

AN URBAN DESIGN TECHNIQUE REGARDING ACTIVE AGING IN OUTDOOR SPACES

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ABSTRACT

Good public spaces should encourage elderly people to get rid of their private/home space and should be considered as a vital opportunity to promote health through activity that elderly can develop in outdoor spaces. This study aims to propose a new methodology that combines the International Classification of Urban Design (IC-UD), based on “functioning and disability associated with health conditions” (CIF) and the “health conditions” (CID-10), in order to assist oriented urban design solutions regarding elderly’s healthier lives. Therefore, the combined technique that feeds the methodology represents an important tool for urban design practitioners.

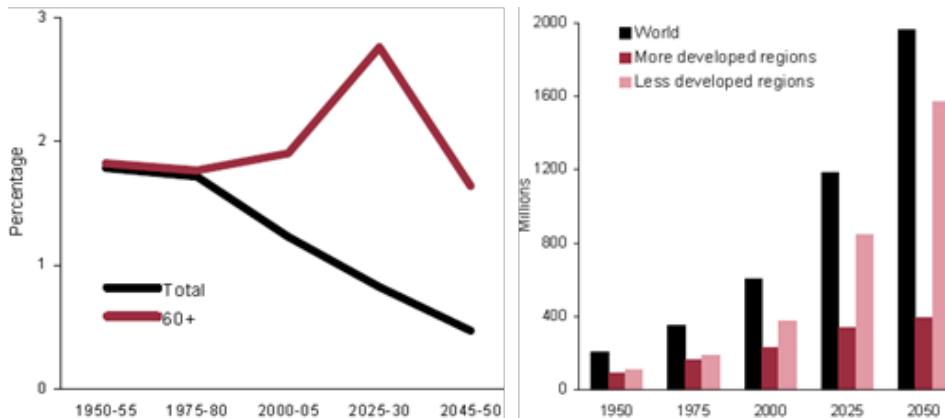
To strengthen this technique, the method is based on relevant findings coming from literature review: some related to active ageing by analysing the program of the age-friendly cities (WHO) and others concerning the international classification of functioning (CIF). Specially in residential areas it is important to retain international good practice for urban design, along with the WHO guidelines and the standard language defined CIF, as a universal lexicon for urban design - International Classification of Urban Design (CI-DU), which should be associated with educational programmes at different levels.

The (new) International Classification of Urban Design (CI-DU) can (i) provide a scientific basis for understanding and studying the determinants of active aging, results and conditions relating to quality of life, (ii) establish a common language for describing health and health-related states, to improve communication between different users, such as health professionals, researchers, politicians, policy makers and the public, including people with disabilities, (iii) allow the comparison of data between countries, between disciplines related to active aging and practice in public spaces in residential areas, (iv) provide an universal coding scheme to base an information system geared for urban design and public spaces, including residential areas, (v) support design decisions and best practices.

KEYWORDS _ *ageing friendly techniques, active ageing, inclusive design, elderly's health*

INTRODUCTION

Global society is experiencing an exponential ageing (WHO, 2002; INE, 2017; Oliveira, 2010), a marked tendency for mid-XXI century, translated by the worrying number of people over 60 years between 2006 to 2050 that will fold proportion of 11% to 22%, exceeding the number of children (aged 0-14 years) in the European population. The following graphics show the growing number of elderly people who have tripled in the last 50 years and will exceed triple in the next 50 years.



_ Graphic 1–Number of world population aged 60 or over since 1950 to 2050. Left to right: Average annual growth rate compared to total population and the proportion between the world population and the population in “more” and “less” development regions (WHO, 2002).

This scenario shows the world population evolution, starting in 1950 with about 205 million, were 3 countries had more than 10 million: China (42 million), India (20 million), and the USA (20 million). In 2000 the number raised over more than 10 million in 12 countries and 5 with more than 20 million: China (129 million), India (77 million), USA (46 million), Japan (30 million) and Russian Federation (27 million). This result getting over the first half of the century, predicts to 2050 grow more than threefold, representing almost 2 billion in 33 countries with more than 10 million and 5 countries with more than 50 million: China (437 million), India (324 million), USA (107 million), Indonesia (70 million) and Brazil (58 million). Based on WHO Global Guide for age-friendly cities and communities, and on the World Report on ageing and health, elderly is seen today as a resource (WHO, 2010; 2015).

