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Contribution of Accessible and Well Design Green Spaces for the Well Being of Senior Citizens

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ABSTRACT

A growing number of articles have identified and reported the benefits and importance of urban green spaces for improving human well-being, but there is a significant knowledge gap regarding the impact of urban green spaces on the subjective well-being of older adults. The included studies aim to capture the benefits of various features of urban green spaces in meeting or enhancing the subjective well-being needs of older adults. The results of our review further support the existence of a strong link between older adults' subjective well-being and various features of urban green spaces, providing new insights for future in-depth re-examination and policy development. Furthermore, the relationship between urban green spaces and older adults' subjective well-being depends not only on the urban green spaces themselves but also on the characteristics of the older adult population that uses them. As demographic changes abound, landscape planners should increase their understanding of both elderly people's preferences concerning nature-based recreation and approaches to consider those preferences in planning. This study aims to synthesize existing knowledge about elderly people's preferences, namely, how they interact with green spaces, what landscape characteristics they prefer or dislike, and how practitioners can improve planning to better meet elderly people's needs. We find that published studies focus primarily on elderly people's recreational activities in urban parks. Across different contexts, elderly people seem to have common preferences: landscape features that are natural, aesthetic, comprehensible, and diverse, with accessible and well-maintained infrastructure and facilities. Moreover, interactions between people and nature may affect the relative importance levels of the preferences. We recommend that landscape planning practitioners consider both scientific evidence and local conditions that could affect elderly people's preferences, and explore the degree to which design options may fulfill these preferences. Further research is needed to explore differences in preferences between urban and rural dwellers, to quantify preferences, and to enhance understanding of elderly people's emotional ties with nature.

KEYWORDS

Urban Green Space; Subjective Well-being; Older People; Green Space Characteristics

