International Journal of Sustainable Development and Planning
Vol. 19, No. 10, October, 2024, pp. 3737-3747
Journal homepage: http://iieta.org/journals/ijsdp

Multigenerational Urban Design: Creating Urban Spaces That Support Active Aging and Intergenerational Interaction

Sally Adnan Abdulmunem[1], Mufeed Ehsan Shok[2], Zahraa Imad Hussain Al-Hussaini[1], Amer Shakir Alkinani[1*]

[1] Urban and Regional Planning Center for Postgraduate Studies, University of Baghdad, Baghdad 47251, Iraq
[2] Department of Architecture, University of Technology, Baghdad 47251, Iraq

Corresponding Author Email: dr.amerkinani@iurp.uobaghdad.edu.iq

https://doi.org/10.18280/ijsdp.191004

Received: 10 September 2024
Revised: 10 October 2024
Accepted: 15 October 2024
Available online: 30 October 2024

Keywords:
multigenerational urban design, active aging, intergenerational interaction, urban planning, community engagement

ABSTRACT

This demographic shift within cities, specifically in the neighborhood of Al-Adhamiya, in Baghdad City makes it vital to develop public spaces that accommodate a mix of people representative of different age groups, catering to their accessibility and needs. A disadvantage is that however culturally rich the community in this district is, it often lacks an urban fabric to cater to all ages which result in reduced socialisation and physical activities among residents. This research aims to discover the quality of a few existing public spaces in Al-Adhamiya and to find out where are the vulnerabilities which prevent segments of ages from utilizing such sites. We used a mixed-method approach to collect data from 150 residents through surveys and observational analysis. The research is aimed at three specific objectives, which are evaluating the present condition of public spaces and landscape in Bnei Brak: examining community expectations related to aesthetic quality and sense along with recommendations for urban design improvements aimed at specific targeted projects based on priority areas. Our recommendations will solidify social cohesion by reinforcing active aging and intersenior continuity through the urban environment. Residents were most unhappy with public spaces and the availability of activities in them, highlighting a need for more green spaces Residents were most unhappy with public spaces and the availability of activities therein as well as aesthetic value. Results of this study underscore several key areas where there is potential for improvement- e.g., in the maintenance of public rooms, safety measures and inclusive facilities; targeting all age-groups. If realized, these suggestions would make Al-Adhamiya a more open, lively cityscape accommodating greater social interactions and hence enhancing the quality of life for its inhabitants.

1. INTRODUCTION

Urban environments today face significant challenges due to rapid demographic changes, including an aging population and increasing cultural diversity. These shifts necessitate the development of urban spaces that are not only inclusive but also responsive to the needs of different age groups. The Al-Adhamiya district in Baghdad, with its rich historical context, offers a unique case for examining how urban design can facilitate active aging and foster intergenerational interaction.

The core issue addressed in this research is the inadequacy of the current urban infrastructure in Al-Adhamiya to meet the needs of its diverse population. Existing public spaces, which should serve as hubs for community engagement and physical activity, are often underutilized or inaccessible to significant portions of the population, particularly the elderly and those with mobility challenges. This study aims to critically evaluate these spaces, identifying the specific shortcomings that hinder their effectiveness and proposing actionable design improvements that can transform them into vibrant, inclusive areas that support the well-being of all residents.

The objectives of this research are threefold: first, to assess the current state of public spaces in Al-Adhamiya with a focus on their accessibility and suitability for different age groups; second, to understand the community's expectations and needs through a comprehensive survey; and third, to develop targeted recommendations for urban design interventions that enhance social cohesion, inclusivity, and physical activity across generations. By addressing these objectives, the study seeks to contribute to the broader discourse on multigenerational urban design and its role in creating sustainable, resilient urban environments.

2. THEORETICAL FRAMEWORK

2.1 Urban design and planning theories

The theoretical framework initiates with an in-depth review of the fundamentals of urban design and existing planning

theories, concentrating on the evolution of these theories to meet the needs of a demographically changing and diverse society. The focus is placed on theories that advocate for the creation of interactive and inclusive urban spaces across all ages, such as the concepts of "Sustainable Cities" and "Walkable Cities." These paradigms have increasingly emphasized the importance of designing urban environments that not only cater to environmental sustainability but also foster social interactions and physical activity among residents of varying ages [1, 2].

The evolution of urban planning theories reflects a shift towards more human-centric and ecological approaches, recognizing the complex interrelations between urban design, public health, and community wellbeing. For instance, the theory of Sustainable Cities posits that urban design must prioritize environmental conservation, resource efficiency, and adaptability to future conditions [2, 3]. Concurrently, the Walkable Cities theory argues for the necessity of designing urban spaces that encourage walking as a primary mode of transportation, thus promoting physical health and reducing reliance on automobiles [4, 5].

Moreover, these theories underline the significance of creating spaces that are adaptable to the diverse needs of a city's inhabitants, ranging from children to the elderly, thereby enhancing the urban experience for all and fostering a sense of community belonging. The integration of these theoretical perspectives into urban design practices offers a blueprint for developing cities that are not only sustainable but also vibrant, inclusive, and conducive to fostering intergenerational interactions [2, 5].

In summary, current discussions on urban design and planning stress the need for a comprehensive approach that integrates ecological sustainability, social inclusivity, and the encouragement of active lifestyles. By incorporating these principles into urban development, cities can transform into more resilient, equitable, and vibrant environments that effectively meet the changing needs of their populations, as illustrated in Figure 1.

