

A Study On Inter- Relationship Of Open Space And Social Cohesion For Wellbeing Of Elderly: A Systematic Literature Review

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ABSTRACT

Social cohesion in public open spaces has been recommended as one of the key elements for improving the wellbeing of the elderly. Social cohesion includes relational elements and individuals' feeling of association. Over the past few decades, increasing social interaction in the neighbourhood is part of larger urban areas and has been regarded as one of the social sustainability initiatives and plays an important role in megacities sustainability. Comprehending place attachment is necessary to enhance elderly people's interactions to make them self-reliant. The study aims to identify the characteristics of open spaces with their major influential factors for enhancing social cohesion for the well-being of the elderly in an urban residential environment through a systematic literature review. The study focuses on addressing three research questions and analysing its results from primary literature studies in the review process. Ten electronic databases were searched for relevant work from papers written in English between 2011 and 2021. Quantitative, qualitative, and mixed methods studies were included. A narrative synthesis was carried out of published works to address the research questions after identifying the various characteristics. The review, which includes 57 published papers, found that the Open spaces are ideally characterized by accessibility, walkability, reduced fear and security, built environment characteristics, landscape elements, climate, best practices, and New Urbanism principles. On the other hand, social cohesion is influenced by activities, safety and security, public places, accessibility, natural elements, noise levels, vehicular interruptions, dimensions and geometry, climate, and physical amenities. A conceptual framework relating to open space attributes and social cohesion is proposed as the finding of the research. Prioritizing the attributes based on the physical, behavioural, and psychological needs of the elderly to keep them active in their aging process could be the further scope of research in this direction.

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1. Introduction

The aging of the population has become one of the world's unprecedented phenomena. According to the United Nations survey report, it has been observed that the world population has risen annually and that the proportion of the global population over 60 is expected to exceed 23 percent by 2050. (Guo et al., 2020). Increasing recognition of the challenge of active aging is greatly affected by the role of the elderly in society, as demonstrated in the United Nations report. In the early years of the 21st century, the WHO contribution to the Second United Nations World Assembly on Aging is a model of Active Ageing (Diego et al., 2020). In this regard, the environment plays an important role in preserving the ability of physically active older people to access comprehensive support and health care during their aging.

To determine the quality of the life in the city and urban space for the city inhabitants, Urban Parks play a key role in addressing the social, economic aesthetic, natural, and health-related functions. Open Spaces have a detrimental impact on urban diseases, relieve public stress, and help in developing an ambient atmosphere of welcoming and inclusive neighborhood. Therefore, it is essential to have proximity to these green Open Spaces which increases the frequency of the visit which is directly associated with mental wellbeing and improves the physical health condition of the elderly (Błaszczuk et al., 2020). The various attributes that influence the accessibility to these green areas for the elderly are gender, age, and the number of children in the households. As a result, these attributes reflect the structure of the family and the regional culture of the society from a larger perspective. It has been found through research that there has been an increase in the trend of visiting elderly citizens to such green spaces as compared to the other age profile for a society with an active age population (Uchiyama, 2020). The availability of the park within a residential neighborhood and its accessibility are the two major determinants for the visit to such parks by the elderly. While the term parking availability applies to the existence of a part within an urban space measured by using the walking distance whereas accessibility refers to the presence of different barriers to reach two such Open Spaces (Liang et al., 2021). These barriers can be recognized and measured as an aspect of safety both at a physical and psychological level for the elderly who visit such parks. Many researchers have suggested that the aspect of accessibility to the parks and the proximity within an urban space always increases the willingness of the elderly to visit such spaces more frequently as a daily routine habit. On the other hand, some researches have proven that the factors like accessibility and availability do not necessarily always influence people's preference and frequency of the visit to the parks (Liang et al., 2021). Therefore, physical activity is always associated with the streets' microenvironment and its greenery and is most likely to occur in residential neighborhoods as a reason for safety and security. Researchers have also proved that street greenery has a positive relationship with physical activity which has been demonstrated through empirical studies (He et al., 2020). As per the PA recommendations, it is advised that walking in the neighborhood community for the elderly may be a safe and

comfortable way for the elderly to be healthy and well-being. However, it was found during the study of global services that one-third of 60 years of age and half of 80 years of age do not comply with the PA recommendations, which involve at least 150 minutes of moderate aerobic exercise per week (Hu et al., 2020). The main reason is that there is a lack of facilities and facilities for outdoor thermal recreation in a residential neighborhood that is a significant requirement of the elderly. Therefore, to improve physical activity by walking, it is necessary to create spaces within the residential neighborhood that address the specific needs of the elderly to promote their physical activity, which, in turn, would contribute to good health (Levinger et al., 2020). As per the theory of SPF (social production function theory), elderly people can achieve well-being with the remarkable precision obtained by maximizing their functional goals such as stimulation, comfort, status, behavior, and affection, along with the universal goals of physical and social well-being. (Cramm et al., 2012) found that people who have a good social life and a rather good social cohesion within the residential neighborhood community are optimistic about a joyful relationship and life satisfaction with good health and well-being with their families and their livelihoods. Social cohesion is also a key social challenge that many communities face and that needs to be addressed from an urban as well as an architectural perspective. Urban green spaces are perceived to be a crucial aspect of social integration in an urban setting that is important to the well-being of the elderly and to the attainment of environmental sustainability. These spaces not only offer a range of social interaction within the residential community, but also enhance opportunities for the elderly to strengthen their physical and mental well-being within the city. The measures taken by the Open Spaces in the urban area and the strength of its inhabitants are greatly linked as they reflect the daily lives of the people living in the residential environment (Kondo et al., 2015).

Numerous studies have been conducted on the impact of the Neighborhood and Open Spaces on the health and well-being of the elderly. Along with its many advantages, some of the key research reports have found that these impacts cannot be realized due to various factors for visiting these spaces. The lack of awareness and information on the critical success variables that enable the elderly to visit these places, of which social cohesion is an important factor and has scope for further study. However, there is no comprehensive systemic research that shared the critical factors influencing the visit to the Open Spaces for Social Cohesion. To fill this gap, we believe that it is vital to study the significant factors that affect social cohesion so that studying these factors will allow these elderly visitors to optimize the effects of the Open Space on their well-being. To study and examine this subject in more depth, this paper focus on addressing the following research questions:

RQ1. What are the characteristics of Open Spaces that influence the visit of the elderly to these Spaces which have been addressed in the literature?

RQ2. What are the most influential factors affecting Social Cohesion aspects in these Open Spaces for enhancing visits of the elderly?

RQ3. What are the gaps, limitations, and future work recommendations for Open Space correlation with Social Cohesion on elderly for their well-being?

The researchers carried out a detailed review of 57 articles to address these questions. The study aims to identify the key aspects for integrating Open Space attributes and Social Cohesion for the well-being of the elderly in a residential community. Also, the outcomes of the research shall contribute to ongoing research by establishing an overview of the various social cohesion features extracted from case studies and reports. The rest of this review article is laid out as follows:

Section 2: Introduces the definition of Open Spaces and Social Cohesion based on the existing literature;

Section 3: Explains the review method used in the Systematic Literature Review (SLR) and how this research was carried out;

Section 4: Provides the results of SLR through data extraction and synthesis;

Section 5: Outlines the result of the research questions and establishing the correlations between Open Space and Social Cohesion; and

Section 6: Presents the conclusion to this Systematic Literature Review.