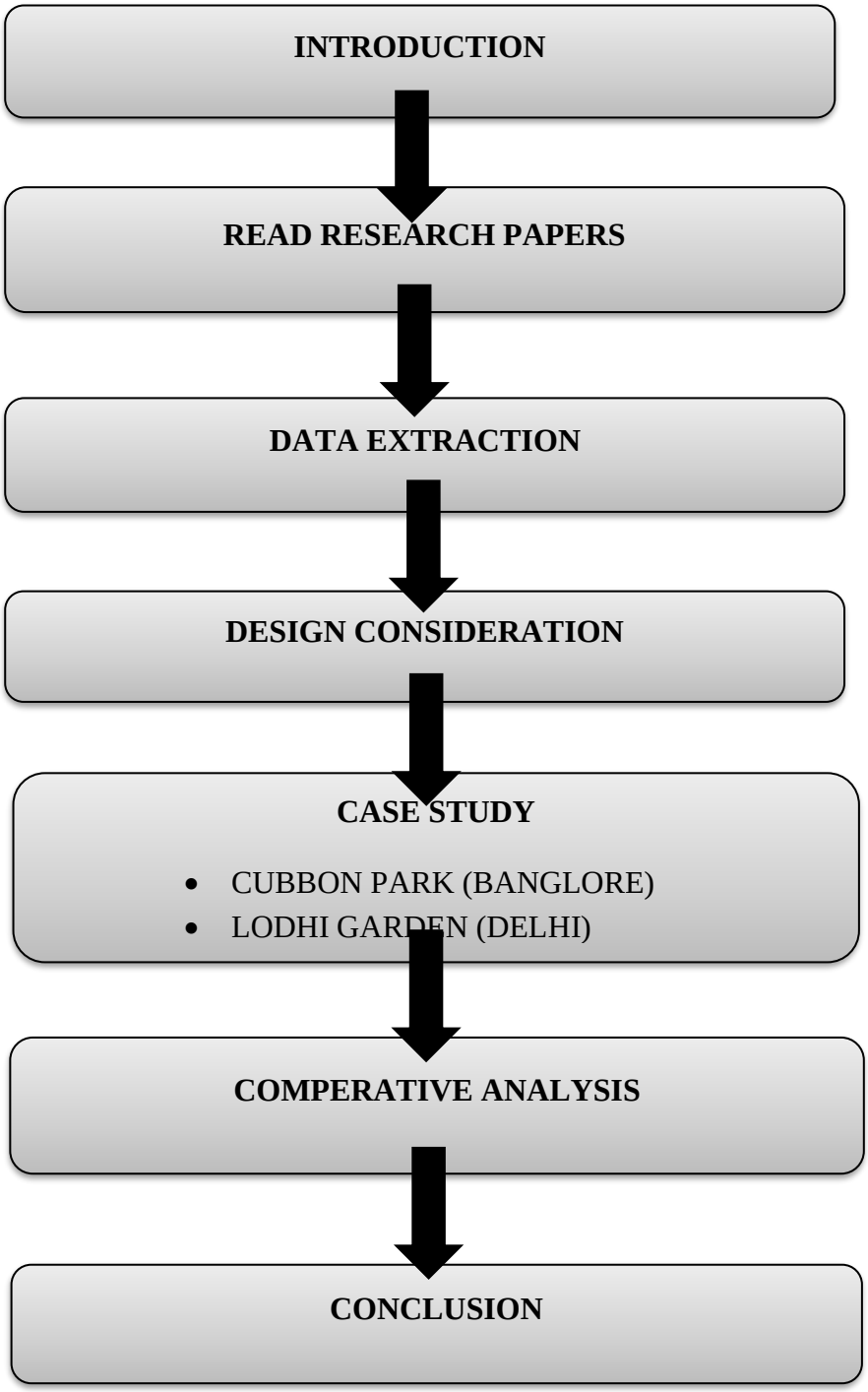
INTRODUCTION

Urbanization and aging are occurring and growing at an unprecedented rate and are key challenges for most countries worldwide. Urbanization leads to more people living in urban areas, and urban overcrowding can exacerbate the risk of infectious diseases. Globally, there has been a significant demographic shift, with 16.2% of the global population projected to be aged 65 years and over by 2050 (United Nations, New York, NY, USA, 2020). Older people are defined by the World Health Organization as those over 60 years of age, with those 60 to 74 years of age being younger seniors, 75 to 89 years of age being seniors, and 90 years of age or older being long-lived seniors. The United Nations have identified the health and well-being of older people as one of the most urgent social issues of the present day. Aging research represents a new frontier in terms of making the most of older people's resources while highlighting their needs and potential contributions. Evidence from research has demonstrated that healthy, active, and positive aging can be achieved through lifestyle changes and effective interventions. Focusing on the concept of well-being is fundamental to happiness and aging and in the common interest of human development.

Urban green spaces have been identified as being relevant to promoting human health and enhancing well-being. In recent years there has been increased interest in research concerning the health-promoting potential of urban parks. Green corridors not only raise the species richness of landscape patches but also help sustain daily physical activity and positively impact human health. Urban green spaces provide spaces to experience nature, with potential associations with health through three pathways: hazard reduction, encouragement of physical activity, and resiliency.

Despite reasons to believe in the positive impact of urban green spaces on human health (including mental health) and well-being, and the significance of their use, due to the comprehensive relationship between urban greenspace use and subjective well-being, these articles did not conclusively demonstrate which characteristics of urban green space play a constructive role in improving the subjective well-being of older people, which is a particularly significant omission. Therefore, the main goal of this systematic review is to fill this need: seeking to understand the association between specific characteristics of greenspace and the subjective well-being of older people to help urban designers improve the design of urban green spaces and to help governments develop green space policies that are responsive to vulnerable groups. In pursuit of our primary objective, we also investigated a second objective, namely the influence of socio-demographic characteristics of different older people regarding their perceived green space and self-reported well-being. We expect these findings to develop further a deeper understanding of the relationship between urban green spaces and the health and well-being of older adults.

METHODOLOGY



Data Extraction

Based on the search outcomes, three authors extracted the data and resolved disagreements by consensus. Extracted data included sample characteristics (i.e., region, country, size), study design (i.e., qualitative study, quantitative study, mixed study), spatial characteristics of urban green spaces, green characteristics of urban green spaces, green features of urban green spaces, and socio-demographic characteristics of the elderly. Table 1 illustrates detailed information on the various characteristics of urban green spaces and the socio demographic characteristics of older people.

Table 1. Urban green space characteristics and socio demographic characteristics of older people.

Urban Green Space Characteristics			Sociodemographic Characteristics of Older People
Spatial Characteristics	**Green Characteristics**	**Gray Characteristics**	
Size Area Type Distance Quantity Quality Availability Accessibility Safety Frequency and duration	Maintaining carbon and oxygen balance Purifying the environment Improving the urban microclimate Reducing urban noise Disaster prevention and mitigation Biodiversity conservation Vegetation richness Water resources Bird and animal species richness Providing aesthetic spaces Social, cultural, and ecological interactions	Car parking facilities Resting facilities Recreational facilities Sports facilities Sanitary facilities Lighting facilities Security facilities Directional facilities Landscape facilities Management centers Service facilities buildings	Gender Age Household registration Marital status Religious beliefs Education level Job before retirement Income