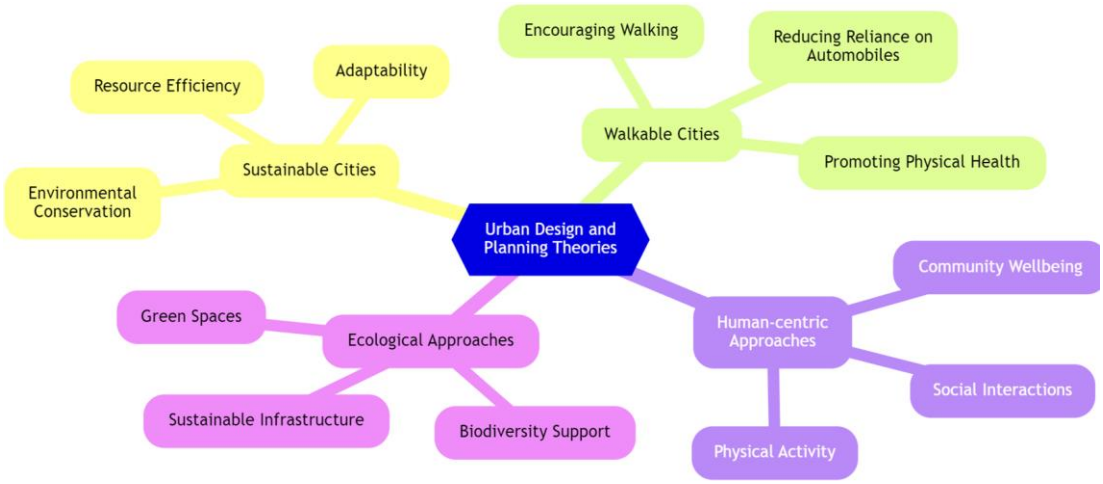

Figure 1. Theoretical framework of multigenerational urban design

2.2 Demographics and population changes

Curiously, recent and future demographic trends present evidence of both global diversity in culture through an increased range of age groupings as well as a remarkable increase in average life expectancy. And these trends are driving the necessity for urban design to move beyond traditional solutions and address society as a whole — multi-generational. The heterogeneity of an aging population, having a larger percentage of older age groups overall than in the past on average will present needed for urban infrastructure-even if adjustments are made to public spaces or transportation and housing so as can bear any deficits from rendered Klapperbein accessible-will be responding differently across inter-generational living — this is also likely lower demand among today stigmatised generations faslend Modified [6]. Furthermore, the growing cultural diversity within urban populations calls for inclusive design strategies that reflect and respect the varied lifestyles, traditions, and preferences of its inhabitants [7].

This demographic evolution necessitates a reevaluation of urban planning paradigms to ensure cities foster an active, engaging, and inclusive environment for all ages. It highlights the need for adaptable public spaces that accommodate a variety of activities and interactions across different age groups and cultural backgrounds. Additionally, these changes emphasize the importance of fostering intergenerational connections and ensuring urban environments promote social cohesion and community resilience [8]. Consequently, urban design must be forward-thinking, incorporating flexible and innovative approaches to meet the dynamic needs of urban populations [3], as shown in Figure 2.

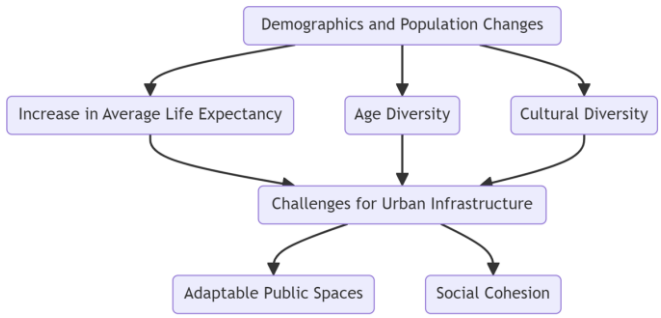

Figure 2. Demographic shifts and urban design implications

2.3 Intergenerational interaction and its social importance

The significance of intergenerational interaction extends beyond mere socialization, playing a pivotal role in social cohesion and the psychological well-being of individuals. Research indicates that public spaces designed to encourage

activities across different age groups can significantly enhance communication and mutual learning between the youth and the elderly [9]. These interactions are not only beneficial for bridging the generational divide but also for fostering a sense of community and belonging among urban residents. Intergenerational programs and spaces that facilitate these interactions contribute to reducing stereotypes and prejudices held between different age groups, thereby promoting more inclusive communities [10].

Furthermore, intergenerational engagement has been shown to offer substantial mental health benefits, including decreased loneliness among older adults and increased empathy and social skills among younger participants [11]. The exchange of knowledge, skills, and experiences between generations can enrich the lives of all involved, providing older generations with a sense of purpose and contribution, while offering younger generations valuable life lessons and wisdom.

In response to these insights, urban designers and planners are urged to develop multifunctional public spaces that facilitate intergenerational activities. These spaces might include community gardens, parks equipped with age-appropriate exercise gear, and interactive art installations. Such environments not only promote intergenerational learning and interaction but also enhance the physical and psychological health of the community. This underscores the vital role of strategic urban design in boosting social cohesion and overall well-being [12], as depicted in Figure 3.

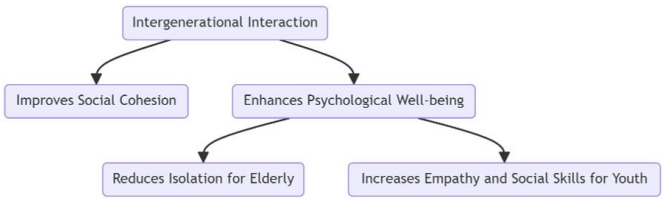

Figure 3. Intergenerational interaction in public spaces

2.4 Public design of active aging and its impact on urban planning

Given that many cities around the world are advocating for all-ages-friendly cities, active aging has a special place in contemporary urban design. Active aging is a concept that recognizes the importance of health, participation and security in the context of population aging, which allows people to continue living independently and contributing to society while enhancing their quality of life. An age-friendly community that promotes active aging includes an environment that enables older adults to be more physically and socially active. Design features allowing public spaces to be used, pedestrian friendly streets, green areas of varying abilities quests may reflect a key desired in creating the most effective configurations for active-aging processes that affect older people's movement and social interaction that grounds their well-being [13].

In addition, the goals of an age-friendly city and healthy aging parallel those of active ageing. Urban environments envisioned for active aging not only make the golden years happier while encourage more interaction between age groups. Parks, Community centers and other recreational spaces act as hubs where the programming caters to all age levels resulting in inter-generational learning and experiences which can, in turn, develop social cohesiveness [14].

Including active aging principles in urban planning is an important way to make our cities both sustainable and truly socially inclusive. Cities have the opportunity to shape places and programs that will enable their future older adult populations to live out their active, healthy, engaged years there as well - fostering intergenerational bonds instead of divides [15].