1.1 Definition Of Open Space And Social Cohesion

Regarding current research, there is not a clear consensus on the concept of open space. In the active living research, Open Spaces are essentially community parks and green spaces which are conceptualized concerning the pleasures of natural reserves and greenways (Wang & Kang, 2020). Many scholars have also identified Open Spaces based on diverse viewpoints, such as green spaces, urban Open Spaces, and Open Spaces catering to user needs. No precise description exists for these concepts (Wen et al., 2020). The concept defines the physical environment of public open space and the activity of the open space. There could be specific characteristics for designing an Open Space that can support walking paths, large areas for physical activities, as well as several other practices. As a result, prospective research would take into consideration a wider spectrum of public open space rather than Green Park and Open Spaces.

On the other hand, social cohesion has been researched extensively from a theoretical and methodological perspective. Numerous experimental studies have been conducted in this context. There have been different approaches in the longitudinal studies of social cohesion to observe and measure, influencing social cohesion and its resilience which create positive connectivity, also had led a point to the plurality of the ways to explore social cohesion.

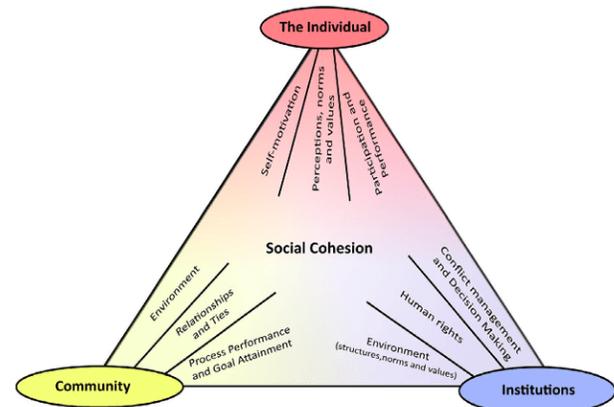


Figure 1: Framework to characterize social cohesion (Source: Fonseca et al.)

The framework for analysing social cohesion was proposed by Fonseca (see Figure 1), which explained the dynamic interactions and interrelationships found at all levels of social cohesion from individual to community, institutional level (Fonseca et al., 2019). The research concluded that all three levels of analysis must be considered when implementing a systematic approach to social cohesion research. There is an urge to construct a sense of belonging to a group for a society for an individual to maintain social cohesion. These cognitive values should be closely linked to the individual's interaction with the world to give them a stronger understanding of their environment. An individual will only be able to be a part of group activity and achieve optimal performance in that group setting if they have a proper environment that is compatible with their values and norms. Since the health and wellbeing of an older population are dependent on their daily activities and quality of life, there is a need to establish a strong correlation between their visits to the open spaces and assessing how they are performing during their stay in the spaces, developing the sense of social cohesion in the spaces. There is a need to understand the elderly quality life approach and the benefits of open space, particularly for older adults, to make them more active and healthy during their aging process. (See Table 1) It summarizes the various definitions of Open Space and Social Cohesion according to previous studies in line with the Urban Design research perspective.

Most experiments have not been able to resolve the problem of “self-selection” (Cao et al., 2006). People who enjoy using open spaces for their recreation can tend to reside in communities. These individuals could also have some attributes that complicate any comparisons (Kaczynski & Mowen, 2011). Longitudinal study designs have gained from numerous research on public open spaces and physical activities. The links between open spaces and physical fitness may be obscured (Veitch et al., 2014). Walking and the proximity to the open space, perceived nature, and scale of the larger open spaces are significant (Kaczynski et al., 2014). Empirical research is needed to check and determine if public open spaces have a long-term influence on physical wellbeing to promote social cohesion (Björk et al., 2008). The research suggests that people who gained access to different forms of open space have walked for 18-21 minutes

each time they had accessed open space (Koohsari et al., 2013). It can be inferred that open spaces with varying forms of activities can promote a positive association to social cohesion.

Table 1: Definitions of Open Space and Social Cohesion (Summarised by Author)

No.	References	Definition
Definitions of Open Space		
1	Schmidt et al. (Schmidt, 2008)	Public Open Space (POS) in residential areas are defined as urban open spaces near neighborhoods, such as public spaces around people's homes (e.g. streets, squares), neighborhood parks and community gardens.
2	Cheraghi et al. (Type & History, 2019)	POs are defined subjectively and objectively different: from the seniors' perspective because of mental and physical challenges as well as local socio-cultural differences based on the elders' quality of life approach.
3	Bedimo- Rung et al. (Model, 2005)	POS areas parks and green spaces, appear to be key built environment settings that provide opportunities for a variety of physical activity behaviors, such as recreational walking and playing sports.
4	Carmona M (Int & Carmona, 2018)	Within urban design research, public open space is defined as "managed open space, typically green and available and open to all, even if temporally controlled"
5	Nicole Edwards (Edwards et al., 2013)	Public open space as "spaces reserved for the provision of green space and natural environments, accessible to the general public free of charge"
6	National Heart Foundation of Australia (Badland et al., 2019)	POS are "spaces within the urban environment that are readily and freely accessible to the wider community, regardless of size, design or physical features and are intended primarily for amenity or recreation purposes – whether active or passive"
Definitions of Social Cohesion		
1	Durkheim (Berkman et al., 2013)	It is best defined by the absence of conflict or crime, to be studied through the level of the community/society.
2	Council of Europe (REPORT OF HIGH-LEVEL TASK FORCE ON SOCIAL COHESION, 2008)	It is linked to this level of the community through the shared values of reciprocity, loyalty, and solidarity, and the quality of social relations that includes the value of trust.
3	Canadian Government (Jeannotte, 2003)	The ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity among all Canadians.
4	OECD, 2011 (The Challenges for Social Cohesion in a Shifting World, 2011)	A cohesive society works towards the well-being of all its members, fights exclusion and marginalization, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward mobility.
5	Bernice et al. (Lott & Lott, 1965)	Group cohesion is the desire of individuals to maintain their affiliation with a group, and this drive is measured by influence and initiative, task competence, and especially like-dislike.

2. Review Methods

To answer the research questions posed in this research, the systematic analysis methodology outlined by (Hanafizadeh et al., 2014) was used. A systematic literature review, as suggested by (Marakhimov & Joo, 2017), describes a process to identify, analyze, and interpret the existing studies that are directly relevant to research into a given subject or phenomena.

In section 1, it has been found that many researchers have emphasized the importance of open space and its impact on health and wellbeing. However, the scope for further research for conducting a systematic review has been considered to address:

- The characteristics of open space for enabling the elderly visit to foster social cohesion to keep them active.
- Identification of current studies' potential limitations related to open space factors and social interaction attributes and to recommend the further scope of research in this direction.
- To provide a conceptual framework establishing the relationship between Open space and social cohesion based on in-depth understanding through literature review to address new research dimensions. (Hanafizadeh et al., 2014).

The aspects mentioned above are the key components for conducting a systematic review. Kitchenham and the Charters have been adopted by the researchers for the study. There are three main measures to carry out a systematic review of

literature, i.e. planning, conducting, and reporting. Relevant activities and tasks are linked to each phase, such as framing the correct research question, developing the review protocol, identifying the parameters for the exclusion and inclusion of the SLR published studies, a search strategy followed by the collection of the primary study, data extraction, and data synthesis, and finally conclude the main study by writing the SLR. These two measures have, as Niknejad suggested, been thoroughly clarified in the following parts. (Niknejad et al., 2020).

