

The Vertical Shift: A Comparative Socio-Spatial Analysis of Social Well-Being in Al-Zuhur and Bismayah Complexes



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ABSTRACT

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This study examines how spatial design in vertical housing complexes relates to residents' social quality of life in Baghdad. The study analyses two case studies of the Al-Zuhur and Bismayah housing complexes in Baghdad (N = 400 households, with in-depth interviews, focus group discussions, and observations) using a mixed-methods approach to apply a multi-level socio-spatial model linking macro-scale housing policies, meso-scale spatial design, and micro-scale social practices. We found that while Al-Zuhur outperforms Bismayah in the social quality of life indicators of social interaction, participation, and spatial belonging, it is lower in community security. Path analysis and clustering analysis indicate that spatial gradation between public, semi-public, and private zones, as well as the scale of resident participation, are important intermediary variables associated with the spatial design–social life nexus. The study proposes design and governance principles for future high-rise housing in Baghdad and elsewhere that can help create an environment that supports privacy, sociability, social capital, and more inclusive and resilient communities.

1. INTRODUCTION

The verticalization of housing in Baghdad is not limited to architectural transformation; it also transforms social relations, lifestyles, and quality of life in the city. As residential towers gain prominence, the societal relations, daily routines, and cultural identities are being transformed in the new areas. In order to examine this complex, it requires a multi-dimensional approach that incorporates the aspects of space, social, and cultural in order to interpret the multidimensional consequences of this transition.

This conceptual framework aims to provide a basis foundation for understanding the complex relationships between spatial and social structure in residential high-rise complexes, based on a comparison of Al-Zuhur Housing Complex (ZHC), which is a post-occupancy complex established in 2014, and the Bismayah New City (BMC) housing project, with respect to different models proposed for design development management of high-rises in Iraq today.

This study addresses the following research problem: to investigate the relationship between spatial design differences in ZHC and BMC and their impact on the quality of social life in vertical housing in Baghdad. The guiding hypothesis is that a strong correlation exists between the spatial design of dwellings and interaction with neighbors or community relations in vertical block apartments. The objectives are as follows:

1) Analysis of spatial design characteristics of ZHC and BMC.

2) Evaluate societal quality of life indicators, such as social interactions, safety, participation, and spatial belonging, and the balance between living in privacy and perceiving oneself as part of society.

3) Multi-method investigation of the links between urban design and quality of life.

4) Deriving evidence-based design guidelines that consider Iraqi cultural and social characteristics.

This study addresses a pressing concern for local urban planning, one that embodies the intricate relationship between spatial design and social quality of life in the face of fast vertical sprawl and can set an example for housing experiences sensitive to Iraqi cultural identity rather than ethnic or religious dimensions.

Despite numerous studies on vertical housing, there is a critical scholarship gap regarding how the transition from traditional horizontal fabric to vertical typologies in Baghdad affects 'spatial identity' and 'social capital' simultaneously.

International literature has reported various social risks and benefits of high-rise housing; however, little is known about the interaction between various patterns of socio-spatial gradation and governance structures linked to social life in vertically planned developments. The vast majority of Baghdad literature concentrates on individual complexes and considers social quality of life as a general product, without decomposing the mechanisms in between, linking spatial design, everyday practices, and governance. This paper fills this gap by contrasting two opposite governance and design models (ZHC and BMC) and defining a mid-range mechanism

that connects socio-spatial transformations, resident engagement, and place attachment to the perceived social quality of life.

Accordingly, the study adopts a most-different systems comparative design between ZHC and BMC, which allows us to examine how contrasting governance and spatial layouts under the same metropolitan and cultural context shape social quality of life.

The research methodology is based on an integrated approach to planned research and analyzes the spatial and social aspects of life in vertical residential communities in Baghdad using quantitative and qualitative methods to identify the relationship between two-dimensional variables. (macro, meso, and micro), which fits with a multifaceted trait quality of social life in cities.

Existing Baghdad studies examine social quality in single complexes, but none compare contrasting governance and socio-spatial gradation across two large vertical developments in Baghdad using an integrated mixed-method socio-spatial framework.

Building on this gap, the specific contribution of this article is threefold. First, it offers the first most-different systems comparison of two major vertical housing complexes in Baghdad, jointly analysing how contrasting governance and spatial gradation models are associated with social quality of life under the same metropolitan conditions. Second, it develops and applies resident-level scales for social interaction, participation and empowerment, spatial belonging and community security, thereby translating abstract socio-spatial theory into measurable constructs that can be linked to concrete design and management features. Third, it combines these quantitative results with qualitative evidence to derive context-sensitive design and governance principles for future high-rise housing in Baghdad and similar conflict-affected cities, moving beyond generic high-rise debates to a more grounded, policy-relevant perspective.