Designing green spaces for older adults in India requires considerations of their specific needs and preferences. Here are some key points to keep in mind:

1. Accessibility:

- Ensure paths and walkways are wide, flat, and free of obstacles to accommodate mobility aids like wheelchairs and walkers.
- Use ramps instead of stairs where possible to provide easy access.
- Install handrails along paths for stability and support.
- Designate accessible parking spaces close to the entrance.
- The ramp ratio for senior citizens in green spaces refers to the recommended slope or incline of ramps that make these spaces accessible to individuals with limited mobility, such as those using wheelchairs, walkers, or other mobility aids. The ramp ratio is typically expressed as a ratio of rise (vertical height) to run (horizontal length), usually in a 1:12 or 1:20 ratio.

2. Safety:

- Incorporate adequate lighting for visibility during evening hours.
- Install benches and seating areas strategically throughout the green space for resting.
- Use non-slip surfaces on pathways to prevent slips and falls.
- Avoid steep slopes or uneven terrain that could pose tripping hazards.

3. Comfort:
- Provide shaded areas with trees or pergolas to offer relief from sun exposure.
- Include water features like fountains or ponds for a calming effect.
- Install weather shelters or pavilions for protection from rain or extreme heat.
- Use comfortable and durable seating options with armrests for easy sitting and standing.
  Seat dimensions: A seat width of around 18-24 inches (45-60 cm) is often recommended.
  Seats with backrests that are around 14-18 inches (35-45 cm) high are generally comfortable for older adults.

4. Engagement with Nature:
- Incorporate a variety of plant species to create visual interest and stimulate sensory experiences.
- Design areas for gardening activities like raised beds or community gardens.
- Include wildlife-friendly elements such as bird feeders or butterfly gardens.
- Integrate nature-based art installations or sculptures for aesthetic appeal.

5. Social Interaction:
- Design gathering spaces like community plazas or picnic areas for socializing.
- Organize outdoor events and activities like fitness classes or cultural performances.
- Provide amenities such as restrooms and drinking fountains for convenience during longer visits.

6. Universal Design Principles:
- Follow universal design principles to ensure inclusivity and accessibility for people of all ages and abilities.
- Consider diverse needs such as sensory impairments, cognitive challenges, and mobility limitations.

7. Maintenance and Management:
- Implement a maintenance plan to keep the green space clean, well-maintained, and attractive.
- Establish clear signage and way finding systems to guide visitors within the space.
- Engage with the local community and stakeholders to gather feedback and improve the design over time.

By considering these factors, designers can create green spaces that cater to the unique needs and preferences of older adults in India, providing them with opportunities for relaxation, socialization, and physical activity in a safe and welcoming environment.

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CASE STUDY

CUBBON PARK (BANGALORE) :

Cubbon Park, Bangalore, while not exclusively designed for older adults, incorporates many features that make it enjoyable for them. Here's a breakdown of how the park caters to older visitors :

- **Walking Paths:** The park has a well-laid network of walking paths, with both paved and shaded options. This allows older adults to choose paths that suit their mobility level and weather conditions.

Cubbon Park, Bangalore walking paths

- **Seating:** There are numerous benches scattered throughout the park, placed under trees for shade and offering scenic views. This provides ample opportunities for rest and relaxation.

- **Gardens:** Cubbon Park features several themed gardens, including the Rose Garden, the Bonsai Garden, and the Lalbagh Botanical Garden. These gardens offer a beautiful and stimulating experience for visitors of all ages.

Cubbon Park, Bangalore Bonsai Garden

- **Lake:** The central lake in Cubbon Park provides a tranquil setting for a leisurely stroll or a boat ride. Several pedal boats are available for rent, which can be a relaxing activity for older adults.

Cubbon Park, Bangalore lake

- **Accessibility:** Cubbon Park is relatively flat and easy to navigate, making it accessible for older adults with limited mobility.

Cubbon Park offers a serene and beautiful escape for older adults in Bangalore. Its well-maintained paths, ample seating, and variety of gardens provide a place for relaxation, socialization, and connection with nature.

LODHI GARDEN (DELHI):

Lodhi Gardens, Delhi, caters to older adults in several ways, making it a pleasant place to visit:

- **Well-Maintained Paths:** The garden boasts a network of well-maintained walking paths, both paved and even, with a variety of walking distances to choose from. This allows older adults to select a route that suits their mobility level and pace.
- **Abundant Seating:** Numerous benches are scattered throughout Lodhi Gardens, placed under trees for shade and offering scenic views of the gardens. This provides ample opportunities for rest and relaxation.
- **Variety of Gardens:** Lodhi Gardens isn't just one uniform space. It encompasses several themed areas, including the Bonsai Garden, the Mughal Garden, and a herbal garden. This variety offers a stimulating and interesting experience for visitors of all ages.