2.1 Review Protocol

Following the description of the study topic for Systematic Literature Review, the next step of the SLR is to identify the review protocol and the research methods for performing the SLR to reduce the bias of the researchers. The portion of the analysis procedure to be carried out as a researcher comprises the following steps, which include the definition of the research question, the development of the search strategy, the step-by-step collection of the main primary studies determining the inclusion-exclusion criteria followed by data extraction and synthesis and, finally, the reporting of results. The review protocol applied for this analysis was adopted by the review protocol suggested by Niknejad (Niknejad et al., 2020). which had been found as the most appropriate research methodology for conducting SLR by the researchers which include the recent strategies summarized from previous studies. (See Figure 2) It explains the phase-wise explanation of the review protocol which have been applied for this systematic literature review.

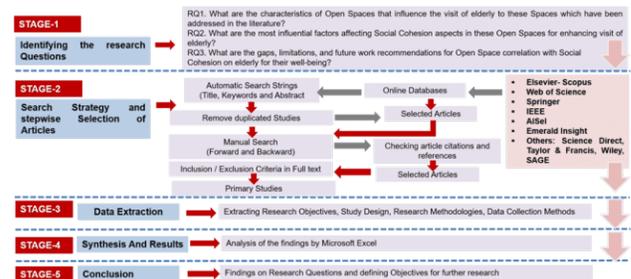


Figure 2: Review Protocol followed for SLR (Source: Author)

2.2 Inclusion and Exclusion Criteria

Researchers also established certain inclusion and exclusion criteria to assess the importance and significance of follow-up to study objectives to support researchers in conducting the SLR. The research focused largely on papers written in English between 2011 and 2021. This article is close to previous work undertaken the same year in 2011 because of the rationale behind the selection of 2011 to shape the first year of the search protocol. Past studies also aimed at an in-depth understanding of social cohesion and its impact on healthy aging for the elderly. The table (See Table 2) summarizes the inclusion and exclusion criteria considered for this study.

Table 2: Inclusion and Exclusion criteria for conducting SLR.
(Source: Author)

Criteria	Principle
Inclusion	Papers published between 2011 and 2021
	Full text
	Peer-reviewed studies
	Papers focusing on Open Space and Elderly
	Papers focusing on Methodologies and strategies on impact analysis
Exclusion	Papers that answer the defined research questions
	Papers not in the English language
	Papers less than 3 pages
	Non-peer reviewed studies
	Papers with only Abstracts/ short communications etc.

2.3 Search Strategy

The search strategy proposed by Niknejad has been followed up in two steps both automatic and manual (Niknejad et al., 2020). In the Automatic search strategy, based on the keywords used in the research-based, a search string was defined. The main keywords according to the research questions which have been used as search strings are “OPEN SPACE”, “ELDERLY”, “COMMUNITY PARKS”, “WALKABILITY”, “ACCESSIBILITY”. The operators “OR” and “AND” were used to connect the primary keywords, the synonyms, and some related key terms. It should be noted that the researchers used the keywords by shifting the word positions or deleting some of the words during each search process to obtain the most relevant papers. The subsequent search string used was: (“URBAN OPEN SPACE”, “SOCIAL COHESION”,) AND (“Public open Space” or “POS”) AND (“success factors” or SF or “success factors” or “significant factors” or “influential factors”). To execute these keywords, this study used Elsevier's Scopus database, which is

the largest database for peer-reviewed international conferences and journals in the field of Open Space and Geriatric health.

2.4 Study Selection Process

The most important studies have been identified according to the objectives of the current systematic review. The search strategy defined in Section 3.3 was applied, resulting in 1305 articles. The titles, the abstracts, and the conclusion sections of all the collected papers were reviewed (675 papers). After duplicates were excluded, 155 papers were chosen as the secondary selection. Searching for literature is challenging when many scholars rely on the same keywords and buzzwords (Levy & Ellis, 2006). This research used the forward and backward search strategy to address these challenges. The forward and backward search technique was first put forward by Webster and Watson (Webster & Watson, 2002). The forward search technique involves tracing the texts referenced in the selected studies, while the backward search technique involves checking all the sources in each of the selected studies (Levy & Ellis, 2006). The Google Scholar search engine was used to perform the forward search process. A total of 110 papers were chosen after introducing forward and backward approaches. Subsequently, full-text screening was carried out based on inclusion and exclusion requirements, resulting in the deletion of 53 articles. In the end, 57 papers were left which were more relevant towards the objectives and the research questions framed to conduct a systematic literature review. These were the primary studies used for this systematic review about the current research of the last 10 years on Open space and attributes towards well-being (See Table-3).

Table 3 : Primary studies and their findings. (Source: Author)

ID	Title	Author/ Year	Objective	Theory/Model	Research strategy	Methodology	Data collection Method	Subject	Country	Online database Publisher	Theme
S1	A comprehensive review of thermal comfort studies in urban open space	Dayi Lai et al. (2020)	The objective of the research is to provide an understanding of outdoor thermal comfort with its direct and indirect influence on visit of the users to Urban open spaces	Conceptual Framework	Review and Survey	Quantitative	Observation and interview	Outdoor thermal comfort	China	Science Direct	Identified direct and indirect influencing factors of OTC based on previous studies
S2	Acoustic demands and influencing factors in facilities for the elderly	Luying Wang et al. (2020)	To examine elderly individuals' acoustic demands categorized into the following three types: activity type, objective and demographic factors	Conceptual Framework	Objective measurements	Quantitative and Qualitative	semi-structured interview survey and	Acoustic demands	China	Science Direct	acoustic environment and their demands in open Spaces for elderly
S3	A Framework for Elder-Friendly Public Open Spaces from the Iranian Older Adults' perspectives: A Mixed-Method Study	Azadeh Lak et al. (2020)	To identify the elders' preferences, especially their use of public open spaces (POSs) in Iranian urban neighbourhoods as well as identifying the association among the factors.	Grounded Theory (GT) & Partial least squares-Structural Equation Modelling (PLS-SEM)	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Non-physical dimensions of POS	Iran	Science Direct	Non-physical dimensions of POS (social environment, cultural environment and sense of belonging)
S4	Analyzing the effects of Green View Index of neighborhood streets on walking time using Google Street View and deep learning	Donghwan Ki et al. (2020)	The study examined the street Green View Index (GVI) and its associations with walking activities by different income groups	Google Street View (GSV) and deep learning	Review and Survey	Qualitative	Observation and interview	Green View Index and walking behaviour	South Korea	Science Direct	Importance of eye-level street greenery for analyzing the relationship between urban green and walking behavior.
S5	Area-Level Associations between Built Environment Characteristics and Disability Prevalence in Australia: An Ecological Analysis	Nicola Fortune et al. (2020)	To explore associations between area-level disability prevalence for people aged 15–64 years and area-level built environment characteristics in Australian Cities	Conceptual Framework	Review and Survey	Quantitative and Qualitative	Observation and interview	Ecological analysis	Australia	Elsevier	geographically targeted interventions improve access to health-enhancing neighborhood
S6	Assessing the Rationality and Walkability of Campus Layouts	Zhehao Zhang et al. (2020)	To develop a new campus walkability assessment tool, which optimizes the Walk Score method based on the frequency, variety, and distance of students' walking from public facilities.	Walk Score Method	Review and Simulation	Quantitative and Qualitative (Mixed Method study)	Observation and interview	Walkability	Tianjin	Elsevier	evaluate the rationality of facility layout and walkability, and to give suggestions for improvement.
S7	Association of street greenery and physical activity in older adults: A novel study using pedestrian-centered photographs	Hui He et al. (2020)	To study the street greenery association with the odds of achieving 300 mins or more of physical activity per week for the elderly	Machine learning technique along with the pyramid pooling module.	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and interview	Pedestrian-centered street greenery	China	Science Direct	Adding street greenery or improving existing street greenery create an aging-friendly urban environment
S8	Attitudes of Polish Seniors toward the Use of Public Space during the First Wave of the COVID-19 Pandemic	Beata Fabisiak et al. (2020)	The study focus on the recognition of the needs of seniors concerning the use of public spaces in the times of the COVID-19 hazard.	Conceptual Framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and interview	Visit to Public Open Spaces during COVID	Poland	Elsevier	Redesign public spaces minimize the feeling of fear when using public spaces after the lockdown were evaluated by seniors.
S9	Awareness of urban climate adaptation strategies –an international overview	Sanda Lenzholzera et al. (2020)	To understand what different actors know about the different types of interventions to improve urban climate conditions and how their awareness level can be raised.	Conceptual Framework	Pilot study using semi-structured interviews	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Urban climate conditions and their awareness level	Ten countries	Science Direct	Awareness raising should involve media campaigns, further education and display of good practice.
S10	Blue space, health and well-being: A narrative overview and synthesis of potential benefits	Mathew P. White et al. (2020)	To provide a model of how exposure to aquatic environments, or blue spaces such as rivers, lakes benefit health and well-being.	Conceptual Framework	Narrative review approach	Qualitative	Review	Aquatic environments and its relation to well being	UK	Elsevier	A narrative overview and synthesis of the potential benefits of aquatic environments for health and well-being