2.5 Urban design principles and benefits for social isolation and intergenerational encounters

Urban design literatures in the last decade are placing greater emphasis on how spaces can be designed to enabling active ageing and intergenerational interactions. Focusing on Accessibility, Inclusivity, and Physical Activity through Design Key principles include: Creating an inclusive hub in communities that encourages physical activity by improving access to walking, and jogging well-lit pathways. Healthy aging can be promoted through urban planning and by creating spaces more walkable, and safe for pedestrians, with both recreational facilities together that would benefit the physical and psychological health of older individuals [13]. The spaces, if designed to accommodate all age groups, provide an opportunity for intergenerational social interaction and hence potentially support shared experiences between older and younger people [13].

These designs have proven to be beneficial. A study has found that well-designed urban spaces could reduce social isolation and promote mental health in older people as well as support healthy behaviours, such as physical activity which is essential to deteriorate chronic diseases [16]. In addition, as it offers an exchange across different generations, the interaction by means of shared physical space is able to weaken age-based prejudices, promote social integration and instigate empathy for varying age groups [17].

2.6 Design challenges: urban spaces for active aging and intergenerational interaction

While the advantages of creating urban places which can realize the goals of active aging and intergenerational interaction are clear, as an architect it is daunting to even consider this. Ensuring accessibility to all Ages, understanding that the silos holding traditional modes are actually competing for the same exact space, and fighting for your value behind tech brands who have gnarly deep pockets. Moreover, the financial burden and logistical challenges associated with sustaining such spaces continually are a disadvantage for cities that lack adequate resources [15].

For example, Copenhagen and Singapore have both pioneered age-friendly initiatives through innovative urban design to some extent, which has included public transportation systems that facilitate active ageing and intergenerational relationships such as green spaces and pedestrian zones among others [14]. Here are some lessons for urban planners in making public spaces inclusive and sustainable.

2.7 Physical activity and active aging

Regular physical activity is associated with health benefits across the life course; however, the extent to which achieving a recommended dose of physical activity works as an effective intervention for improving overall health and wellbeing remains debatable. Regular physical activity is associated with

multiple health benefits, including reduction in chronic disease risk and improvement in mental health as well as musculoskeletal function and in life expectancy; the benefit has been shown to accrue at even low levels of activity [18]. Urban design plays a pivotal role in encouraging active lifestyles by providing accessible and safe public spaces for individuals of all ages.

Urban planning strategies that favour pedestrian facilities including wide sidewalks, pedestrianized zones and safe crossings in conjunction with green spaces such as parks and community gardens are central to urban resident physical activity promotion [19]. In addition, the provision of recreational spaces and open air fitness facilities in public realm can appeal to a range of physical activities that meet the needs of various age groups and functional capabilities, thereby promoting active aging at community level [17].

These urban features not only facilitate physical activity but also create opportunities for enhanced social interactions and connectivity, which are crucial for the holistic health of individuals. Therefore, urban planning and design should prioritize healthy aging by supporting health throughout the life course, thereby helping to sustain quality of life across all age groups over time, as illustrated in Figure 4.

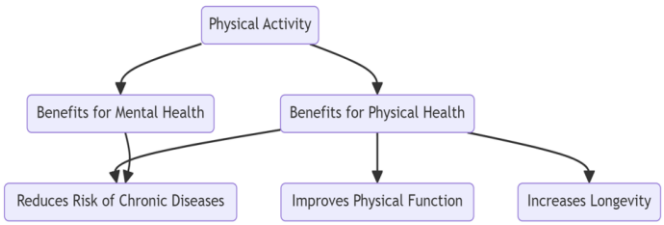

Figure 4. Urban features promoting active aging

2.8 Sustainability and urban design for cities

Sustainability goals include the emphasis on creating multigenerational urban design, i.e., resource efficiency, car less transportation to biodiversity in cities. Planned urban planning, is one of the focuses on all ages, including the sustainable mobility activities that are beneficial for individual health and prevention factors that reduce carbon emissions through reduced travel [20]. Furthermore, incorporating green spaces and biodiversity into urban areas contributes to the ecological health of the city, providing habitat for local wildlife and improving air quality [21].

The practical rules of flexible design are also essential, within the framework of urban planning. A building that can be re-used, adapted and changed over time to meet changing uses in the community. For example, play areas for kids can be versatile community hubs that unite members of different generations with a place to socialize [22]. By integrating such versatile and adaptive design principles, cities can become more resilient, ensuring they can withstand and adapt to future environmental and social changes [23].

In essence, sustainable urban design necessitates a holistic approach that considers the long-term implications of development on the environment and society. By fostering a built environment that supports the well-being of its inhabitants across all generations, cities can move towards a more sustainable and inclusive future.

2.9 Information technology and urban design

Although the use of new information technologies, such as Augmented Reality (AR) and Geographic Information Systems (GIS), has recently gained importance in urban design, this paper is the first to show the long-complimented effectiveness of these technologies towards improving the experience in public spaces in cities as well as intergenerational interaction. In doing so, they provide urban planners and designers with new ways to reconceptualize the form and structure of cityscapes, in turn promoting liveable and vibrant public realms.

For example, AR can superimpose digital information on top of the physical landscape, creating new ways for residents and visitors to engage with their surroundings. AR applications for public space and the visualization of historical data, cultural narratives and capacity to show what a site could look like in terms of future development plans is an area that can greatly improve community benefits — both in improving educational as well as recreational value [24]. This immersive interface can bridge generational gaps, enabling a shared spatial experience that is both informative and entertaining.

Likewise, Geographic Information Systems (GIS) are an effective tool for the planning of urban settlements due to the ability to analyze spatial data, model processes and simulate future events. It helps spatially informed and comprehensive evaluation of urban designs to optimize land use, greenery space, and public amenities [25]. Through accessibility and intelligibility of complex spatial data, GIS provides the means for communities to genuinely take part in urban design decisions towards a more democratic as well an integrative process of city development.

Integration of AR and GIS in Urban Design is more than just improving the aesthetic or functional quality of public spaces- it helps to reengage users back into urban environments, enhancing social coherence through participation across vast divergent user groups. The ability to change a static, inert place into an alive and accessible space makes them more relevant than ever in the current discussion around urban design.