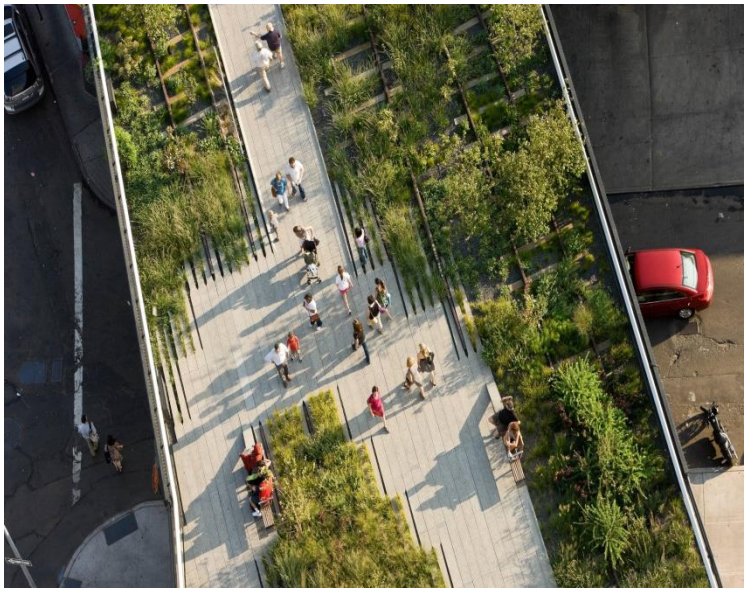
Lodhi Gardens, Delhi Bonsai GardeN

- **Historical Tombs:** The Lodhi Gardens incorporate historical tombs within the overall landscape. These provide interesting spots to pause and learn a bit of history while enjoying the surroundings.

HIGH LINE (NEW YORK) :

Here are some reasons why the High Line is often cited as a great example of green space for older adults:

Accessibility: The High Line is designed to be accessible to people of all ages and abilities. It features ramps, elevators, and wide pathways that make it easy for older adults, including those with mobility aids, to navigate the park comfortably.



Seating and Rest Areas: The park includes numerous seating areas strategically placed along the route, providing older adults with opportunities to rest, relax, and enjoy the views. The seating is designed to be comfortable and supportive, catering to the needs of older individuals.

Landscaping and Gardens: The High Line showcases a diverse range of plants, trees, and gardens, creating a vibrant and serene environment. The carefully curated plantings not only enhance the beauty of the park but also contribute to a sense of tranquility and well-being for visitors, including older adults.

Events and Activities: The High Line offers a variety of events, tours, and activities throughout the year, catering to different interests and preferences. These activities provide older adults with opportunities for social engagement, learning, and enjoyment in a green outdoor setting.

Safety and Security: The park is well-maintained and equipped with safety features, ensuring that older adults feel secure while exploring the space. Lighting, signage, and staff presence contribute to a sense of safety and comfort for visitors of all ages.

COMPERATIVE ANALYSIS

The results of the study provided a comprehensive analysis of the literature from two major databases (Google Scholar and Web of Science) since August 2015 that are highly relevant to the research topic. The results of the review are presented in two themes to reflect the influence of three main characteristics of urban green spaces (spatial, green, and gray characteristics) and socio demographic characteristics on the perception of green spaces and the subjective well-being of older people. This section first presents the findings on the study characteristics of the two research themes. The second section describes the findings of the study on the correlation between spatial characteristics, green characteristics, and gray characteristics of urban green spaces and the subjective well-being of older people.

CONCLUSION

Our work has further supported the understanding of the relationship between the subjective well-being of older people and urban green spaces. New insights are presented for integrating urban green spaces, subjective well-being, and older people. Specifically, two aspects are included:

(1) The spatial, green, and gray characteristics of urban green spaces not only provide space and opportunities for social interaction, alleviate anxiety and stress, and provide improvements in older people's mood and concentration but also have a more significant contribution to older people's subjective well-being and high levels of social cohesion.

(2) Socio demographic characteristics also have substantial implications for older people's subjective well-being in relation to urban green spaces. Older people's transient perceptions, experiences, and well-being of urban green space environments are vital to the planning and design of age-friendly spaces by increasing the quantity and scale of green spaces and encouraging the optimal design of their accessibility to improve their attractiveness and suitability for older people.

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