S11	Correlates of frequency of outdoor activities of older adults: Empirical evidence from Dalian, China	Zhengying Liu et al. (2020)	to examine the association between neighborhood characteristics and the frequency of type-specific outdoor activities.	Empirical Investigation	zero-inflated count modeling approach	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	leisure walking and skill-based leisure activities.	China	Elsevier	Create physical activity-supportive and inclusive neighborhood environments for older adults
S12	Design Strategy of Friendly and Healthy Environment for Urban Aging Community	Xiaoyi Hu et al. (2020)	To examine how to achieve the local benefits of the elderly in urban aging communities	Empirical Investigation	Review and Survey	Qualitative	Semi-structured interviews	elderly's adaptation to the community's outdoor environment	China	Elsevier	the relationship between the daily activities of the elderly and the community environment,
S13	Effects of the built and social features of urban greenways on the outdoor activity of older adults	Po-Ju Chang (2020)	To examine the effects of the physical and social environment of neighbourhood greenways	multilevel model	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	neighbourhood social capital	Taiwan	Elsevier	natural elements to promote outdoor activity among older adults.
S14	Environmental and Psychosocial Interventions in Age-Friendly Communities and Active Ageing: A Systematic Review	Diego Sánchez et al. (2020)	To determine the available empirical evidence in relation to the characteristics, content and effectiveness improving environmental and psychosocial risk factors for older people	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)	Review	Qualitative	Review	Environmental and Psychosocial Interventions	Spain	Elsevier	Interventions focused on personal and organisational aspects might have positive effects in the longer term.
S15	Equality in access to urban green spaces: A case study in Hannover, Germany, with a focus on the elderly population	Chen Wen et al. (2020)	Understanding the spatial disparity in access to urban green and blue infrastructure (UGBI), with a special focus on the elderly.	"2SFCA" approach	Review	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Allocation of green spaces	Germany	Elsevier	Key locations for allocating green spaces and improving the connection between residential areas and UGBI.
S16	Equity to Urban Parks for Elderly Residents: Perspectives of Balance between Supply and Demand	Meng Guo et al. (2020)	quantitative evaluation of the equity of different levels of urban park under multiple traffic modes.	Integrated Spatial Equity Evaluation (ISEE) framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Suggestions for urban parks planning and decision-making.	China	Elsevier	Efficiency of urban parks provision
S17	Exercise intervention outdoor project in the community for older people – results from the ENJOY Seniors Exercise Park project translation research in the community	Pazit et al. (2020)	To implement and evaluate the effects of sustained engagement in physical activity on mental, social and physical health outcomes through the use of the Seniors Exercise Park physical activity program for older people	Test battery evaluating physical activity & measures of ANOVA	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Sustaining older people's wellbeing	Melbourne	Elsevier	Seniors Exercise Park may be an effective modality for improving and sustaining older people's physical function and wellbeing
S18	Exploring the disparities in park accessibility through mobile phone data: Evidence from Fuzhou of China	Yuying Lin et al. (2020)	To properly measure the accessibility of park.	Two-step floating catchment area (2SFCA)	Geographically weighted regression (GWR) technique.	Quantitative and Qualitative (Mixed Method study)	Observation and interview	accessibility of park by elderly	China	Elsevier	Different key factors of park accessibility are identified
S19	Health-oriented vegetation community design: Innovation in urban green space to support respiratory health	Jiayu Wu et al. (2020)	Could urban green space exert a significant effect on respiratory diseases? In what way (vegetation cover, vegetation community, or dominant species) does urban green space affect respiratory health?	Conceptual Framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and interview	Green space affect respiratory health	China	Elsevier	From the vegetation coverage perspective, the area with a high degree of greenery is highly conducive to respiratory health.
S20	Health risk for older adults in Madrid, by outdoor thermal and acoustic comfort	Maria et al. (2020)	To analyse the outdoor thermal and acoustic comfort of older adults in public spaces	Physiological Equivalent Temperature (PET) and Universal Thermal Index (UTCI).	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and interview	acoustic comfort of older adults	Madrid	Elsevier	Environmental conditions as well as the subjective perception of thermal and acoustic comfort, are statistical related to older
S21	How Do Older Women Perceive their Safety in Iranian Urban Outdoor Environments?	Azadeh Lak et al. (2020)	To explore the perception of older women about safety and its related features in outdoor spaces according to promoting Active Ageing	Qualitative content analysis Analytic hierarchy process	Review and Survey	Mixed-method study	Semi-structured interviews	Women Safety in outdoor spaces	Tehran	Elsevier	Both personal and environmental features that can be targeted to meet the needs of vulnerable population.
S22	How to accurately identify the underserved areas of peri-urban parks? An integrated accessibility indicator	Jinguang Zhang et al. (2020)	The integrated accessibility index can be employed to accurately monitor underserved areas and strategies for improving residential access to peri-urban landscapes.	Huff-2SFCA (two-step floating catchment area) model	Review and Survey	Peri-urban park quality index	Semi-structured interviews	An integrated accessibility index for peri-urban parks	China	Science Direct	Integrated accessibility index can be employed to accurately monitor (potentially) underserved areas.