THE STATE OF ART

Considering public spaces as a “place of aging”, who encourage the elderly to get rid of their space “private / home,” can be considered as a vital opportunity to promote health through activity that old people can develop outdoor (Peace, Kellaher & Holland, 2005). For this study topic two knowledge fields are relevant. One related to active ageing: the program of age-friendly cities edited by the World Health Organization (WHO, 2010), which comprises a checklist obtained through a study that involved thirty-three cities from twenty-two countries (all from WHO region). This study identified the key elements of the urban environment that gives support to active and healthy ageing. The other is related to the International Classification of Functioning, Disability and Health- CIF (WHA54.21, 2001), a classification accepted by 191 countries as the new international standard for describing health and disability, classifying functioning, disability and health of human beings in the world, establishing a common language for health (WHO, 2004). It also includes the components and determinants of the program Longitudinal Study of Active Aging-ELEA (*Estudio Longitudinal*

sobre *Envejecimiento Activo*) (Fernández-Ballesteros, 2012, p. 147), that established a methodology with predictors, determinants and outcomes of active ageing, which integrates the following Three European Studies: The HALE Project - Healthy Ageing: a Longitudinal study in Europe (Bogers, R., Tjihuis, M., Van Gelder, B., Kromhout, D., 2005); EXCELSA – Cross-European Long Study (Fernández-Ballesteros, R., Schrooten, et al., 2004, p.11); SHARE – Health and Retirement Study (Börsch-Supan, A., Hank K., Jürges, H., 2005); as well as several projects for healthy and age-friendly cities. The relevance of rethinking aging in the presented research is based today on the following statements:

A) Elderly & Health – Elderly's quality of life is about much more than just health and physical functioning. Public urban spaces can improve good health conditions, socio-economic situation, social networking, meeting emotional needs (Gladstone B., Boydell K., Seeman M., McKeever P., 2011; Aldridge J., 2006). Biological condition must be considered as a natural process -the effects of aging are a function not only of genetic predisposition but also of individual lifestyle and environmental influences which includes physiological changes that influence the ability and limit the perception (Russ, 2009)

B) Elderly and Urban Design – Urban design plays an important role regarding public space quality. A lexicon of design has been identified as also important concepts and studies. Important contributors feed the research method, related to the interaction between elderly people and public spaces in terms of outdoor comfort, and peoples' enjoyment in public spaces, like i) "Bodyspace" concept (Michael Y., Green M., Farquhar, S. 2006), ii) "Urbaging" concept (Biddulph / Martinoni, M., Sassi, E., Sartoris, A., 2009; Peace, S., Kellaher, L., Holland, C., 2005), iii) "Home Zone" concept (Biddulph, 2010), iv) and "Walkability" concept (Frank L., Andresen M., Schmid T. 2004; Transportation Research Board – Institute of Medicine of the National Academies. 2005; Rebecchi A., Buffoli M., Dettori M., Appolloni L., Azara A., Castiglia P., D'Alessandro D., Capolongo S. 2019). Local services and food supply are relevant as they determine the quality of life (mainly in residential areas) – "Food and Urban Design" topic (Barton H., Grant, M. 2006). Relationship between dementia and the neighbourhood, has to become an integrated topic in urban design proposals – "Dementia and Neighbourhoods" topic (Burton and Mitchell, 2005).

METHODOLOGY

The proposed methodology combines the International Classification of Urban Design (IC-UD), based on "functioning and disability associated with health conditions" (CIF) and the "health conditions" (CID-10), in order to assist oriented urban design solutions regarding elderly's healthier lives, in outdoor. Based on the literature review, it is possible to systematize the central relationships between the public space and human dimensions, in regards to outdoor active aging. These transversal relations will strengthen the proposed methodology:

- Association with physical activity - the relationship with the environment requires movement (most often on foot), then physically active lifestyle should be well documented as it can be a key contributor to healthy aging. Evidence shows that outdoor living improves individuals' health, strengthens elderly's functional capacities, and combats depression (Mendes & Alves, 2015). Published studies reveal how public places can efficiently promote every people's activity, highlighting walkability, neighbourhood's attractiveness and how different levels of activity are influenced by urban design (Alves, 2003; Ball, 2012; Barton et al., 2010; Brown et al., 2004; Burton and Mitchell, 2007; DGS, 2015; Walkinginfo.org; Wong, 2003).