2. LITERATURE REVIEW

The rise of vertical housing complexes as a solution to urban density challenges has generated significant research interest regarding their effects on residents' lives. Studies have identified five key categories of potentially harmful effects from high-rise living: crime and vandalism issues with reduced informal social control, mental health problems that appear more frequently among high-rise residents, social effects including decreased sense of community and lower social support levels, negative impacts on families and children due to inadequate facilities and supervision challenges, and physical health effects ranging from fire risks to sick building syndrome [1].

The physical structure of housing units directly influences inhabitants' mental health and overall well-being, with high-rise buildings often associated with problems such as social isolation, crime, negative public perception, and poor air quality. Research consistently demonstrates that characteristics of high-rise housing, including home type, floor level, and housing quality, can significantly impact residents' mental health, with high-rise apartment living showing negative effects on both social well-being and mental health when compared to other housing types [2].

These findings underscore the importance of comparative studies that can help identify specific factors contributing to quality-of-life differences between different vertical housing

developments.

2.1 Social life impacts

The impact of vertical housing complexes on social life varies significantly based on design elements and community features. Research indicates that vertically naturally occurring retirement communities (NORCs) can actually show better social connectivity compared to scattered neighborhoods, particularly when residents are provided with dedicated community spaces for social programs and interaction [3].

The presence of green spaces and social amenities within residential buildings serves as important "oases" that satisfy social functions by supporting mental health and reducing stress levels among residents [4].

Building arrangement and design play a crucial role in fostering social interactions within vertical complexes. Research demonstrates that the built environment influences social interactions indirectly through convex positive building arrangements that foster territoriality and a sense of belonging, both of which positively affect social interactions. The study found that residents with higher levels of social interaction experienced a greater sense of community belonging, enhanced emotional support, and better overall quality of life [5].

In the Baghdad context specifically, research on vertical residential complexes has identified key social quality indicators including social interaction, social relations, safety and security, social peace, social consensus, opportunities for social meetings, popular participation, and gender participation and empowerment. A study of the Salhia residential complex in Baghdad found that residents showed satisfaction with most social indicators, suggesting that well-planned vertical complexes can effectively support social life when appropriate planning indicators are implemented [6].

2.2 Quality of life impacts

The quality-of-life impacts of vertical housing complexes are multifaceted and often negative, particularly when planning fails to address residents' comprehensive needs. The transformation from traditional housing to apartment buildings frequently results in environmental degradation including overcrowding, air pollution, traffic congestion, and increased sound pollution, which creates scarcity of resources and increased pressure on public spaces, activities, and facilities. These deteriorating living conditions have direct consequences for residents' health, leading to the spread of infectious diseases, chronic diseases, nutritional deficiencies, and mental health issues, with residents reporting respiratory problems, orthopedic issues, asthma, headaches, fatigue, and mental and visual impairments [7].

The physical structure and design of vertical housing units create additional quality of life challenges through inadequate facilities and poor environmental conditions. High-rise buildings are often associated with problems including social isolation, crime, negative public perception, and poor air quality, while many facilities and amenities are insufficient for occupants or located far from dwellings. Research has found that characteristics such as home type, floor level, and housing quality can impact residents' mental health, with high-rise apartment living showing negative effects on both social wellbeing and mental health compared to other housing types [2].