S23	Humanistic demand and spatiotemporal perspective in the evaluation of urban life quality—A case study of Shandong Province in China	Wen Zeng et al. (2020)	Study on people-environment relationship by combining Maslow's Hierarchy of Needs with urban development.	Spatiotemporal evolution pattern.	Review and Survey	Geographical analysis	Review	People-environment relationship	China	Elsevier	Growth rate of safety factors, social factors, and respect factors has differences between cities and regions.
S24	Improving City Vitality through Urban Heat Reduction with Green Infrastructure and Design Solutions: A Systematic Literature Review	Helen Elliott et al. (2020)	It investigates how green infrastructure, passive design and urban planning strategies—herein termed as green infrastructure and design solutions (GIDS)—can be used to cool the urban environment and improve city vitality.	Systematic literature Review based on PRISMA Model	Review and Survey	Qualitative	Review	Green infrastructure and design solutions	Australia	Elsevier	GIDS manage urban energy flows to reduce the development of excess urban heat
S25	Inclusive Parks across Ages: Multifunction and Urban Open Space Management for Children, Adolescents, and the Elderly	Elin P. Sundevall et al. (2020)	To make parks more inclusive, UIOS management may need to consider multifunction and the perspectives of various age groups in future development and maintenance activities.	Conceptual Framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Concerning a ordinances and UIOS management.	Sweden	Elsevier	Social multifunction can be developed in programmed or non-programmed ways
S26	Modeling the dynamics and walking accessibility of urban open spaces under various policy scenarios	Xun Liang et al. (2020)	The study proposes a new Open-Space simulation model using cellular automata (OS-CA) for creating new OS with different construction time-lags.	Conceptual Framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	OS-CA is an effective tool for assessing the policies for creating new OS.	South China	Elsevier	Effectiveness of creating new OS is assessed using the walking accessibility and the population coverage rate.
S27	Open Access Neighborhood's locality, road types, and residents' multimorbidity: evidence from China's middle-aged and older adults	Xuexin Yu et.al (2020)	The aim is to depict variations in the number of non-communicable chronic diseases (NCDs) as a function of urban vs. rural settings and road types.	Cross-sectional study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	The improvement in neighborhood-level characteristics alleviate the increasing disease	China	Elsevier	Urban vs. rural disparities in multimorbidity appeared to result from within-neighborhood characteristics.
S28	Neighbourhood environment and depressive symptoms among the elderly in Hong Kong and Singapore	Winnie W. Y. et al. (2020)	This study aims at identifying the relevant neighbourhood attributes, separate from the individual-level characteristics, that are related to the onset of depressive disorders among the geriatric population.	Structural equation modelling (SEM) approach	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Neighbourhood attributes related to the onset of depressive disorders	Hong Kong and Singapore.	Elsevier	Geriatric depression can be achieved by neighbourhood environment in an ageing society.
S29	Public Open space, Green exercise and well-being in Chittagong, Bangladesh	Alak Paul et al. (2020)	The study aims at explored visitors' activities in POS and their perception on well-being outcomes	Cross-sectional study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Structured interviews	Green exercise could be an important public health	Bangladesh	Elsevier	Engagement of POS such as urban green spaces, green exercise could be an important public health intervention
S30	Quality of urban parks in the perception of city residents with mobility difficulties	Magdalena Baszczyk et al. (2020)	To study the importance of access increases for residents with limited mobility to surrounding physical space, are exposed to social exclusion.	Empirical Investigation	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Accessibility to public space for Social cohesion	Poland	Elsevier	Differences included preferences towards the neighbourhood and destination parks
S31	Designing Urban Green Spaces for Older Adults in Asian Cities	Zheng Tan et al. (2019)	Information regarding how to plan and design urban green spaces with certain characteristics that could improve the accessibility and aesthetic quality	statistical model (moderation analysis)	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	UGS and its association with mental health	China and Taiwan	Elsevier	The duration of visits to UGSs (urban green space) was positively associated with mental health and social functioning
S32	The associations between neighborhood walkability attributes and objectively measured physical activity in older adults	Bo-Chen et al. (2019)	This study aimed to examine geographic information systems-derived neighborhood walkability attributes and accelerometer measured PA in older adults.	Multiple linear regression	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	High sidewalk availability in neighborhood supportive for older adults'	Taiwan	Google Scholar	Study objective measures to examine the associations between the built environment and physical activity (PA) among older adults
S33	Study of open spaces in urban residential neighbourhood – Madurai	R.Shanthipriya et al. (2019)	Exploring provision of open space to create an identity to the neighborhood.	Cross-sectional study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Open Space creating identity	India	Google Scholar	Importance of the usage of open spaces serving as a seed for the social interaction.
S34	Associations between Neighborhood Open Space Features and Walking and Social Interaction in Older Adults—A Mixed Methods Study	Tanja Schmidt et al. (2019)	Mixed methods study to investigate the association between built environment features, social interaction, and walking within NOS, among older adults living in a low socio-economic neighborhood	Exploratory sequential mixed methods study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Community Park Audit Tool, System for Observing Play and Recreation in Communities (SOPARC)	Open Space and features of built environment in older adults	Copenhagen	PubMed	The importance of social interaction within NOS.

S35	Digital Inclusion for elderly citizens for a sustainable society	Jesper Holgersson et al. (2019)	focuses on digital inclusion for elderly citizens, addressing goal 10 of the United Nations global sustainability goals	Conceptual Framework	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Digital inclusion and elderly	Sweden	AIESeI	a cross-generational teaching and learning approach – young people (digital natives) interacting with elderly
S36	Older Adults' Needs and Preferences for Open Space and Physical Activity in and Near Parks: A Systematic Review	Lene et.al (2018)	To analyse the link between open space and physical activity promotion for older adults	Descriptive and correlational study	Review and Survey	Qualitative	Review	Link between open space and physical activity	Los Angeles	Google Scholar	Major gaps exist in the literature regarding the link between open space and physical activity promotion for older adults.
S37	Neighbourhood adaptability for Hong Kong's ageing population	Peng Zang et.al (2018)	This investigation generates conclusions of built environment characteristics which are different with those in low-density environment observed in the Western societies.	Descriptive and correlational study	Review and Survey	Qualitative	Semi-structured interviews	Built environment features and elderly	China	Springer	Built environment characteristics influence the physical activity of Hong Kong's older adults.
S38	A Conceptual Guideline to Age-Friendly Outdoor Space Development in China: How Do Chinese Seniors Use the Urban Comprehensive Park? A Focus on Time, Place, and Activities.	Yang Zhai et al. (2018)	Aim of this paper is to narrow the gap between the theoretical findings from past studies and current open space development through evaluating the behavior pattern and landscape preferences of seniors in urban parks	Cross-sectional study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Behavior pattern and landscape preferences	China	Web of Science	New perspectives for further investigations have been pointed out for landscape establishing a successful age-friendly outdoor space.
S39	Co-creation Model to Design Wearables for Emotional Wellness of Elderly	Usman Warraich et al. (2018)	The objective of this research is to find the role of technology in order to improve emotional wellness for the elderly population.	Co-creation model	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	technology to improve emotional wellness	Finland	AIESeI	Need for focused efforts to develop digital interventions for emotional wellness for elderly.
S40	Assessment of and Improvement Strategies for the Housing of Healthy Elderly: Improving Quality of Life	I-Ming Feng et al. (2018)	This study aims to effectively assess and improve the housing environment of the elderly in order to enhance their quality of life	Multi-Criteria Decision Analysis model, a combination of the DEMATEL, ANP DANP	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Review	Housing environment of the elderly	Taiwan	Elsevier	Effectively assess and improve the housing environment of the elderly in order to enhance their quality of life
S41	Urban Living Room: An explorative study of elderly and public space in high density living	Maing et.al (2017)	Public-housing developments with varying associated amenities and public space impacts on ageing	Exploratory study	Review and Survey	Qualitative	Review	Public space impacts on ageing	Hong Kong	Google Scholar	Public space planning affects elderly behavior in different living conditions.
S42	Designing User Interfaces for the Elderly: A Systematic Literature Review	Connor Dodd et.al (2017)	A systematic literature review to provide a structured overview of the current state of the literature regarding user interface development for elderly users over a variety of domains.	Conceptual Framework	Review and Survey	Qualitative	Review	User interface development for elderly user	Australia	AIESeI	Provides a direct benefit to system designers looking to produce a user interface that addresses the needs of elderly users.
S43	Public Open Space Development for Elderly People by Using the DANP-V Model to Establish Continuous Improvement Strategies towards a Sustainable and Healthy Aging Society	Bo-Wei Zhu et al. (2017)	Relationship between healthy ageing society and impact of open space on it	DANP-V model	Review and Survey	Qualitative	Review	cognitive differences between expert and elderly groups.	China	Web of Science	Findings have both theoretical and practical implications for POS and healthy ageing of elderly
S44	The Safety of Walking Space for the Elderly People Living in Communities in Beijing, China	Shuwen Yang et al. (2017)	The walking space in the communities is important for the safety of the elderly people.	Cross-sectional study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Safety of Walking Space for the Elderly	China	Google Scholar	Importance of walking space of the elderly people living in the communities.
S45	Social Media as Enabler for ICT Inclusion to Achieve Active Ageing	Celeste J. Chan et al. (2017)	To study the participation of the elderly in the urban area in the country who are experiencing first-level digital divide.	Social cognitive theory	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Semi-structured interviews	Social media is a potential tool to promote the active engagement	Philippines	AIESeI	The elderly in the urban area in the country are experiencing first-level digital divide.
S46	Older Adults in Public Open Spaces: Age and Gender Segregation	Rinat Ben Noon et al. (2017)	Activities of older adults in public open spaces	Narrative Descriptions	Review and Survey	Qualitative	Observation and documentation	activities of older adults in public open spaces	Isreal	Oxford Academic	To date, there has been limited research on everyday activities of urban older adults in public open spaces
S47	Physical activity and healthy ageing: A systematic review and meta-analysis of longitudinal cohort studies	Daskalopoulou et al. (2017)	To study Physical activity (PA) can influence the ageing process but the specific relationship with healthy ageing (HA)	Systematic review and meta-analysis of longitudinal studies	Random-effect meta-analysis	Qualitative	Observation and documentation	Physical activity (PA) can influence the ageing	UK	Elsevier	PA is positively associated with HA, regardless of definition and measurement.

