan and the hill distinguish and determine collective behaviours, and the elderly use them as coordinates to represent their membership of certain spaces and communities. Living up in the hill or down on the plan involves certain representations of the living space, of us and the others, of social networks, and together all these aspects determine senior citizens' QOL.

In this relational context, the ecological and social dimension of the hill is globally vested with positive meanings. What they appreciate about the hill is both its environmental conditions (sun, air, parks, views) and its physical size and social composition. These latter aspects are interpreted as elements that enhance the ability to keep up both casual and permanent community relations, making senior citizens feel safer and better protected. In contrast, the concentration of commercial services in the plan, coupled with the high volume of traffic and scattered housing estates are interpreted as aspects that encourage more closed lifestyles, making it difficult to maintain social relationships based on physical proximity. In this respect, the plan embodies the living conditions common to the senior citizens of many contemporary cities, where the specific realities of the built environment lead to individuals becoming less committed to the community where they live, eroding individuals' social capital (Putnam 2000).

In the context of this dichotomous interpretation of urban environment, while the plan is internally homogeneous, life on and inside the hill, on the contrary, is extremely varied, with a broad array of different environments and patterns of behaviour. The hills differ from one another, but inside one same hill there can be areas of differentiation, based on socio-economic variables. The distance from the plan serves as a social marker, fuelling the creation of discriminatory stereotypes. While the residential sectors at the bottom of the hill enjoy the best living conditions, as one moves to the top, these conditions become more vulnerable, and are associated with insecurity and widespread precarious situations. Therefore, the sense of attachment to their own neighbourhood and community experienced by the senior citizens who live in the financially stable hills does not extend evenly to the rest of the hills. Towards the summits, the residents' perception resembles the one experienced by the plan's residents, making senior citizens feel more vulnerable and insecure. In the most rundown neighbourhoods, there is also a stronger perception of crime-related risk, discouraging senior citizens from moving around and staying in public spaces. These unfavourable environmental conditions negatively impact the forging of bonds of trust and reciprocity, so the most vulnerable senior citizens become far more isolated and segregated.

Another aspect that interrelates Valparaíso's morphological structure with senior citizens' QOL involves movements between the hills and the plan. The plan is home to all the institutional and commercial services, public and entertainment spaces, so their accessibility is an essential factor for satisfying senior citizens' basic functional, recreational and identity needs, and for integrating them into city life. This issue is unique to the senior citizens living in the hill area, because the plan's residents have no need to go up to the hills and, in fact, very few people say that they

do. That is why there is a consensus in the opinions voiced by the senior citizens living in the hills, on the problems arising from the poor conditions of infrastructure and urban amenities. The same applies to public transport: there is not enough and it is too expensive, so this age group's needs are not met and/or they cannot afford it, which can lead to their spatial segregation. This makes matters even worse for the senior citizens who live at the very top of the hills.

Even so, despite Valparaíso's topographical conditions and poorly kept road infrastructure, there is also a positive perception about getting down to and around the city. Walking down to the plan or combining different means of transport is regarded as a healthy life habit, and also gives one more opportunities to meet people and socialize in urban spaces, facilitating senior citizens' integration into society. So ensuring the city has a physically accessible and affordable transport network, and infrastructure suited to this age group's characteristics and needs, should be a top priority on the agenda of public policies addressing urban accessibility.

The study shows that the levels of accessibility to the city's different socio-spatial units condition senior citizens' chances of socializing, having a direct bearing on their perception of themselves and others and encouraging a process of active and successful ageing at personal and group levels alike. In this sense, the environmental and social dimensions of the neighbourhoods of the hills nearest the plan are considered to afford the elderly a better QOL. These conditions, however, are heavily threatened by the urban restructuring process that Valparaíso has been undergoing ever since it was declared a UNESCO World Heritage Site in 2003. Since then, the city has undergone tourist and real estate-related improvements, especially in the best-located and most socio-financially stable hills. The courses of action taken in these areas have sought to renew and rejuvenate the image of traditional neighbourhoods, developing real estate and commercial products aimed at young people with a high purchasing power. These processes, as has been demonstrated in many cities throughout the world, trigger profound changes in the social composition of neighbourhoods, generating gentrification processes that tend to hurt the most vulnerable social groups, and senior citizens are one of the groups particularly affected by these dynamics. Although this research has not addressed these kinds of effects, the positive values for senior citizens' QOL associated with the hills' physical and social aspects underscore the importance of promoting urban policies that limit the effects of gentrification.

References

Álvarez, L. 2001. *Origen de los espacios públicos en Valparaíso: discurso higienista y las condiciones ambientales en el siglo XIX*. Santiago de Chile: Universidad de Chile, Departamento de Urbanismo.
Bronfenbrenner, U. 1979. *The ecology of human development experiments by nature and design*. Cambridge, MA: Harvard University Press.

Chackiel, J. 2000. *El envejecimiento de la población latinoamericana: ¿hacia una relación de dependencia favorable? Encuentro latinoamericano y caribeño sobre las personas de edad.* Santiago de Chile: Naciones Unidas.