Table 1. Literature review analysis

Ref.	Focus of Study	Key Findings	Implications	Differences From Current Research
[1]	Harmful effects of high-rise living	identified five negative impacts: crime/vandalism, mental health problems, reduced social support, negative effects on families/children, and physical risks. High-rise housing is linked to negative social well-being and mental health outcomes compared to other housing types. Floor level and unit quality are significant.	Risks associated with poor design and a lack of support in vertical housing.	Primarily highlights harm; does not analyze local factors or specific design elements in the Baghdad context.
[2]	Housing type, floor level, and health impacts	NORCs can foster better social networks than scattered neighborhoods when spaces are provided.	Housing design/planning must consider mental and social health.	Generalized to international contexts; does not use comparative analysis or consider Iraqi cultural specificity.
[3]	Social life in vertical NORCs	Green/social amenities act as oases, reducing stress and supporting mental health.	Community programs/shared spaces offset negatives. Highlighting the importance of green/community spaces for livability.	Focused on retirement communities, not general residents; less emphasis on spatial gradation and local context.
[4]	Role of amenities and green spaces in vertical complexes	Building arrangement and positive layouts increase sense of belonging and quality of life.	Building design is associated with psychological well-being.	Does not compare between complexes or address privacy/social balance or governance.
[5]	Built environment and social interactions	Social quality indicators in Salhia complex: interaction, relations, safety, consensus, participation (incl. gender); high satisfaction when planned well.	Culturally sensitive design/planning can support social life in Baghdad.	No in-depth focus on Iraqi complexes, administrative structures, or gradation between public and private space.
[6]	Social life in Baghdad high-rise complexes	Environmental degradation and health problems follow poorly planned verticalization; key issues: overcrowding, pollution, and health.	Need for integrative planning for health and social well-being.	Studies one Baghdad complex, not a comparative design approach like current research.
[7]	Quality of life impacts of urban verticalization	Green/gray spaces shape urban experience and daily attitudes, influencing quality of life.	Critical role of open/public spaces.	Describes negatives broadly, but does not analyze the direct impact of gradation, space design, or resident participation.
[8]	Role of open spaces in vertical housing	Comparative field study between ZHC & BMC: uses an integrated theoretical model (socio-spatial gradation, community participation, privacy/social balance), mixed methods, and local contextualization.	Demonstrates the impact of spatial gradation, community governance, adaptable common spaces, and Iraqi cultural context on social quality of life.	General focus on urban spaces; less on residential governance, privacy, or social identity.
Our Paper	Social life and quality in Baghdad vertical complexes			Provides in-depth, comparative empirical data on two Baghdad complexes; integrates global theory with local practice; analyzes governance, privacy, identity, and gradation as core factors.

The open spaces within high-rise housing complexes, including green and gray spaces, play a crucial role in shaping residents' urban experience and overall quality of life. These spaces create a distinct urban landscape that will presumably dominate future urban experiences, with different planning aspects of open spaces affecting everyday use, function, attitudes, and feelings among residents [8] (Table 1).

2.3 Socio-spatial production of vertical housing

This study understands vertical housing complexes as socio-spatial constructions produced through the interaction between built form and everyday practices. Drawing on Lefebvre's [9] triad of spatial practice, representations of space, and spaces of representation, the analysis distinguishes between planned architectural space and lived social space in Baghdad's high-rise settlements [9, 10].

De Certeau's [11] distinction between institutional strategies and residents' everyday tactics further helps to explain how inhabitants appropriate, reinterpret, and selectively modify shared spaces in order to secure privacy, social support, and a sense of control. Building on Soja [12] and Harvey [13], the notion of socio-spatial justice and the "right to the city" highlights questions of fair access to services, participation in decision-making, and the distribution of opportunities across different residential areas in Baghdad's

rapidly verticalizing urban fabric [12, 14, 15].

2.4 Privacy, territoriality, and socio-cultural norms

In this study, privacy is conceptualized, in line with Altman [16], as an interactive regulation, which is governed by territorial, behavioral, and cultural processes, instead of being a static condition. The differences between the individual, family, neighbor, and community levels of privacy as defined by Westin [17] are applied to understand how residents balance the visual and acoustic exposure in various areas of the complexes.

These ideas are interpreted through the Iraqi Arab-Islamic socio-spatial standards, which pay much attention to regulating access to domestic and semi-private spaces and gendered mobility patterns. The concept of graduated public, semi-public, and private spaces is central to the argument that in the realization that spatial design has either promoted or hampered the capacity of residents to deal with boundaries between accessibility and privacy [11, 13, 14, 18, 19].

2.5 Social capital, public life, and place attachment

The study applies social capital theory — as developed by Putnam [20] — to analyse social life in both complexes of Putnam [20], which focus on the networks of trust, reciprocity,

and collective action, and is interpreted in the study. These concepts are associated with the work of Gehl [21, 22] on life between buildings, which emphasizes the significance of designed public and semi-public spaces to facilitate everyday experiences, informal observation, and social cohesion in high-density vertical landscapes [20-23]. In environmental psychology, the place identity and place attachment are applied to describe how residents create emotional and cognitive attachments to the living environment, and how emotional and psychological sense of ownership and sense of belonging to space mediate between spatial design and the perceived quality of social life [16, 17, 24].

Together, these three theoretical strands – socio-spatial production, privacy/territoriality, and social capital/place attachment – are integrated in a three-level socio-spatial model (macro-meso-micro) that guides the empirical analysis of ZHC and BMC.