S48	Modeling Elderly Accessibility to Urban Green Space in High Density Cities: A Case Study of Hong Kong	Fangying Gonga et al. (2016)	Improving elderly accessibility to green space is useful in promoting more physical activity	landscape fragmentation index (LFI) of green space patches and accessibility analysis	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	Elderly accessibility to green space	Hong Kong	Elsevier	To increase the green space accessibility either by improving the walking routes
S49	Classifying community space at a historic site through cognitive mapping and GPS tracking: The case of Gulangyu, China	Yuan Li et al. (2016)	This article adopts a quantitative approach to identify various types of community spaces, by overlaying cognitive maps of the local community with data on the behavioral patterns of tourists via GPS tracking.	Cognitive mapping, GPS tracking, and GIS visualization methods.	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	community spaces on the behavioral patterns via GPS tracking.	China	Springer	New analytical frameworks for the sustainable development of historic sites by the classification of community spaces
S50	A Model for Reflective Participatory Design - The Role of Participation, Voice and Space	Birgitta et al. (2015)	To improve the health and wellbeing of older people in the northern periphery regions of Europe, through new mobile services.	Reflective participatory design	Review	Qualitative	Review	systems development and user participation.	Northern periphery regions of Europe,	AIESeI	qualitative fieldwork in a participatory project aimed to improve the health and wellbeing of older people
S51	The Role of Open Space in Urban Neighborhoods for Health-Related Lifestyle	Katarina et al. (2014)	Open space quality affects health-related behavior of elderly	behavior observation and mapping	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	Influence of variables on physical activity	Ljubljana, Slovenia	Pub Med	strong influence of a set of socio-economic variables on physical activity and self-perceived health status of people
S52	Healthy campus by open space design: Approaches and guidelines	Stephen Siu et al. (2014)	This paper examines the architectural and landscape design strategies and intentions for green, open spaces facilities targeting stress alleviation for learning environments such as those of university campuses in a compact urban setting.	Corresponding design approaches	Review	Qualitative	Observation and documentation	Landscape design targeting stress alleviation	China and US	Elsevier	A healthy campus should encompass diverse open spaces to satisfy different purposes.
S53	Relation between visitors' behaviour and characteristics of green spaces in the city of Granada, South-eastern Spain	Cristiano Adinolfia et al. (2014)	The relation between visitor behavior and certain features of a number of major green spaces.	behavior observation and mapping	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	relation between visitor behaviour and certain features of a number of major green spaces	Spain	Elsevier	Findings indicated that these spaces were used largely for purposes directly related to well-being
S54	New urbanism design principles and young elderly active lifestyle: An analysis of TTDI neighbourhood in Kuala Lumpur, Malaysia	Hanan Elsaywahi et al. (2014)	This article aims to explore the relationship between young elderly active lifestyle and the built environment.	New Urbanism design principles, correlation and multiple regression	Descriptive research	Qualitative	Observation and documentation	Active lifestyle of elderly and the built environment	Malaysia	Springer	The results showed that New Urbanism design principles promoted active lifestyles among the young elderly.
S55	Open spaces increase the quality of built up areas	K. Lestan et al. (2013)	How size and equipment of open spaces influence the ways in which they are used.	experimental method of observations and behavioral mapping	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation and documentation	evaluating selected urban design indicators	Ljubljana	Google Scholar	It explores how size and equipment of open spaces influence the ways in which they are used.
S56	Comparative analysis of utilisation of open space at neighbourhood level in three Asian cities: Singapore, Delhi and Kuala Lumpur	Sadasivam Karuppannan et al. (2013)	This article investigates the utilisation of open space at the neighbourhood level is more associated with the physical and functional properties of open space or if it varies across different cultures and contexts of cities.	Conceptual Framework	Review	Quantitative and Qualitative (Mixed Method study)	Observation surveys	open space as an important component of a healthy urban environment	Asian Cities: Singapore, Delhi and Kuala Lumpur	Springer	The utilisation of public space at various levels of neighbourhood significantly differs between cities because of the local context, such as culture, social values and climate
S57	Associations between physical activity and characteristics of urban green space	Jasper Schipperijn et al. (2012)	The study focus on the association between UGS and outdoor PA in general, as well as PA in the nearest UGS	Descriptive and correlational study	Review and Survey	Quantitative and Qualitative (Mixed Method study)	Observation surveys	Association between UGS and outdoor PA	Denmark	Elsevier	PA in a UGS might be stimulated by providing these features

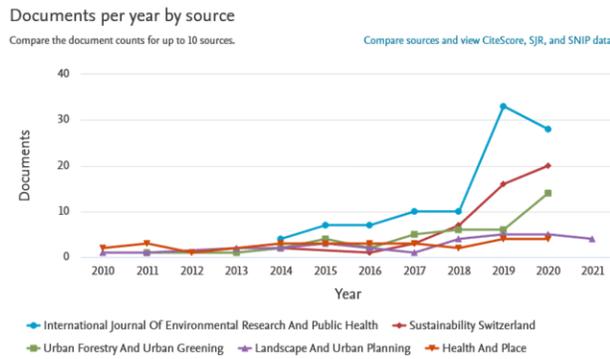


Figure 6: Documents per Year as per Source (Source: Author)

3.3 Research Methods

Saunders et al. (See Figure 7: “Research Methods for Business Students” Chapter 4: Understanding research philosophy and approaches to theory development) defined 'research method' as the techniques and processes employed to obtain and analyze data. This definition includes both the data collection methods (interview, questionnaire, etc.) and the data analysis techniques and procedures (Qualitative, Quantitative, etc.). This study used the term 'research methodology' to refer to the techniques for analyzing data. The relevance of this approach in our SLR is mainly due to the mixed-method approach which had been adopted by most of the researchers identified from primary studies.