2.10 Summary of the theoretical framework: key primary and secondary indicators

The theoretical framework of Multigenerational Urban Design posits that urban space design should be dynamic and responsive, adapting to the diversity and changing characteristics of the population. This involves integrating key principles from various fields including urban planning theories, demographics, intergenerational interaction, physical activity, sustainability, and information technology integration. Table 1 provides a summary of the primary and secondary indicators identified from this theoretical framework.

This encapsulation of the theoretical framework highlights the multifaceted approach necessary for developing urban environments that are sustainable, inclusive, and capable of supporting active and engaged communities across all generations. The integration of technologies such as AR and GIS further underscores the potential for enhancing urban experiences, fostering greater social cohesion, and enabling more democratic participation in urban design processes.

Table 1. Summarizes the primary and secondary indicators extracted from the theoretical framework

Indicator Type	Urban Design and Planning Theories	Demographics and Population Changes	Intergenerational Interaction	Physical Activity and Active Aging	Sustainability and Urban Design	Information Technology and Urban Design
Primary indicators	Sustainable Cities, Walkable Cities, Human-centric and ecological approaches	Increase in average life expectancy, Diversification in terms of age and culture	Social cohesion, Psychological well-being	Health benefits, Reduction of chronic diseases	Resource efficiency, Support for biodiversity	Integration of AR and GIS
Secondary indicators	Environmental sustainability, Social interactions, Physical activity	Adaptable public spaces, Intergenerational connections	Community gardens, Parks, Interactive art installations	Pedestrian-friendly infrastructure, Green spaces	Flexible design, Adaptable infrastructure	Enhancement of public spaces, Democratic urban design process

3. RESEARCH METHODOLOGY

This research aims to explore the principles of multi-generational urban design in the Al-Adhamiya district of Baghdad, focusing on creating urban spaces that promote active aging and intergenerational interaction. The methodology is structured to provide a comprehensive analysis of the current urban environment, assess the needs and expectations of the community, and develop actionable recommendations for urban design improvements.

3.1 Research design

The research employs a mixed-methods approach, combining quantitative and qualitative data collection and analysis. This approach ensures a thorough understanding of both the statistical and experiential aspects of the study area.

3.2 Study area

The selected study area is the Al-Adhamiya district, specifically residential blocks 304 and 306. This area is characterized by diverse land uses, including residential, educational, commercial, recreational, healthcare, and religious facilities, making it an ideal setting for examining multi-generational urban design principles.

3.3 Data collection methods

3.3.1 Surveys

Instrument: A structured questionnaire based on the Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) will be used to gather data on residents' perceptions and satisfaction with current urban spaces (Table 2).

Distribution: Surveys will be distributed both physically (door-to-door) and electronically (via email and social media platforms) to ensure broad participation.

Sample Size: A minimum of 150 residents will be surveyed to achieve statistical significance.

Content: The survey will cover demographic information, assessment of current urban spaces, social interaction, needs and expectations, and overall satisfaction.

Table 2. Resident perceptions of the urban environment in Al-Adhamiya

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Urban Environment Assessment					
The quality of public spaces in my area is high.					
There is a need for more green spaces in my area.					
Public spaces are accessible to everyone and meet the needs of all age groups.					
There are adequate facilities for physical activities in my area.					
Social Interaction					
I feel like I am part of the local community in my area.					
There are sufficient opportunities for social interaction with neighbors.					
Shared social activities help enhance intergenerational interaction.					
I am satisfied with the level of social interaction in my area.					
Needs and Expectations					
My area lacks certain services that I need.					
I would like to see more cultural and artistic activities in my area.					
The infrastructure in my area needs significant improvements.					
I support the development of interactive spaces that enhance intergenerational communication.					
Resident Satisfaction					
I am satisfied with the quality of life in my area.					
The services available in my area meet my daily needs.					
I feel safe and comfortable in my area.					
I would like to see improvements in the urban environment in my area.					

3.3.2 Justification of sample size

We determined a sample size of 150 residents taking into account both practical and statistical considerations. This is a reasonably representative sample size of the population diversity in the Al-Adhamiya district taking into account available resources and detail needed as an outcome. Recently, social research standards have suggested that sampling 150 can offer acceptable reliability; thereby lending an approximate 7-8% margin of error (at a confidence level of 95%), which appears suitable for surveys intended to be exploratory [26]. A random sampling method was applied to prevent selection bias and represent the cross-section of all ages, both males and females, as well as all income levels. While the sample size may be limited in how well it captures all facets of diversity, what it offers at this moment importantly represents data around community perceptions and needs. To improve generalizability of the results, increasing the sample size or using a stratified sampling technique in future studies would be beneficial.

3.3.3 Description of the study area: Al-Adhamiya district

The Al-Adhamiya district, located in the northeastern part of Baghdad on the eastern side of the Tigris River, serves as the chosen study area for this research. Known for its rich historical and cultural heritage, Al-Adhamiya provides a diverse urban fabric that is ideal for examining the principles of multi-generational urban design aimed at promoting active aging and intergenerational interaction (Figure 5).

Geographical Boundaries

The study area encompasses the following neighborhoods:

West: Al-Maghrib neighborhood

South: Al-Waziriya neighborhood

North: Al-Kasra neighborhood

East: Adjacent to the Tigris River

Specifically, the study focuses on the residential blocks 304 and 306, covering a total area of approximately 22,156 hectares. These blocks exhibit a variety of land uses, including residential, educational, commercial, recreational, healthcare, and religious facilities.

3.3.4 Explanations for land use distribution data

The district Table 3 shows the distribution area of used land and the most important residential settlements which dominate the urban side as a proportion (57.6%) from total area, it continues reading. This relatively high percentage further emphasizes the need for proper infrastructure in the district, which informs urban design that should improve quality of life for its residents. The smaller percentages dedicated to businesses, sports and recreational organizations, and retirement buildings suggest opportunities for growth, especially in community centers and open areas to facilitate active aging and multi-generational contact.

This data is complemented by Figure 6, which graphically illustrates the land use distribution in the district. It portrays the distribution of land uses across the city and where policy interventions might be placed, e.g., increasing recreational areas or healthcare centers/walking-distance-communities. This knowledge is important when making decisions concerning urban planning that take into account the interests of diverse groups across generations and development perspectives.