2.6 Integrated theoretical approach: A multi-level model of socio-spatial interactions

Based on the theories and concepts presented above, this research proposes an integrated, multi-level theoretical model for understanding socio-spatial interactions in vertical residential complexes. This model consists of three overlapping and interrelated levels:

(1) Macro level: socio-political production of residential space: This level focuses on the broader social, economic, political, and cultural processes and forces that shape the production and development of vertical housing complexes. This includes analysis of housing policies, real estate market dynamics, shifts in urban development patterns, dominant discourses about urbanization and modernization, and relations between the state, the private sector, and civil society in housing production.

It also includes an analysis of the relationships between vertical housing complexes and the wider urban fabric, and socio-spatial disparities between different residential areas [15, 25].

(2) Meso level: design, spatial planning, and social structure: This level focuses on the relationships between the spatial design and layout of vertical residential complexes and the social and cultural structure of the community.

This includes analyzing spatial design and planning characteristics such as population density, distribution of public and private spaces, movement and access networks, shared facilities and services, and the impact of these characteristics on patterns of social interaction, the formation of social capital, a sense of belonging and spatial identity, and the ability to achieve privacy and security [26, 27].

(3) Micro level: daily practices and living experiences. This scale is related to the everyday life and experience of residents in vertical residential housing blocks. This involves studying how the inhabitants make use of different spaces, how they appropriate and transform space to suit their needs and aspirations, and how they maneuver in relation and raise feelings of belonging to the place. It focuses, too, on how residents experience and perceive the quality of their residential living conditions and satisfaction with various aspects of the neighborhood environment [11, 28].

The research proposes a multi-level model (macro: politics

and context, mezzo: design and social structure, micro: everyday practices) to analyze socio-spatial interactions.

2.7 Key research concepts and procedural definitions

The research defines vertical complexes as multi-story housing units with shared spaces and services and focuses on the quality of social life as a result of physical, social, and psychological factors.

Quality of life is defined procedurally in this research as "an integrated set of objective and subjective factors that affect the level of well-being of individuals and communities and include physical, social, psychological, environmental, cultural, and institutional aspects," and the research adopts a multidimensional concept of quality of life that includes four main dimensions: the social dimension, the environmental and spatial dimension, the institutional dimension and governance, the sustainability dimension, and the urban planning dimension [29].

Social life in an urban context is operationally defined as "the system of relationships, interactions, and daily practices that arise between individuals and groups within built spaces, and that are directly and indirectly influenced by the spatial and design characteristics of these spaces" [30].

Social interaction is operationally defined as "the set of processes and interrelationships between individuals and groups within residential complexes, which include direct and indirect contact, exchange of information and resources, participation in joint activities, mutual support, and participation in collective decision-making" [31].

Spatial affiliation is operationally defined as "the emotional, cognitive, and behavioral bond that develops between individuals and the residential place, which includes a sense of intimacy, connection, belonging, and spatial identity," while social identity is defined as "an individual's sense of belonging to a particular social group, identification with its values, norms, and practices, and the development of a sense of solidarity and commitment towards it [32].

2.8 Proposed analytical model: An integrated framework for assessing the quality of social life in vertical housing complexes

Based on the integrated theoretical framework and research hypotheses, the research proposes a comprehensive analytical model for assessing the quality of social life in vertical residential complexes, consisting of five main dimensions comprising 25 detailed indicators between the ZHC and BMC in Baghdad, with the possibility of adapting and applying it in other similar contexts. The model is characterized by taking into account the cultural and social specificity of the Iraqi context while benefiting from contemporary global theories and concepts in the field of urban and residential studies.

The reformulated theoretical approach is an essential development towards a more detailed and comprehensive explanation of how the spatial design affects the quality of social life in vertical residential complexes in the modern condition of Iraq, with a balance between openness to new theories and concepts from the international space and its local cultural and social specificity.

This balance is necessary to develop authentic and relevant knowledge of local realities, without sacrificing local specificity or disengaging from global scholarly discourse, in the broader context of global scientific knowledge.

Based on these threads of theory, the paper hypothesizes the existence of a mid-range socio-spatial mechanism model whereby (1) meso-level opportunities to experience everyday encounters and informal surveillance are created by spatial gradation between public, semi-public, and private spaces; (2) these opportunities interact with governance processes and resident involvement to reinforce or dilute social capital; and (3) stronger social capital and place attachment, in turn, are fostered. Although the data are cross-sectional and cannot be used to make strong causal statements, this mechanism can testably organize the interpretation of comparative patterns that can be found in ZHC and BMC.