ECLAC. 2003. *La situación de las personas mayores.* Conferencia regional intergubernamental sobre envejecimiento: hacia una estrategia regional de implementación para América Latina y el Caribe del Plan de Acción Internacional de Madrid sobre el envejecimiento, Santiago de Chile, 19 al 21 de Noviembre de 2003, CEPAL, Documento de Referencia DDR/1, Naciones Unidas.

ECLAC. 2012. *Observatorio demográfico: proyecciones de población.* Santiago de Chile: NNUU.

Gallestegui, J., and J. Galea. 2004. *Reflexiones sobre el concepto de barrio.* Valparaíso: Universidad de Playa Ancha, Facultad de Humanidades.

García-Viniegras, C.V. 2008. *Calidad de Vida: aspectos teóricos y metodológicos.* Buenos Aires: Paidós.

Glatzer, W.Y., and W. Zapf (eds.). 1984. *Lebensqualität in der Bundesrepublik: Objektive: Lebensbedingungnen und subjektives Wohlbefinden.* Darmstadt: Wissenchaftliche Buchgesellschaft.

Gravano, A. 2003. *Antropología de lo barrial. Estudios sobre producción simbólica de la vida urbana.* Buenos Aires: Espacio Editorial.

Guzmán, J.M., S. Huenchuan, and V. Montes de Oca. 2003. Redes de apoyo social de las personas mayores: marco conceptual. *Notas de Población* 77: 35–70.

INE. 2012. *Censo 2012.* http://www.indh.cl/dia-mundial-de-la-salud-2012-dedicado-al-adulto-mayor. Accessed 23 Apr 2013.

Jiménez, C. 2000. Valparaíso patrimonio de la humanidad. *Revista de la Facultad de Arquitectura* 3(3): 12–14.

Laws, G. 1997. Spatiality and age relations. In *Critical approaches to ageing and later life*, ed. A. Jamieson, S. Harper, and C. Victor. Buckingham: Open University Press.

Lawton, M.P. 1999. Environmental taxonomy: Generalizations from research with older adult. In *Measuring environment cross the life span*, ed. S.L. Friedman and T.D. Wachs. Washington, DC: American Psychological Association.

Oddone, J. 1997. Envejecimiento y sociedad. In *Dimensiones de la vejez en la sociedad*, ed. J. Knopoff. Buenos Aires: Centro Edit de A. Latina.

Palomba, R. 2003. Recomendaciones para realizar investigaciones sobre redes de apoyo y CV: agenda de investigación y métodos e instrumentos para estudios cualitativos y cuantitativos. *Notas de Población* 77: 251–261.

Phillipson, C., M. Bernard, J. Phillips, and J. Ogg. 2001. *The family and community life of older people: Social support and social networks in three urban areas.* London: Routledge.

Putnam, R. 2000. *Bowling alone.* New York: Simon and Schuster.

Rueda, S. 1997. Habitabilidad y Calidad de vida. In *La Construcción de la Ciudad Sostenible*. Madrid: Universidad Politécnica de Madrid. http://habitat.aq.upm.es/cs/p2/a005.html. Accessed 23 Jan 2013.

Solari A (1987) El envejecimiento de la población uruguaya treinta años después. *Cuadernos del CLAEH* 43

UN. 2003. *Declaración política y plan de acción internacional de Madrid sobre el envejecimiento. II Asamblea Mundial sobre el Envejecimiento.* Madrid: Naciones Unidas.

Wahl, H.-W., and L.N. Gitlin. 2007. Environmental gerontology. In *Encyclopedia of gerontology: Age, aging, and the aged*, ed. J.E. Birren. Oxford: Elsevier.

Wahl, H.W., and F.R. Lang. 2004. Aging in context across the adult life: Integrating physical and social research perspective. In *Annual review of gerontology and geriatrics*, ed. H.W. Wahl, R. Scheidt, and P.G. Windley. New York: Springer.

Wahl, H.W., H. Mollenkopf, F. Oswald, and C. Claus. 2005. Environmental aspects of quality of life in old age. In *Quality of life in old age*, ed. H. Mallenkopf. Dordrecht: Springer.

Waisberg, M. 2000. Valparaíso: El legado urbanístico y arquitectónico. *Revista de la Facultad de Arquitectura* 3(3): 5–9.

WHO. 2002. Envejecimiento activo: un marco político. *Programa de Envejecimiento y Ciclo Vital de la OMS, Contribución a la Segunda Asamblea Mundial de las NN.UU para el Envejecimiento*. Madrid: OMS.

WHO. 2007. *Global age-friendly cities: A guide*. Geneva: World Health Organization. http://www.who.int/ageing/AFCSpanishfinal.pdf. Accessed 23 Jan 2013.

WHO. 2012a. 10 Datos sobre el envejecimiento de la población. http://www.who.int/features/fact-files/ageing/es/. Accessed 23 Jan 2013.

WHO. 2012b. *Estadísticas Sanitarias Mundiales 2012*. Geneva: World Health Organization. http://apps.who.int/iris/bitstream/10665/44858/1/9789243564449_spa.pdf?ua=1. Accessed 26 July 2014.