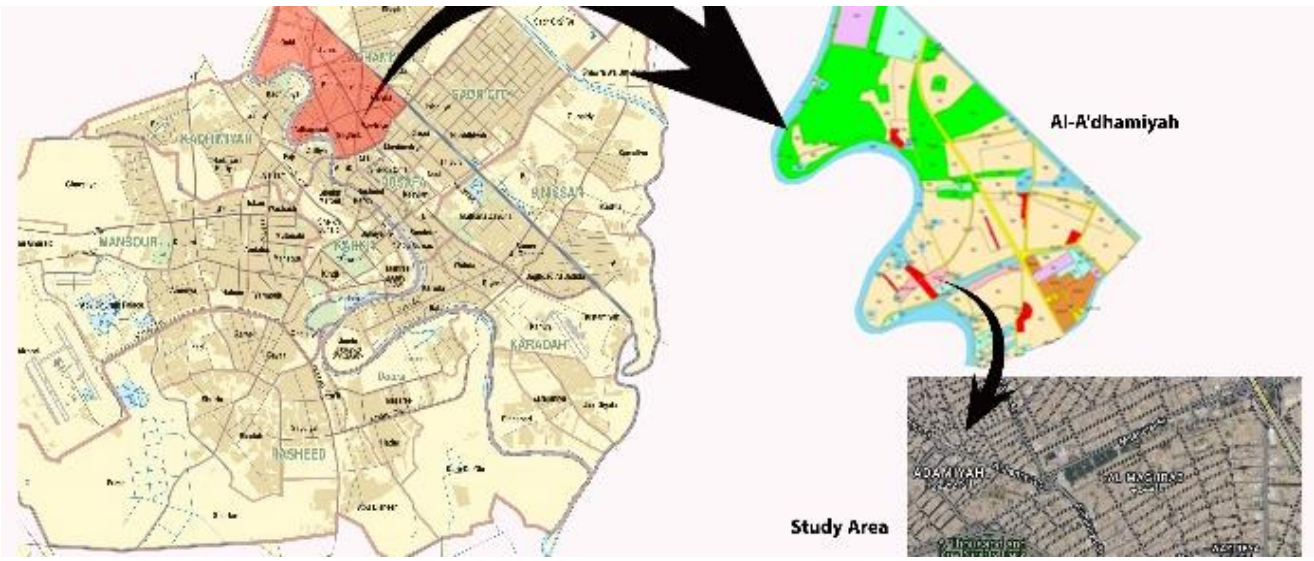

Figure 5. Location of the study area in relation to Baghdad City

Table 3. Land use distribution in Al-Adhamiya district

Land Use Type	Percentage of Total Area	Description
Residential	57.6%	Includes various housing types catering to different socio-economic groups.
Educational	9.4%	Kindergartens, primary, secondary schools, and higher education institutions.
Commercial	3.2%	Spread along main streets, providing essential services and economic activities.
Recreational	-	Green spaces and sports clubs, promoting physical activities and social interaction.
Healthcare	-	Health centers and hospitals, providing medical services to the community.
Religious	0.5%	Mosques and other religious facilities, playing a significant role in the community's social fabric.

Figure 6. Land use plan for the study area
Source: Google Maps, modified by the researchers

3.3.5 Socio-economic characteristics

The Al-Adhamiya district is characterized by its socio-economic diversity, making it a microcosm of Baghdad's broader urban environment. This diversity provides a rich context for examining how urban design can cater to the needs of various demographic groups, from children to the elderly.

3.4 Relevance to multi-generational urban design

The selection of Al-Adhamiya as the study area is particularly relevant to the research on multi-generational urban design for the following reasons:

-The mixed-use nature of the area supports the development of integrated urban spaces that can serve multiple functions and cater to different age groups.

-These areas can be enhanced to promote active aging and intergenerational activities, aligning with the goals of the research.

-The presence of numerous educational and healthcare facilities offers opportunities to develop programs and services that support intergenerational engagement and healthy aging.

-The varied socio-economic background of the residents allows for a comprehensive analysis of how different segments of the population interact with urban spaces and the potential benefits of multi-generational design.

4. FINDINGS

The analysis of the survey data reveals several key insights into the perceptions of residents in the Al-Adhamiya district regarding their urban environment. The findings are supported by descriptive statistics, T-test results, and correlation analysis, providing a comprehensive understanding of how different demographic groups perceive their urban surroundings.

4.1 Descriptive statistics by age group and gender

The descriptive statistics (Table 4) highlight significant variations in perceptions based on age and gender. For instance, younger residents rated the quality of public spaces at an average of 2.31, compared to 2.24 for females and 2.37 for males. Similarly, satisfaction with community interaction scored 2.36 among younger residents, while females rated it slightly higher at 2.43 compared to 2.29 among males.

These differences suggest that younger residents and females may have slightly different priorities or expectations from their urban environment compared to their counterparts.

4.2 Gender-based differences: T-test results

The T-test results indicate that there were no statistically significant differences between males and females in their responses to most survey questions. All p-values were greater than 0.05, indicating no strong evidence of gender-based differences in urban satisfaction. This uniformity suggests that gender may not be a major factor influencing overall satisfaction levels in this context (detailed T-test results are omitted due to a lack of significant findings).

4.3 Correlation analysis for the "Young" group

The correlation analysis (Table 5) for the "Young" group reveals important interrelationships between different aspects of urban satisfaction. Notably, there is a strong correlation ($r = 0.67$) between the accessibility of public spaces and the desire for improvements in the urban environment. Additionally, the quality of public spaces is moderately correlated ($r = 0.52$) with a sense of safety and comfort, indicating that enhancements in public space quality could positively influence residents' feelings of security.

Table 4. Descriptive statistics by age group and gender

Category	Quality of Public Spaces	Need for Green Spaces	Community Interaction	Satisfaction with Physical Activity Facilities
Young	2.31	2.28	2.36	2.30
Female	2.24	2.29	2.43	2.21
Male	2.37	2.27	2.29	2.39

Table 5. Correlation matrix for "Young" group

	Quality of Public Spaces	Accessibility of Public Spaces	Community Interaction	Safety and Comfort
Quality of Public Spaces	1.00	0.56	0.50	0.52
Accessibility of Public Spaces	0.56	1.00	0.57	0.57
Community Interaction	0.50	0.57	1.00	0.52
Safety and Comfort	0.52	0.57	0.52	1.00

The results accentuate the reliance of all urban satisfaction factors on each other and emphasise an integrated approach, by which different features simultaneously are incorporated into planning and design considerations when shaping livable cities.