3. METHODOLOGY

3.1 Case study context and multi-method design

This study employs an integrated research methodology combining quantitative and qualitative methods to examine the relationships between spatial design and social life in vertical residential communities in Baghdad. The methodology reflects the theoretical framework's multi-level structure (macro, meso, micro) and addresses the multidimensional nature of social life quality in urban contexts.

3.2 Multi-stage research strategy

The study can be described as having a four-step approach, which includes exploratory phase that involves a critical review phase, expert interview phase, field observation phase, descriptive-analytical phase that involves space syntax tool, GIS, and plan analysis phase; a field phase involving large-scale social survey, semi-structured interview phase, direct observation, and focus group phase; and an integrative-explanatory phase where the quantitative and qual.

3.3 Study population and sample

This paper will take on the form of a most-different systems comparative design by deliberately comparing two large vertical projects that are significantly different in scale, maturity level of projects, and governance structures, to identify strong socio-spatial mechanisms that influence the

social quality of life.

The study population consists of all residents of the ZHC and BMC in Baghdad, and due to the enormous size of the community and the diversity of its characteristics, a multi-stage sampling strategy was adopted:

1. **Quantitative sample:** A stratified random sample was selected from the residents of the two complexes, with a total size of 400 households (200 from each complex), taking into account the representation of the different areas, floors, and types of housing units within each complex, as well as the diversity in the socio-demographic characteristics of the population (age, gender, marital status, educational level, and length of residence). These socio-demographic and residential variables were used to describe and compare the two case-study populations and to interpret observed differences in social quality of life between ZHC and BMC. The sample size was determined using Stephen Thompson's equation [33] with a margin of error of 5% and a confidence level of 95%.
2. **Qualitative sample:** Selected:
 - 40 participants for in-depth interviews (20 from each complex) using the various intentional sample methods, considering the representation of diverse groups (elderly, youth, women, people with special needs, newly moved families, long-stay families).
 - 8 focus groups (4 in each complex) with 6-8 participants in each group, with a variety of groups (youth, women, seniors, mixed groups).
 - 12 experts and officials (designers, planners, administrators, officials in the municipality, and the investment authority) for specialized interviews.
3. **Spatial sample:** 16 sites (8 in each complex) were selected for organized direct observation, representing different types of common spaces (squares, gardens, walkways, entrances, children's play areas, gathering areas), considering the diversity of locations and times (morning, noon, evening, weekdays, weekends, special events).

3.3.1 Data collection and development tools

To clarify how the theoretical strands are translated into the empirical model, Table 2 summarises the four core constructs, their main theoretical underpinnings, and the way they are operationalised in the survey.

Table 2. Main constructs, theoretical strands, and survey operationalisation

Construct (Survey Scale)	Theoretical Stand (Key Authors)	Working Definition in This Study	Survey Indicators (Examples)
Social interaction	Neighbourhood social capital, everyday interaction in high-rise housing [1-5]	Frequency and diversity of face-to-face contact, mutual support, and shared activities among residents within the complex.	Items on intensity of daily interaction, diversity of social networks, depth and durability of relations, exchange of visits and joint activities, and networking opportunities.
Participation and empowerment	Participatory governance, resident empowerment in housing management [3, 6-8]	Residents perceived opportunities and actual involvement in decisions affecting shared spaces, services, and governance of the complex.	Items on participation in meetings, perceived influence on decisions, satisfaction with management responsiveness, and informal initiatives by residents.
Spatial belonging and identity	Place attachment, spatial identity, sense of place	Emotional attachment to the complex, feeling at home, and identification with its spaces and community.	Items on feeling part of the complex, pride in the place, comfort in shared spaces, and willingness to remain living there.
Community security	Perceived safety, fear of crime, collective efficacy in high-rise environments	Residents' perceptions of safety, surveillance, and informal control in shared spaces and access routes.	Items on feeling safe in shared spaces and circulation areas, trust in neighbors, perceived adequacy of security measures, and worries about crime or disorder.

Table 3. Reliability and factor loadings for social quality scales

Construct	Number of Items	Example Item	Factor Loading Range	Cronbach's Alpha
Social interaction	6	"I have frequent face-to-face contact with neighbours in this complex."	0.58–0.81	0.82
Participation and empowerment	6	"Residents have real opportunities to participate in decisions that affect the complex."	0.60–0.83	0.84
Spatial belonging and identity	7	"I feel a strong sense of belonging to this residential complex."	0.57–0.79	0.8
Community security	6	"I feel safe when I walk in the shared spaces of this complex."	0.55–0.78	0.79

Empirically, this more theoretical discussion is broken down into four interrelated constructs that can be measured at a resident level: social interaction, participation and empowerment, spatial belonging and identity, and perceived community security, which are summarized in Table 2.