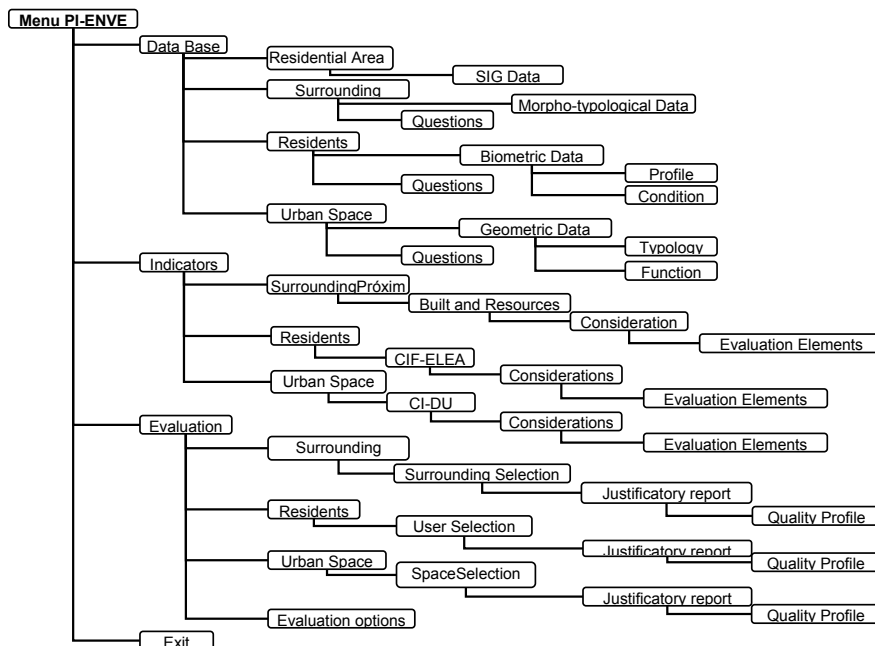
- Social interaction and public spaces - in general, public spaces in association with the dwelling, configure the environment outside the family home and assist in the daily lives of residents (Pedro, 2000). The use of public spaces by residents, implies the (in)direct involvement with others, the opportunity to social interaction. Therefore, providing common places for enjoyment and benefit of all citizens becomes a key point in design strategies (Pedro, 2000; Mendes & Alves, 2015).

The proposed methodology seeks an integrative format for inclusive-oriented urban design, based

on elderly's quality of life style, their life course marked out by aging and active aging highlights. For this purpose, one must define the type of elderly profile, seeking their active and early stages of prevalence (dementia and degeneration), to enable the identification of requirements and enhancers of active aging, promoters of life quality and also providing public spaces quality, in residential areas. Therefore, it is important to retain international good practice of urban design, along with the WHO guidelines in conjunction with the International Classification of Functionality (CIF), as an universal lexicon for urban design – the International Classification of Urban Design (CI-DU), that in turn should be associated with an educational programme (the e-DUcar programme), capable to promote a new the culture of fundamental principles and citizenship on the scope of active aging purposes. This association of factors confers an inclusive (even resilient) profile to the proposed methodology.

THE DESIGN OF A METHODOLOGY FOR INCLUSIVE-ORIENTED URBAN DESIGN

In the last paragraphs the conditions that must characterize public spaces in residential areas, from the perspective of elderly's inclusiveness was defined. It is now important to describe the methods and tools that structure the proposed methodology, as also, theories and concepts in the health and urban policy fields. These refer to (i) the determinants and components of the mentioned international classification of functioning and disability (CIF - the methodology central support), in health states and related fields, (ii) the practices developed in the (inter)national territory to compare and assess parameters for the design of spaces in urban residential areas, (iii) the definition of factors, determinants and urban components that help to construct the new proposed programme, named "International Classification of Urban Design" (CI-DU). As may be expected, to successfully reach this goal, citizenship culture is considered as a key factor and transversal matrix to any society. Figure 1 illustrates our PI-ENVE proposed design, applied to a specific menu that aims combining the CIF and the new CI-DU, together with several related urban space aspects.