On the whole, this suggests that although age and gender do play a role in various perceptions of urban satisfaction by there is quite a lot similarity with these aspects. Coupling of city satisfaction domains, in particular among younger residents seen here suggests that efficient urban planning is important and it has to be holistic addressing several needs simultaneously. They can be powerful for improving public spaces, and thus human interactions in community settings could benefit to security or satisfaction.

5. RESULTS

The survey results provide a detailed understanding of the opinions and tendencies of the respondents in the Al-Adhamiya district, segmented by age group and gender. This section delves into the specific responses from different demographic groups, supported by statistical analysis and relevant data.

5.1 Opinions by age group

The analysis of the survey responses revealed distinct preferences and concerns across age groups. As shown in Table 6, younger respondents (classified as "Young") generally rated the quality of public spaces and community interaction lower than their older counterparts. Specifically, 45% of the younger respondents rated the quality of public spaces as either "poor" or "very poor," compared to 40% among the older group. This indicates a more critical view of the urban environment among younger residents, who might be more attuned to contemporary urban standards.

Older respondents, in contrast, tended to have slightly more positive views on these aspects, with 60% expressing satisfaction with community interaction compared to 57% among younger respondents. This suggests that older residents may have a more established sense of community and may be less critical of the existing public infrastructure.

5.2 Opinions by gender

Gender differences in the survey responses were generally modest but notable in certain areas, as detailed in Table 7. Women rated the adequacy of facilities for physical activities lower than men, with a mean score of 2.21 compared to 2.39 among men. Furthermore, 48% of female respondents expressed dissatisfaction with the availability of social interaction opportunities, compared to 40% of male respondents.

In contrast, women reported a slightly higher satisfaction with safety and comfort, with 39% expressing dissatisfaction compared to 42% of men. This suggests that while women might feel less satisfied with certain facilities, they perceive their overall safety and comfort within the community more positively than men.

Table 6. Opinions by age group

Opinion Area	Young (Mean Score)	Older (Mean Score)	% of Young Rating as Poor/Very Poor	% of Older Rating as Poor/Very Poor
Quality of Public Spaces	2.31	2.45	45%	40%
Need for More Green Spaces	2.28	2.34	38%	36%
Accessibility of Public Spaces	2.31	2.41	42%	35%
Community Interaction	2.36	2.48	40%	37%
Safety and Comfort	2.29	2.35	43%	39%

Table 7. Opinions by gender

Opinion Area	Female (Mean Score)	Male (Mean Score)	% of Females Dissatisfied	% of Males Dissatisfied
Quality of Public Spaces	2.24	2.37	44%	41%
Need for More Green Spaces	2.29	2.27	37%	36%
Adequacy of Physical Activity Facilities	2.21	2.39	50%	42%
Opportunities for Social Interaction	2.21	2.44	48%	40%
Satisfaction with Safety and Comfort	2.36	2.23	39%	42%

5.3 Correlation of opinions across demographics

Correlation analysis across different demographics revealed how certain factors are interrelated. For example, among younger respondents, there is a significant positive correlation ($r = 0.67$) between the accessibility of public spaces and the desire for urban improvements (Table 8). This suggests that as young residents perceive public spaces as more accessible, their expectations for further urban enhancements also increase.

Table 8. Selected correlations in the "Young" group

Correlated Factors	Correlation Coefficient (r)
Quality of Public Spaces vs. Safety and Comfort	0.52
Accessibility vs. Community Interaction	0.57
Accessibility vs. Desire for Urban Improvements	0.67

This analysis underscores the complex interplay between various aspects of urban satisfaction, particularly among younger residents, where improvements in one area may lead to higher expectations in another.

The survey results show that respondents from different social groups perceive the urban environment in rather individual ways, but at least for spaces and physical activity a lot of common concerns are visible. The findings resulting from the correlation analysis indicate that to improve residents' life satisfaction, urban planners should apply an interdisciplinary approach in all key areas of well-being.

6. DISCUSSION

The study can lead to several insights in terms of understanding urban satisfaction in different demographic groups within a specific district of Al-Adhamiya. Discussion will include what these results mean for urban planning and policy-making along with consideration of similarities and differences in opinion across age and by gender.

6.1 Implications for urban planning

Younger residents are generally somewhat more negative in terms of the quality of public spaces and opportunities for social interactions, which is reflected with lower mean scores. It may also be related to rising aspirations in modern cityscapes, which are becoming more interactive, greener and user-friendly. People of the younger generation, generally more mobile and in tune with global urban life styles could make a comparison between their local environment and other cities or regions. This underscores the necessity for urban planners, to create more open, adaptive public spaces that suit a broad range of needs and demands from younger demographics.

Older residents, by contrast, registered marginally greater levels of satisfaction, especially in community and safety-related areas. This might imply that older populations, while vocal about deteriorating infrastructure may find more satisfaction in relationships and a feeling of familiarity with their environment. Urban policies that would have focused on the improvement of these existing social infrastructures might go a long way to consolidate this feeling of well-being among older citizens too, as seen in the preservation of community centers or regular neighborhood events.

6.2 Gender differences and urban equity

Although statistically insignificant, the differences in levels of satisfaction between male and female respondents point to more subtle gender disparities in urban satisfaction. The lower satisfaction perceived by women specifically on the facilities related to physical activities and opportunities for social interaction could indicate that current urban designs are not enough to fulfill their needs. This may indicate more general issues of gender equity in urban planning, where spaces are unknowingly designed with a bias for men.

It suggests that urban planners should strive towards a gender-sensitive approach — one which promotes public spaces that are safe, accessible and inviting for women. It means: decent lighting so these public spaces are not a hotbed of darkness, recreational facilities that welcome all bodies and genders, design and agonising over how to have convening be safe for all genres. This process of planning, which hopefully has many women's voices as part of it, can also go further toward building community environments that are inclusive and work for all their citizens.