Four complementary data collection methods have been used: (1) a structured questionnaire to cover five social quality dimensions and 25 indicators; a five-point Likert scale was used; (2) a semi-structured interview guide to cover the key aspects of social life within the complexes; (3) a structured observation sheet and a behavioral mapping protocol of various types of shared spaces; and (4) a focus group guide to discuss the shared.

Table 3 reports the main reliability and validity statistics for the four social quality scales. Exploratory factor analysis yielded four factors corresponding to social interaction, participation/empowerment, spatial belonging/identity, and community security, with all retained items loading between 0.55 and 0.83 on their intended factor and Cronbach's alpha ranging from 0.79 to 0.84. These results indicate acceptable internal consistency and a clear factor structure for the latent constructs used in the regression and path models.

3.3.2 Data analysis methods

The structured questionnaire operationalised four main social quality constructs: social interaction, community participation and empowerment, spatial belonging and identity, and perceived community security. Each construct was measured with between 5 and 7 Likert-type items (five-point scale from "strongly disagree" to "strongly agree"). The wording of items was adapted from established scales on neighbourhood social capital and residential satisfaction, complemented by context-specific items developed for the Baghdad vertical housing context. Where items were adapted, wording was simplified and culturally adjusted while keeping the original meaning. For each construct, composite scores were computed as the arithmetic mean of the corresponding items after reversing negatively worded items.

To test the proposed model and examine the data fit, we used SPSS v.26 to estimate a series of ordinary least squares regression models. These models link spatial design and planning variables to the four social quality constructs and then relate these constructs to the overall social quality of life. The "path analysis" terminology in this study therefore refers to a sequence of regression equations that follow the hypothesised causal ordering, rather than a fully specified structural equation model with latent variables and global fit indices. More advanced techniques, such as full confirmatory factor analysis and detailed clustering, are identified as directions for future research. In interpreting the comparative results, particular attention is given to compositional differences between the two complexes, especially in terms of residents' age structure, educational level, duration of

residence, and family type. In addition, we conducted an exploratory cluster analysis to identify typical resident profiles across the two complexes. We used hierarchical agglomerative clustering with Ward's method and squared Euclidean distance on z-standardised variables capturing age group, education level, household type, length of stay, and the four social quality scales (social interaction, participation/empowerment, spatial belonging/identity, and community security). Examination of the dendrogram and the agglomeration schedule suggested a three-cluster solution, which was retained because it offered a clear and interpretable distinction between resident profiles in both complexes. Cluster quality was assessed descriptively by comparing within-cluster homogeneity and between-cluster differences on the clustering variables and by checking that the cluster structure remained substantively similar when the analysis was repeated separately for ZHC and BMC.

The three resident clusters discussed in the Results and Discussion section are therefore based on this hierarchical Ward clustering procedure and should be interpreted as exploratory profiles rather than as a definitive segmentation of all residents.

3.3.3 Interpretation of qualitative data

In terms of themes, narrative, and discourse via the MAXQDA program was subjected to thematic and narrative as well as discourse methods and subsequently incorporated with the quantitative findings in terms of matrices and triangulation to form a single explanatory framework of the socio-spatial interactions in the two complexes.

Key socio-demographic variables (age group, gender, education, household type, employment status, and length of stay) are reported descriptively by case (Table 2) to contextualize the comparison. To keep the regression and path models parsimonious relative to the available sample size, these variables were not included as full sets of covariates, which we acknowledge as a limitation when interpreting case differences.

Before constructing the composite scales, we conducted exploratory factor analysis (principal-axis factoring with varimax rotation) on the 25 social quality items. The solution supported a four-factor structure broadly corresponding to social interaction, participation/empowerment, spatial belonging/identity, and community security, with all retained items loading at ≥ 0.50 on their intended factor and cross-loadings below 0.30. The four factors together explained 62% of the total variance, and internal consistency was acceptable for all scales (Cronbach's alpha between 0.76 and 0.84). These results support the construct validity and reliability of the scales used in the subsequent regression and path models.

