



Walkable Cities And Sustainable Living: The Impact Of Pedestrian-Friendly Planning

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Abstract:

Urbanization and rapid population growth have led to increased traffic congestion, pollution, and a decline in public health. As a result, cities worldwide are shifting towards sustainable development models, emphasizing walkability as a key aspect of urban planning. The concept of walkable cities has gained significant attention as urban areas seek sustainable solutions to environmental, social, and economic challenges. Pedestrian-friendly planning aims to reduce dependence on automobiles, enhance public health, promote economic vitality, and create more livable urban spaces. This research article explores the principles of walkable city planning, its impact on sustainability, and case studies highlighting successful implementations. The study also discusses policy recommendations and future directions to promote pedestrian-centric urban development.

Key Words: Walkability evaluations, health, sustainability, livability.

Introduction

Urbanization is occurring at an unprecedented rate, with three-quarters of the world's population projected to reside in cities by 2050 (Bibri&Krogstie, 2017). This estimate implies that cities play essential roles in delivering urban environmental quality to the population at a minimum acceptable standard while also addressing climate change concerns (Iwan & Poon, 2018). The shape of modern cities has been viewed as a source of environmental resources and social problems, such as consuming approximately 70% of the world's resources, being large energy consumers, and contributing to the emissions of gases that cause the greenhouse effect. The challenges related to cities are due to population density and the intensity of economic and social activities related to the inefficiency of environmental resources and other factors such

as inadequate urban projects, social deprivation, mobility, and ineffective accessibility, increased need for transport, public safety, decreasing health, traffic congestion, among others.

The idea of making cities more sustainable has grown in importance in several fields of knowledge, such as urban planning, environment, and public policy management (Cerutti et al., 2019; Jayakody et al., 2018). Among the dimensions of a sustainable city, walkability has been identified as one of the central axes of quality of life in sustainable cities. Walkability is one of the strategic elements that are part of urban mobility in general and is characterized both by the study of the physical means that provide walking and by the qualitative aspects about what motivates people to walk in the urban space (Ewing et al., 2006). A walkable city prioritizes pedestrians by integrating well-designed sidewalks, accessible public transportation, green spaces, and mixed-use developments. This approach fosters community interaction, reduces carbon footprints, and enhances quality of life. This paper examines the importance of pedestrian-friendly planning and its role in achieving sustainable living.

Principles of Walkable City Planning

Several principles underpin the development of walkable cities:

1. **Mixed-Use Development** – Combining residential, commercial, and recreational spaces to reduce the need for long commutes.
2. **Complete Streets Design** – Incorporating safe pedestrian pathways, cycling lanes, and public transport facilities.
3. **Public Space and Green Infrastructure** – Designing parks, plazas, and tree-lined streets to enhance urban aesthetics and well-being.
4. **Accessibility and Connectivity** – Ensuring seamless movement across neighborhoods with pedestrian bridges, crosswalks, and integrated transport networks.
5. **Traffic Calming Measures** – Implementing speed restrictions, pedestrian-priority zones, and car-free streets.

Sustainability and Walkability

Walkability is often the economic, environmental, and the social with the limited resources of energy, space, environment, and water. The classification of sustainability into these three types is well-established in the United Nations literature and has been the basis to develop the Sustainable Development Goals (SDGs)

Environmental Sustainability

Building walkable communities contributes to reducing automobile-based transportation. Urban centers with higher population densities and walkable communities are associated with lower overall carbon emissions per capita than their rural and suburban surroundings. Some of the main benefits of walkability are briefly discussed here.

Environmental Benefits

- **Reduction in Carbon Emissions:** Walkable cities lower greenhouse gas emissions by minimizing reliance on automobiles.
- **Improved Air Quality:** Decreased vehicular traffic leads to reduced air pollution and improved urban air quality.
- **Green Infrastructure Integration:** Walkable cities encourage tree planting, urban forests, and water-sensitive designs that enhance ecological balance.

Walkability relationship with health, sustainability, and Livability

In the heart of the modern living experience, lie two largely intersecting yet occasionally contrasting concepts of sustainability and livability. Livability can be defined as the combined objective influences on a community's quality of life. Livability is hypothetically reflected on the subjective satisfaction of the community with their surrounding environment, while sustainability is concerned with the balance between the social, economic, and environmental facets of development as well as the preservation and regeneration of resources for both present and future generations. Livability is concerned with present, immediate needs, while sustainability is concerned with the overall long-term well-being of humanity and Earth. These two concepts must be reconciled and colligated to advance a happy, comfortable way of living (Chazal, 2010; Gough, 2015); In addition, health awareness has been a strong incentive for many to support the agenda of sustainability and livability; however, this review makes the distinction between the health, sustainability, and livability despite the large overlaps between the three goals. These distinctions critical to address context-specific issues should they arise.