6.3 Interconnectedness of urban satisfaction factors

The correlates analysis further highlights how factors of urban satisfaction are all very interrelated, especially among the younger age group. The widespread nature of the relationship between access to public areas and additional urban change that have 1 standing enhances buildings suggests that once an aspect of the city has been improved it makes other improvements in the environment more desired. Doing so echoes the idea of "urban spillover effects," where urban territorial improvements for infrastructures generate higher quality demands within other parts of the city.

This web of interconnectivity offers a labyrinth of both challenges and opportunities for urban planners. For example, it requires a system approach to urban improvement where improvements occur in concert across many dimensions of living so that people find consistent satisfaction. Conversely, it allows for potential synergies whereby focused interventions on improving the accessibility of public space, for example, might be conducive to delivering complementary outcomes in terms of safety, comfort and social interaction.

6.4 Policy recommendations

The observations of the study can be translated into a set of policy recommendations. One, there is an obvious demand to create more playgrounds and parks for people as young as tiny tots or as old as our grand mums. These spaces are intended to function as social spaces within a neighborhood, advocating physical activity in addition to community engagement and meeting a variety of needs of the demographic. Next, at every development stage of urban planning practices there should be a gender lens to make the public places equitable and inclusive. Urban planners, finally, should take a comprehensive view of urban satisfaction factors in the city which are linked to another element whereby improving one aspect should not by itself make worse other factor.

The conversation demonstrates the importance of taking different demographic groups living in a city into account since needs and perceptions can vary significantly between them when it comes to planning and designing urban spaces. Countering the problems in this article means playing to the strengths of Al-Adhamiya-agility and innovation, increased gender equity, as well as a realization that issues of safety and social connection also manifest themselves in public space, amongst many others — in order to create more inclusive spaces so we can all thrive as urban dwellers. This research offers a basis for more and related cases studies to conduct urban developments in similar facons.

6.5 Promote active aging and intergenerational interaction with urban design

Urban design interventions such as making multifunctional spaces, promoting gender equity and encouraging community interaction provide support for active aging and intergenerational engagement. For instance, multifunctional spaces support older individuals to undertake physical activities whilst also devoting areas for the younger

generations to convene. Community gardens or exercise programs that cater to different age groups can certainly serve as spaces that enable physical health among the elderly and intergenerational activities alike.

Urban designs promoting gender equity also correspond to active aging measures. This increases the gender inclusivity of city amenities, by making it safer and more comfortable for older women to use public open spaces without any fear. This inclusivity is paramount when it comes to giving older adults, particularly women, a sense of autonomy and agency in participation in their communities that keeps them both physically and socially active.

Creating Spaces, Places through Community Hubs, and Regular Events: Building community interaction as a cultural norm helps for intergenerational interaction shared experiences. Such activities — also serving spaces for broader community engagement, say through cultural or intergenerational festivals and workshops — help bridge the divide both ways, leading to better understanding between generations, contributing overall to comprehensive social lives. These projects are helping to reduce social isolation and loneliness for older adults as well as teaching younger generations lessons they can only learn from their elders.

In doing so, the strategies developed and integrated in urban design could ensure that opportunities to promote active ageing are maximised and intergenerational engagement is facilitated, effectively enabling physical accessibility while nurturing social integration across generations.

7. RECOMMENDATIONS

Thus, based on the analysis of survey data and the detailed findings, some critical recommendations are made to improve urban satisfaction in Al-Adhamiya district that responds effectively to the individual needs of different demographic groups:

7.1 Quality, publicly accessible open space

Multi-Functional Spaces - Urban plannings need to act in on creating real multi-functional public spaces. These redundant spaces need to be flexible to suit formal and informal activities, including relaxation, social interaction, exercise and cultural events. Green Spaces, Seating and Play Areas to Cater for Various Age Groups.

Enhance Accessibility - This approach has potential importance because the young people in the cast highlighted that they were not satisfied with how currently public spaces are accessible to all. A high priority should be placed on making all public spaces universally accessible to individuals of every age and ability, but particularly on creating walkable, pedestrian-friendly places.

7.2 Create programs that encourage gender equity in urban design

Introduce Gender-Lens Planning: Development of Cities should adopt gender-lens principle to cater to the needs of both males and females. This includes the design of public spaces to make them safe and inviting places with amenities such as appropriate lighting, sightlines, and security apparatus throughout. Furthermore, recreational facilities should be inclusive in design, so the first creation equivalence opportunity to enjoy physical activities and socialising for men and women.

Incorporate Women in Planning Processes: It is important to engage women in urban planning and decision making. Their perspectives can inform public spaces that are responsive to the experiences of women, allowing for more inclusive urban systems.

7.3 Enhance civic engagement and social infrastructure

Develop Community Hubs: Building community hubs or dedicated centers where residents can meet and interact socially will strengthen the bond among residents, making them feel more at home. The hub should include different programs and activities that promote the interaction between generations, exchange of cultures, community service.

Regular Events: Just like planned events — local festivals, markets or weekly group that meets, regular activities create tradition within a community. This could take many forms from ensuring that the district offers something for all age groups and creates opportunities for people of different cultural backgrounds to interact benefitting social cohesion across the region.

7.4 Adopt an integrated perspective on urban improvement

Urban Infrastructure Improvement: Due to the high degree of connectedness among different aspects related to urban well-being, urban planners need to change their perspective from engineering and social factoring only, such as housing, commerce, industry, health facilities, etc. For example, enhancements of a public space should be in concert with upgrades and renovation to safety, infrastructure, or recreational facilities to achieve a harmonious mix in growing community satisfaction.

Utilize Technology for Urban Planning: Use of GIS and other digital platforms can improve connectivity between demographics, and even facilitate responses which accommodate the needs of diverse group. You can use these tools to predict the downstream consequences of proposed changes — making urban improvements more sustainable and attack-proof.

7.5 Promote practices that contribute to sustainable development

More Parks: In addition to the quality of nature over there environment which helps people when they need to relax, hanging out with outdoor activities. The green corridors can provide walkability networks connecting different parts of the district and further reduce our reliance on automobiles.

Environmental Sustainability: Resource efficient land use, and biodiversity and resilience considerations into urban development. It involves the use of sustainable materials in building, energy-efficient facilities, and maintaining some natural habitats found in urban regions.