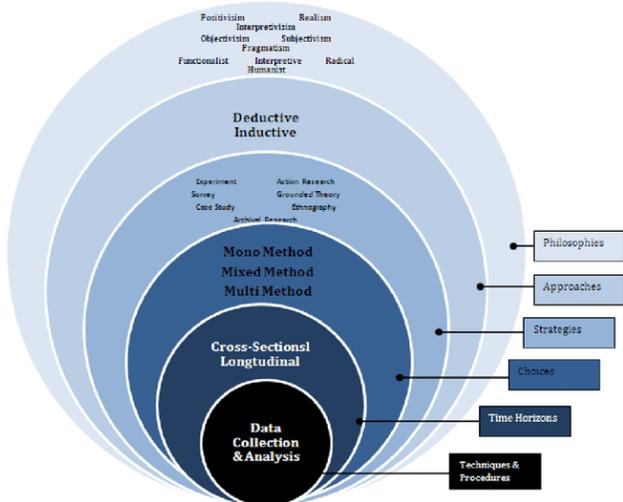


Figure 7: Research "Onion" proposed by Saunders et al.

The figure (See Figure 8) presents the methodologies that were adopted by the selected studies. The majority of the primary studies applied a mixed-method study (both qualitative and quantitative) while the rest adopted the qualitative, geographical analysis, and Peri-Urban Park Quality index (PQI).

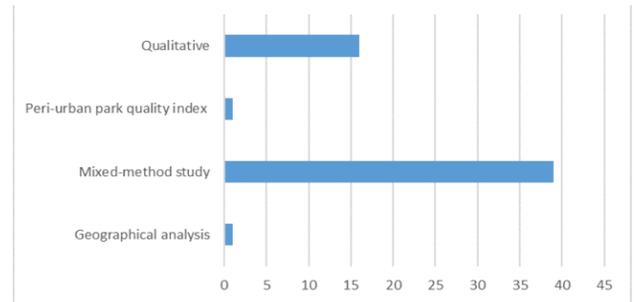


Figure 8: Methodologies adopted in the studies (Source: Author)

It has also been found through the primary studies that various conceptual and theoretical frameworks had been incorporated to objectively measure the effects and impacts of spatial characteristics on the visit to these spaces like greenery, street view, area level associations, outdoor thermal comfort, physical activities aspects, landscape preferences, etc. (See Figure 9).

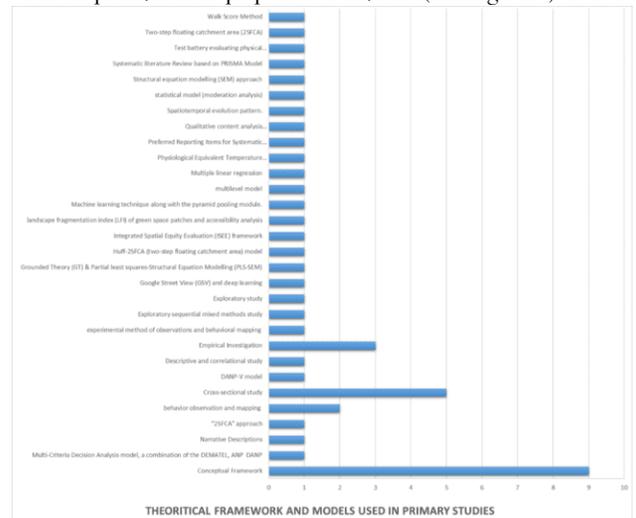


Figure 9: Theoretical Framework and Models used in primary studies (Source: Author)

4. Research Question (Rq) Results

The aim of this systematic review, as stated in Section 1, was to answer research questions concerning open space visits and social cohesion for the elderly. The answers to each study query are addressed in this segment.

RQ1. What are the characteristics of Open Spaces that influence the visit of the elderly to these Spaces which have been addressed in the literature?

Research into the potential health and well-being advantages of residing near parks and spending time in and around 'green space' is prevalent (Model, 2005). The temperature of the skin was considered to be a strong predictor of outdoor thermal comfort (Lai et al., 2020). (Wang & Kang, 2020) found a strong positive association between the preference of elderly people for the general acoustic climate and their requirements for the inclusion of natural sounds. Green areas require water supplies to stay green, and often blue areas are part of green infrastructures (e.g. park reservoirs, river towpaths)

Nevertheless, blue areas within these ecosystems have their range of threats and benefits for human health and advantages (White et al., 2020). Some concerns ought to be considered independently from green space as a whole. In the study of urban greenness and walking behavior, the significance of eye-level greenery is necessary, since an evaluation of the effect of Greenery Street on walking activities is also significant (Ki & Lee, 2021b). Similarly, (Lak, Aghamolaei, Baradaran, et al., 2020) proposed that in environments - as the non-physical aspects of the POSs - the mechanism in which the elderly reside has an essential effect in outdoor environments (social climate, cultural and sense of belonging). The locational functions (access to services, urban scenery, and clean environment), as well as the preferences for location (crime security, fear of dropping security, and the appearance of the elderly), are more likely to fulfill the needs of elders in urban areas. From the study, it is therefore concluded that influential factors are affecting the visit of elderly to these Open spaces which were supported through various literature and previously published works (See Figure 10). Many researchers have also marked significant ideal characteristics of Open Spaces which have a major role towards the visit to these Spaces by elderly. However, each factor is addressed with certain challenges which as designers, architects, need to intervene to make these Urban Spaces accessible and eventually could develop a sense of belonging to the visitors to enable them to visit these spaces more regularly. Further research in this regard could be how to make these spaces: Emerging (whether formal or informal), dynamic (avoiding one-size-fit-all), Accessible (with secure rights and protections), Delineated (clearly accessible through their use), participating (designing in-active uses), Meaningful (incorporating prominent features and facilities), Civic, integrated (between traffic and pedestrian), relaxed (feeling protected and restful) and vigorous (encouraging social participation).

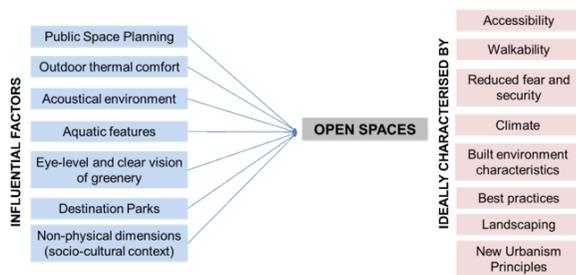


Figure 10: Factors influencing visit to Open space and its identified characteristics. (Source: Author)

RQ2. What are the most influential factors affecting Social Cohesion aspects in these Open Spaces for enhancing visits of the elderly?