Social Sustainability

Social sustainability can be defined as the state and process of enhancement in quality of life. Social sustainability is influenced by physical factors such as the climate and ecological environment, natural resources, and built environment, as well as non-physical factors such as the richness of demographic backgrounds, diversity in educational and professional backgrounds, and the network of interpersonal

relations and communications between the members of a community. Heavily car-oriented subdivisions negatively influence the social capital and the possible social interactions on the neighborhood level (Leyden, 2003)

Social and Health Benefits

- **Enhanced Public Health:** Walking as a primary mode of transport helps combat obesity, cardiovascular diseases, and mental stress.
- **Increased Social Interaction:** Walkable environments foster stronger community bonds and improved social cohesion.
- **Equitable Access:** Pedestrian-friendly designs ensure that people of all ages and abilities can navigate urban spaces safely.

Economic Sustainability

Walking is a cost-effective transportation mode, especially for short distances, where pedestrians save not only on the fuel costs, but also on wear and tear on their automobiles. Walking helps reducing dependence on cars, and dilutes the need to bulky, expensive parking spaces. The social benefit of walkability transpires later as socioeconomic benefits, by creating vibrant environment for social interactions, inclusive job markets, clean environment, and accessibility to goods and services. Nonetheless, we keep this section to focus on the direct financial benefits of walkability associated with cost reductions on the public and consumers, the benefits for the efficient land mixed use on property values, and the reduced burden on healthcare sector associated with increasing the physical activity levels among the population. The following points outline aspects through which walkability contributes directly and indirectly to the economic and financial stability of taxpayers and government.

Economic Benefits

- **Boosted Local Economy:** Walkable streets encourage foot traffic to businesses, increasing economic activity.
- **Higher Property Values:** Well-planned pedestrian zones often lead to increased real estate value.
- **Cost Savings:** Reduced dependency on private vehicles lowers household transportation expenses and city infrastructure costs.

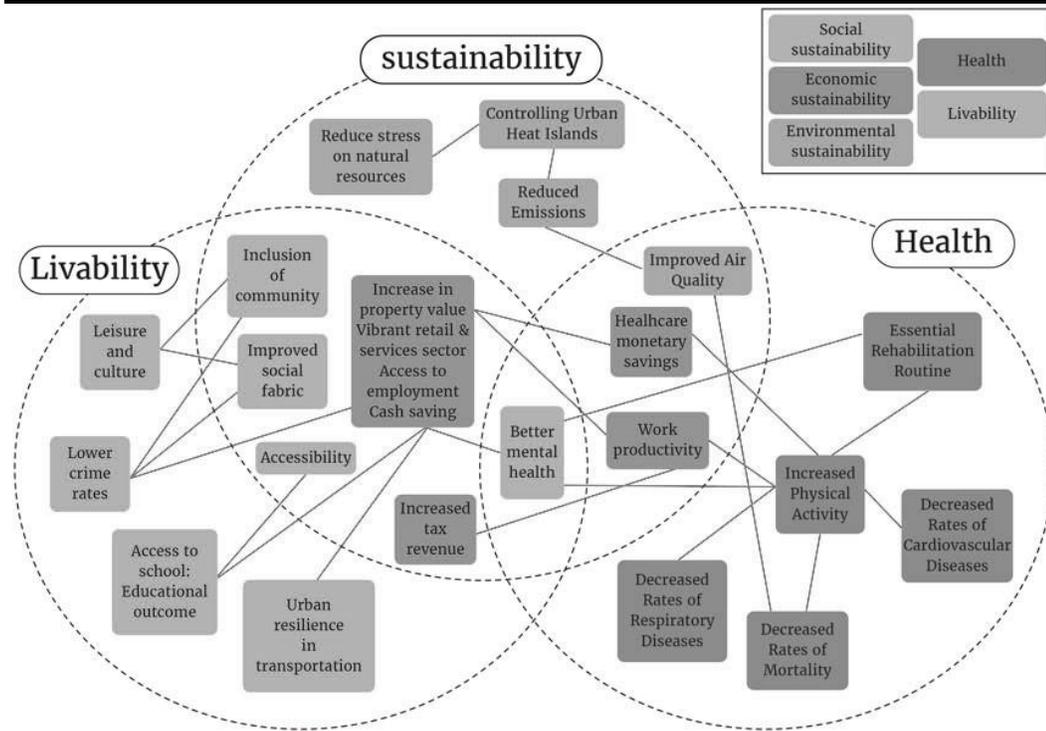


Figure: 1 Walkability and Its Relationships with Health, Sustainability, and Livability

Case Studies of Successful Walkable Cities

1. Copenhagen, Denmark

Copenhagen is a global leader in pedestrian-friendly planning, with extensive car-free zones, bicycle lanes, and public transport systems. The city’s commitment to sustainability has resulted in reduced emissions and improved public health.