If implemented, these recommendations can make the Al-Adhamiya district a more integrated, equitable and livable urban space catering to an array of its residents. They focus on improving general wellbeing, strengthening social ties and making sure everyone feels that their community values and helps them.

REFERENCES

[1] Cieszewska, A. (2000). Green urbanism: Learning from European cities. Landscape and Urban Planning, 51(1): 64-65. https://doi.org/10.1016/S0169-2046(00)00074-8

[2] Jones, P., Loo, B.P.Y., Zhao, P. (2022). Cities for people: Reclaiming the city. Journal of Transport Geography, 105: 103486. https://doi.org/10.1016/j.jtrangeo.2022.103486

[3] Ebraheem, M.A., Shakier, A., Hasan, S.A. (2018). Evaluating the part of historical center in Baghdad City. International Journal of Civil Engineering and Technology, 9(11): 1286-1302.

[4] Salman, M.D., Alkinani, A.S. (2023). Preserving the past and building the future: A sustainable urban plan for Mosul, Iraq. ISVS E-Journal, 10(6): 332-350.

[5] Speck, J. (2018). Walkable City Rules. Island Press/Center for Resource Economics.

[6] United Nations. (2019). Department of Economic and Social Affairs, Population Division. In World Population Ageing 2019: Highlights (ST/ESA/SER.A/430). https://www.un.org/development/desa/pd/content/world-population-ageing-2019-highlights.

[7] Vergara-Perucich, F. (2019). Richard Florida: The new urban crisis: How our cities are increasing inequality, deepening segregation, and failing the middle class—and what we can do about it. Journal of Housing and the Built Environment, 34(2): 647-649. https://doi.org/10.1007/s10901-018-9632-3

[8] Rowe, J.W., Kahn, R.L. (1997). Successful aging. The Gerontologist, 37(4): 433-440. https://doi.org/10.1093/geront/37.4.433

[9] Dalby, S. (2007). Anthropocene geopolitics: Globalisation, empire, environment and critique. Geography Compass, 1(1): 103-118. https://doi.org/10.1111/j.1749-8198.2007.00007.x

[10] Hanes, N., Wikström, M., Wångmar, E. (2012). Municipal preferences for state-imposed amalgamations: An empirical study based on the Swedish municipal reform of 1952. Urban Studies, 49(12): 2733-2750. https://doi.org/10.1177/0042098011429488

[11] Ueangchokchai, C., Limsangouan, N., Merakate, J. (2024). The results of the intergenerational relationship program and creation of new meaning in the Thai community context: A case study of Ban Na, Nakhon Nayok Province. Higher Education Studies, 14(1): 76-88. https://doi.org/10.5539/hes.v14n1p76

[12] Peters, K., Elands, B., Buijs, A. (2010). Social interactions in urban parks: Stimulating social cohesion? Urban Forestry & Urban Greening, 9(2): 93-100. https://doi.org/10.1016/j.ufug.2009.11.003

[13] Beard, J.R., Petitot, C. (2010). Ageing and urbanization: Can cities be designed to foster active ageing? Public Health Reviews, 32(2): 427-450. https://doi.org/10.1007/BF03391610

[14] Buffel, T., Phillipson, C., scharf, T. (2012). Ageing in urban environments: Developing 'age-friendly' cities. Critical Social Policy, 32(4): 597-617. https://doi.org/10.1177/0261018311430457

[15] Plouffe, L., Kalache, A. (2010). Towards global age-friendly cities: Determining urban features that promote active aging. Journal of Urban Health, 87(5): 733-739. https://doi.org/10.1007/s11524-010-9466-0

[16] Høyer-Kruse, J., Schmidt, E.B., Hansen, A.F., Pedersen, M.R.L. (2024). The interplay between social environment and opportunities for physical activity within the built environment: A scoping review. BMC Public Health, 24(1): 2361. https://doi.org/10.1186/s12889-024-19733-x

[17] Barnett, A., Sit, C.H.P., Mellecker, R.R., Cerin, E. (2019). Associations of socio-demographic, perceived environmental, social and psychological factors with active travel in Hong Kong adolescents: The iHealt(H) cross-sectional study. Journal of Transport & Health, 12: 336-348. https://doi.org/10.1016/j.jth.2018.08.002

[18] Warburton, D.E.R. (2006). Health benefits of physical activity: The evidence. Canadian Medical Association Journal, 174(6): 801-809. https://doi.org/10.1503/cmaj.051351

[19] Frank, L.D., Engelke, P.O., Schmid, T.L. (2003). Health and Community Design: The Impact of the Built Environment on Physical Activity. Island Press.

[20] Panlasigui, S., Spotswood, E., Beller, E., Grossinger, R. (2021). Biophilia beyond the building: Applying the tools of urban biodiversity planning to create biophilic cities. Sustainability, 13(5): 2450. https://doi.org/10.3390/su13052450

[21] Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kaźmierczak, A., Niemela, J., James, P. (2007). Promoting ecosystem and human health in urban areas using green infrastructure: A literature review. Landscape and Urban Planning, 81(3): 167-178. https://doi.org/10.1016/j.landurbplan.2007.02.001

[22] McLellan, R.K., Borak, J. (2005). Urban sprawl and public health: Designing, planning and building healthy communities. Journal of Occupational and Environmental Medicine, 47(7): 750-751. https://doi.org/10.1097/01.jom.0000163117.00271.c4

[23] Abid, E.H., Alkinani, A.S., Abudlmunim, S.A. (2020). The compact city and urban image of the traditional city center. IOP Conference Series: Materials Science and Engineering, 737(1): 012236. https://doi.org/10.1088/1757-899X/737/1/012236

[24] Ouchra, H., Belangour, A., Erraissi, A. (2022). Satellite data analysis and geographic information system for urban planning: A systematic review. In 2022 International Conference on Data Analytics for Business and Industry (ICDABI), Sakhir, Bahrain, pp. 558-564. https://doi.org/10.1109/ICDABI56818.2022.10041487

[25] Zheng, N. (2019). New possible applications of the augmented-reality in urban design. IOP Conference Series: Earth and Environmental Science, 267(5): 052007. https://doi.org/10.1088/1755-1315/267/5/052007

[26] Taherdoost, H. (2016). Sampling methods in research methodology; How to choose a sampling technique for research. International Journal of Academic Research in Management, 5(2): 18-27.