Social cohesion influences the proximity and existence of urban green areas in an urban context (Francis et al., 2012). Different activities and well-being promoting practices in green spaces in the neighbourhood will foster social connection and the other way around. Urban green spaces help and ultimately affect the social structure of urban areas and will play a key role in the development of community relations. The mechanisms by which neighbourhood green parks can promote social unity stimulate

the need to expand our point of view on their role in open spaces. The characteristics of the integrated environment and courtesies in neighbourhood open spaces can be linked to social cohesion along these lines. The degree of engagement inside the open space (e.g. administration and volunteering) may vary depending on the characteristics. The processes by which community green parks can foster civic harmony stimulate the need to extend our viewpoint on their role in open spaces. Community benefits of environmental and general well-being systems may help educate green spaces in the region. An example of these interactions is the paradigm of environmentally sustainable ecosystem services. Some researchers have suggested that social interaction and networking are the advantages of nature to the social biological system administration. We should use our expertise to encourage interdisciplinary collaborative activities to enhance individual, cultural well-being networks. Social cohesion at individual level and community level had been proved through various empirical investigations. As far as we are conscious, no experimental research on social cohesion takes the formal institutional perspective (the characteristic of the third stage of social cohesion). The impact of and within levels in the design and implementation of strategies will be discussed in future studies. The various factors influencing social cohesion attributes in open spaces for elderly analysed through primary studies is represented (See Figure 11).

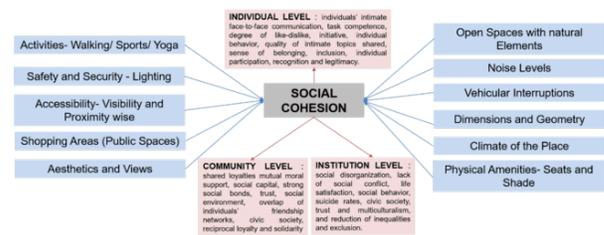


Figure 11: Factors influencing Social Cohesion attributes in Open spaces for Elderly. (Source: Author)

RQ3. What are the gaps, limitations, and future work recommendations for Open Space correlation with Social Cohesion on elderly for their well-being?

From the study it has been found that since Open Space plays an integral role in well-being, investigating the relationship between open spaces and social cohesion can guide crucial intercessions to address the challenges of well-being. High community associations can lead to an increase in engagement and support for the community. This mostly benefits emotional attachment, hence there is a need to enhance the increased experiences to participate in social welfare with personal desires with the perception of green spaces as a social condition which will improve communities to promote physical activity and other sound activities. Many research indicates that regions, where people are comfortable and willing to walk, are valuable for optimistic attitudes regarding social experiences and generate appreciation for open spaces. However, the studies have certain limitations like how each attribute of spatial planning within these open spaces is going to influence the user's visits to these spaces and to what level. The various attributes have been identified to enhance the wellbeing of the elderly by fostering social cohesion in these open spaces summarized

within the conceptual framework (See FIGURE 12). Further research needs to be directed towards prioritizing the various attributes and an empirical investigation on these attributes analysing their impacts on the wellbeing which need to be addressed in further scope of research.



Figure 12: Conceptual framework for integrating Open Space attributes and Social Cohesion for the well-being of the elderly (Source: Author)

5. Discussion

The analysis of the systematic review presented us with a wide awareness of the open space characteristics that lead to better social cohesion for the elderly. Firstly, it is shown that good health and social cohesion build a neighborhood-friendly atmosphere inside an elderly residential society. Conceptual and methodological aspects related to existing studies are topics that must be taken into account when investigating health inequalities at the population level, such as range, aggregation, different measurement attributes, and the nature of features as objective and complex characteristics. The living conditions promote social cohesion, which contributes to an increase in safe life expectancy. Examining the significance of various social contexts thus helps us to better consider and cope with heterogeneity, resulting in consistent assumptions. Focusing public health services on the most critical issues will assist them in lowering costs and improving overall health. Therefore, planning of Public Spaces to enhance social cohesion is a major challenge for the designers which is a primary aspect of Urban planning. Nonphysical dimensions like socio-cultural contexts have been addressed as one of the key aspects of a visit to Open Spaces by the elderly and therefore, design considerations should focus on integrating elements of local culture and social activity spaces to foster social cohesion in these areas.

Secondly, in “livable neighborhoods,” a sense of belonging and personal satisfaction play an essential role as it reduces fear and enhances safety factors. According to the findings, modern residential developments built by the “Livable Neighborhoods” model yield positive outcomes such as access and independence, while also improving feelings of safety. A broad variety of interventions compatible with public health and traffic regulation, many of which were based on international literature, may become mandatory in suburban policies. While there are lifestyle and pleasure motivations, it can also be demonstrated that they are incompatible. There are several various styles of housing to create strong living neighborhoods. Built environment characteristics including the aspect of outdoor thermal comfort are an integral element of fostering social cohesion. Furthermore, a study utilizing a variety of

factorial and interdisciplinary approaches can help to elucidate and cater to the different needs (including physical, psychological, and emotional) of the elderly to make them socially active and fit.

Thirdly, there is a need to build on literature on climate, social, environmental, and behavioral influences to better understand smaller components of the urban environment to foster social cohesion. People that migrated, for example, are preparing to gather new human health data and introduce longitudinal approaches to study the health of the elderly in a well-planned community. It has been investigated that there is an impact of perceived residential environment efficiency on urban local community identity (ULCI). While neighborhood attachment (NA) is an essential component of urban local identification, upkeep and care now establish a local identity more than neighborhood attachment. Destination parks play a significant impact in this regard. Aspects like eye-level greenery, with the acoustical environment with aquatic features, have proved to foster elderly visits to these places.

Fourthly, mobility aspects have been seen as a remarkable influence on social life fostering safety and security of the elderly. Increased group engagement in outdoor practices such as cycling is expected to improve public wellbeing as well as social well-being. Changing the residential atmosphere to render safe habits and activities more available can be a requirement for preserving existing positive lifestyles. The importance of access to facilities, the need for protection, and the demand for scenery and cleanliness are more prominent in urban environments.

6. Conclusion

Previous research findings have shown a close connection to engagement in communities’ social resources, path efficiency, natural characteristics, and seating quality (Chang, 2020). The physical feature: the seating aspect was shared only by the relationship with nature and social interaction. Social interaction was also the activity that was most influenced. The positive impact of social characteristics on performance was much greater than the positive effects on them of physical characteristics. To encourage active aging in society it is necessary to consider the impact of the social context on the well-being of older adults. We explained the characteristics of open spaces, which improve the welfare of elderly people to encourage social cohesion. Through a comprehensive review of the literature the influential factors of open space and social cohesion, such as offering affective support and improving self-esteem and empathy for one another, may be established to achieve an overall quality of life through physical-psychosocial processes. All levels of social cohesion must be established. It is necessary to take account of the socioeconomic attributes of individuals, and even the contexts of the everyday life, of health and well-being promotion strategies, so that they can frequent these areas more often. The literature review showed that there is a significant gap in co-relation of the attributes of open space and social cohesion that researchers have to fix in this direction as a potential area of study. There is also a need to prioritize the factors concerning its impact on the visit. This will enable the designers to make design decisions while intervening in these

spaces. More research into the usage of the park should involve the identification of mechanisms for deciding visits to urban space, particularly parks for the community with reduced mobility. Nevertheless, the desire for good quality research is a major direction to promote more successful age-friendly initiatives and provide essential

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