_ Figure 1: The Menu Pi-ENVE tree (Mendes & Alves, 2015p. 289)

The following list enumerates some fields that are expected to integrate the database such as structure and size of the materials, among others, to be verified by an integrated analysis like it is proposed in the methodology:

- Characterization of Public Space;
- Materials;
- Textures;
- Colours;
- Magnetism;
- Visual urban perception;
- Emotional, relational and security fields associated with childhood;
- Emotional, relational and security fields associated with people over 60;
- Public urban space as a scientific object;
- Applied bioclimatology and sustainability;
- Urban space as a synergies promoter;
- Synergy field in line with the feed;
- Sensory field associated with science (ex.: Feng-Shui);
- Conclusions on binomials for sustainability: accessibility / mobility, communication / comfort and safety / health.

This architecture informatics tool will support decision actions, creating a platform that combines the assessment of the quality parameters of the urban design and aging with the space typology in residential areas, keeping elderly people and active aging as central topics.

RESULTS

The proposed methodology reveals to be efficient throughout its inclusive profile, combining two main domains: elderly's health & urban design. Table 1 presents the articulation designed between three main components, i.e., the CIF, the ICD-10, which is an international statistical classification of diseases and related health problems (WHO, 2002), complementary to the CIF one, and the resulting classification of our project, the IC-DU (International Classification of Urban Design).

_ Table 1 CIF and ICD-10 (WHO) classification framework and CI-DU proposed classification/assessment (adapted from Mendes & Alves, 2015, p. 293)

	CIF	CID-10	CI-DU
Main topics	Functioning and disability associated with health conditions	Health conditions (diseases, disorders, lesions, etc.). Different types of diseases	Urban quality - life promoter (senior citizens) & active aging stimulator
Combined objectives	Complementary programmes - when combined allow to obtain summary measures for monitoring the health of populations and their distribution by evaluating the proportion allocated to different causes		Friendly domain supporting decision and practice
Big actions	To promote the combination of WHO international classification (for encoding wide health information) and a lexicon standard allowing a worldwide communication (on health and health care, across multiple disciplines and sciences)		To develop an urban design classification to (future) integrate the WHO global lexicon
Result	CI-DU – A new methodological framework that support design decisions and best practices in the light of inclusive and age-friendly public spaces, reinforced and perpetuated through education (the e-DUcar programme)		

The methodology is structured in two phases, a strategic one articulating the most important international sources on elderly health, active aging and urban design, and a second operational one. These operational actions, composing the 2nd vertebral phase of the methodology, are key factors

whether in terms of assessing the quality of public space, whether from studying populations or even from the outdoor comfort levels. They are composed by the use of adequate technical laboratory equipment, the vital analysis software, the modelling and representation of information and the comparative analysis of residential areas. The CIF has a more neutral position in the raised CI-DU technique, however, it facilitates the study of the determinants and environmental factors that explains individuals' living, and health conditions associated with functioning and disability. Cumulatively, CID-10 programme complemented with CIF information, fully inform all about "functionality".

DISCUSSION AND CONCLUSIONS

Today, urban design plays an important role regarding the inclusiveness of public spaces. One of the gaps in the literature, as well as in professional practice, is the lack of techniques / tools that allow decision makers, technicians and designers to find effective measures in order to reach the inclusiveness of public spaces. In this sense, the aim of this study was to design a methodology that would make possible closing the gap. Therefore, the presented methodology combines fundamental relationships, determinants and quality requirements of urban design and outdoor living, with the international adopted measures of functioning and disability associated with human health conditions (Table 1). This combined technique (CI-DU) represents an important tool for urban design practitioners as it (i) establishes a common language on health and health-related issues for urban design (integrating the essence of the WHO global lexicon), (ii) promotes a friendly collaborative domain through the participation of different actors (elderly people, people with disabilities, health professionals, researchers, politicians and policy makers, and (iii) gives provision to design decisions and best practices in public spaces inclusiveness.

Systematizing, the CI-DU methodology constitutes a tool that support design decisions and best practices in the light of inclusive and age-friendly public spaces, progressively reinforced and perpetuated through education.

Future studies will allow the implementation of the methodology in urban renewal operations especially focusing on disadvantaged residential communities. The CI-DU methodology also aims to include in its structure a pilot project (e.DU.car), a model for active aging culture at distance education. Finally, another phase is the application of an informatics program for decision support on active aging and quality of public space (PI-ENVE).

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