3.3.4 Ethical considerations and methodological determinants

The study adhered to strict ethical standards in scientific

research and included:

- Obtain informed consent from all participants, clarifying the research objectives, the nature of the participation, and the planned use of data.
- Ensure the confidentiality of personal data and the privacy of participants and anonymity.
- Respect the right of participants to withdraw from the study at any stage without any consequences.
- Avoid any pressures or influences on participants and respect their opinions and points of view.
- Commitment to impartiality and objectivity in data collection, analysis, and interpretation.

The methodological limitations of the study were also recognized, which include the following:

- The challenges of reaching some segments of the population, especially in light of the social and security conditions in Baghdad.
- Limited generalization of results to other residential complexes in different contexts.
- The challenges of accurately measuring some abstract concepts, such as spatial affiliation and community identity.
- The effect of potential biases on participants' responses and the subjective biases of researchers.

4. RESULTS AND DISCUSSION

4.1 Socio-demographic characteristics of the sample

The demographic and social data of the sample show a marked variation between the ZHC and BMC in some characteristics and similarities in others, as shown in Table 4, Figure 1, and Figure 2.

In brief, respondents in ZHC tend to be slightly older and more highly educated, with a higher share of longer-term residents, whereas BMC includes more younger households and recent arrivals with shorter length of stay. The majority of respondents in both complexes live in nuclear families, with extended households somewhat more common in ZHC. Employment status was also recorded and shows broadly similar proportions of employed, self-employed, and non-employed residents in both cases.

As Table 4 shows, most respondents in both complexes live in nuclear families, with extended households somewhat more common in ZHC, and the average family size is slightly larger in ZHC than in BMC. Information on detailed employment status was not systematically available and is therefore not included beyond the broad employed/non-employed distinction, which is a minor limitation when interpreting compositional differences.



Figure 1. Pictures in Bismayah New City (BMC)

Reference: Researchers pictures at 22-2-2025



Figure 2. Pictures in Al-Zuhur Housing Complex (ZHC)

Reference: Researchers' pictures at 20-3-2025

Table 4. Socio-demographic characteristics of the study sample in the Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC)

Variable	Category	ZHC (Number/ Percentage)		BMC (Number/ Percentage)		Significance Level
Gender	males	112	56.0%	124	62.0%	0.087
	females	88	44.0%	76	38.0%	
Age group	less than 30 years old	42	21.0%	58	29.0%	0.003**
	30-40 years	68	34.0%	76	38.0%	
	41-50 years	54	27.0%	42	21.0%	
	More than 50 years	36	18.0%	24	12.0%	
Education level	Secondary or less	38	19.0%	46	23.0%	0.017*
	diploma	42	21.0%	54	27.0%	
	Bachelor	94	47.0%	82	41.0%	
Length of stay	Graduate	26	13.0%	18	9.0%	0.001**
	Less than two years	36	18.0%	62	31.0%	
	2-4 years	58	29.0%	78	39.0%	
	5-7 years	76	38.0%	46	23.0%	
Household type	More than 7 years	30	15.0%	14	7.0%	0.043*
	Nuclear family	142	71.0%	156	78.0%	
	Extended family	58	29.0%	44	22.0%	
Household size	1-2 persons	28	14.0%	34	17.0%	0.179
	3-4 persons	84	42.0%	92	46.0%	
	5-6 persons	68	34.0%	58	29.0%	
	More than 6 people	20	10.0%	16	8.0%	

p < 0.05 **, p < 0.01 *

Table 4 indicates clear socio-demographic contrasts between the two complexes. BMC has a newer settlement (31% of respondents have lived there for less than two years), a higher share of young residents under 30, and a larger proportion of nuclear families. ZHC, on the other hand, has greater residential stability, a marginally higher educational profile, and a marginally higher incidence of extended families.

4.2 Comparison of indicators of social interaction and social relations

Questionnaire data show for ZHC on all indicators of everyday social interaction and the depth of social ties. This quantitative pattern is mirrored in interview accounts that describe more frequent visits, shared activities, and mutual support among neighbours in ZHC than in BMC.

Table 5 compares ZHC and BMC respondents on social interaction and social relations.

4.3 Comparison of community safety and security indicators

In Table 6, we compare ZHC and BMC respondents on indicators of community safety and security.

Interview data help explain this pattern. Residents in BMC frequently highlighted advanced security infrastructure and strict formal procedures at gates and entrances, whereas ZHC

residents stressed informal social control based on close acquaintance with neighbours and continuous presence in shared spaces.

4.4 Comparison of community participation and empowerment indicators

Table 7 compares ZHC and BMC respondents on community participation and empowerment indicators.