2. Curitiba, Brazil

Curitiba’s urban planning integrates walkable neighborhoods with an efficient bus rapid transit system. The city’s focus on green spaces and pedestrian zones has made it a model for sustainable development.

3. Portland, USA

Portland has embraced mixed-use development, traffic calming measures, and extensive pedestrian pathways, leading to increased walkability and a thriving local economy.

Case studies of successful walkable cities in India

While no Indian city has achieved complete city-wide walkability, Pune and Chennai stand out for their efforts in creating pedestrian-friendly zones, with Pune focusing on pedestrianization of key streets like M.G. Road and Chennai implementing footpaths on over 100 kilometers of streets.

Here's a breakdown of successful walkable city initiatives in India:

Pune:

- **M.G. Road Pedestrianization:**

Pune's M.G. Road, once known for heavy traffic, is now a pedestrian-only zone, a successful example of pedestrianization in India.

- **FC Road:**

Fergusson College Road (FC Road) is a bustling thoroughfare that exemplifies Pune's dedication to pedestrian-friendly environments.

- **JNNURM and Smart Cities Initiatives:**

Pune has leveraged funding from the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and the Smart Cities Mission to create better networks of roads with footpaths and cycle tracks.

- **Non-Motorized Transport (NMT) Focus:**

Pune has identified 100km of streets for redesign as complete streets with a budget of 525 crores, demonstrating a systematic approach to NMT infrastructure.

- **Civil Society Involvement:**

The active role of civil society organizations dedicated to pedestrians and cyclists ensures a constructive approach for feedback and improvement.

Chennai:

- **Footpath Network:**

Chennai has built footpaths on more than 100 kilometers of urban streets between 2013 and 2019, transforming streets for the safety, comfort, and inclusivity of residents.

- **Thyagaraya Nagar Plaza:**

Thyagaraya Nagar Plaza in Chennai is an example of a small road stretch that has become pedestrianized.

Other Notable Examples:

- **Bengaluru's Church Street:** Church Street in Bengaluru is another example of a pedestrian-friendly street.
- **Delhi's Chandni Chowk:** Chandni Chowk in Delhi is another example of a pedestrianized street.

Challenges and Policy Recommendations

Despite the benefits, implementing walkable city plans faces challenges such as resistance to change, funding constraints, and inadequate infrastructure. To overcome these, governments and urban planners should:

- Invest in pedestrian-friendly infrastructure and public transport.
- Implement zoning laws that encourage mixed-use developments.
- Promote awareness campaigns on the benefits of walkability.
- Incorporate smart city technologies to enhance pedestrian mobility.

Conclusion

The conceptual correlations, and to a lesser extent practical correlation, between walkability from one side, sustainability, livability, and health from the other have been well defined in recent literature; walkability is a reconciling solution that can serve long-term sustainability, short-term livability goals, and health of individuals. Improving walkability not only contributes to more efficient use of energy but also adds vibrancy by improving resident, tourist, and visit or access.

Improving walkability ensures easiest way for improving liveability concerns. World is walking towards urban sustainability. Walkability enhances urbanity, social interactions, community health and sustainable environment. It can also resolve social and equity concerns in mobility planning. Lucknow can also revive its Nawabi culture vibrancy by planning social walkable areas, and opting for optimal solution for the habitants of the city and its culture. The first step towards any walkable would be made by removing parking on sidewalks and utilizing existing infrastructure followed by providing basic pedestrian infrastructure and amenities to all other pedestrian areas. Thereafter, maintaining and upgrading pedestrian infrastructure and encouraging pedestrians could be taken up. Also, educational programmes must be conducted to generate awareness of walkability. This should be supported by structural reforms in legal framework to provide social equity to pedestrians and right to walk for efficient system development. Various development organizations need to work in coordination to achieve desired urban environment for pedestrians. Taking such steps at present would make safe, secure and convenient rostrum for upcoming MRTS commuters.

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