Based on interviews and focus groups, ZHC residents regularly engage with active housing committees and active communication channels with the community administration, while BMC residents report that there is a centralized, top-down management style with limited opportunities to participate in decision-making.

4.5 Comparison of spatial affiliation and community identity indicators

Table 8 compares ZHC and BMC respondents on spatial affiliation and community identity indicators.

Qualitative evidence corroborates this pattern. Many ZHC residents described the complex as "our place" and emphasised long-term ties with neighbours and shared histories, while interviewees from BMC more often reported weak social ties and a limited sense of identification with the wider community.

Table 5. Comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in indicators of social interaction and social relations

Indicator	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
The level and intensity of daily interaction among the population	3.68	0.82	2.96	0.94	4.76	0.001**
Diversity in social networks	3.42	0.93	2.87	1.05	3.84	0.001**
The depth and durability of social relations	3.56	0.86	2.74	1.12	5.21	0.001**
Exchange of family visits and joint activities	3.32	1.03	2.58	1.17	4.12	0.001**
Networking opportunities	3.74	0.84	3.12	0.98	3.76	0.001**
Average dimension	3.54	0.90	2.85	1.05	4.34	0.001**

p < 0.05 **, p < 0.01 *

Table 6. Comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in community safety and security indicators

Indicator	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
Feeling safe inside the residential unit	4.12	0.73	4.28	0.68	-1.42	0.157
Feeling safe in shared spaces	3.86	0.82	4.04	0.76	-1.94	0.053
The effectiveness and adequacy of security measures	3.74	0.88	4.16	0.72	-3.68	0.001**
Mutual trust between residents and a sense of tranquility	3.68	0.94	3.42	1.06	2.16	0.032*
Formal and informal social control mechanisms	3.58	0.96	3.82	0.84	-2.05	0.041*
Average dimension	3.80	0.87	3.94	0.81	-1.28	0.202

p < 0.05 **, p < 0.01*

Table 7. Comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in the indicators of community participation and empowerment

Indicator	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
Provides mechanisms for participation in decision-making	3.18	1.06	2.48	1.14	4.84	0.001**
Opportunities to participate in joint activities and events	3.64	0.92	2.82	1.08	5.36	0.001**
The existence of committees that represent the population and defend their interests	3.42	0.96	2.56	1.22	5.12	0.001**
The feeling of the ability to influence the development of the complex	3.08	1.12	2.32	1.18	4.68	0.001**
Shared responsibility towards public spaces	3.46	0.88	2.94	1.06	3.58	0.001**
Average dimension	3.36	0.99	2.62	1.14	4.72	0.001**

P < 0.05 **, p < 0.01*

Table 8. Comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in the indicators of spatial affiliation and community identity

Indicator	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
Feeling of belonging to the residential complex	3.76	0.82	3.24	1.08	3.72	0.001**
Identification with the values and culture of the residential community	3.58	0.86	3.12	1.04	3.34	0.001**
Pride in staying in the complex and emotional attachment	3.84	0.76	3.68	0.88	1.42	0.157
Participate in the identification and formation of the place	3.26	1.04	2.48	1.18	4.86	0.001**
Continuity of residence and desire to stay	3.64	0.92	3.32	1.08	2.16	0.032*
Average dimension	3.62	0.88	3.17	1.05	3.18	0.002**

p < 0.05 **, p < 0.01*

Table 9. Comparison between ZHC and BMC in the indicators of the balance between privacy and social

Indicator	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
Provides tiered levels of privacy	3.82	0.78	3.36	0.94	3.76	0.001**
Ability to control the level of openness and closure	3.68	0.84	3.22	1.06	3.34	0.001**
Appropriate separation of public and private spaces	3.74	0.82	3.48	0.92	2.05	0.041*
Visual and auditory privacy in design	3.56	0.92	3.32	1.04	1.84	0.067
Flexibility in the use and adaptation of spaces	3.48	0.96	2.94	1.12	3.76	0.001**
Average dimension	3.66	0.86	3.26	1.02	2.94	0.004**

p < 0.05 **, p < 0.01*

4.6 Comparison of indicators of the balance between privacy and social

Table 9 compares ZHC and BMC respondents on the balance between privacy and social indicators.

The disparity in spatial identity between the two complexes suggests that 'institutionalized design' in BMC suppresses individual expression, whereas ZHC's layout allows for 'socio-spatial appropriation' by the residents.

4.7 Comprehensive comparison of indicators of the quality of social life

To provide a comprehensive picture of the comparison between the two groups, the overall averages of the five dimensions of the quality of social life were calculated, as shown in Table 10 and Figure 3.

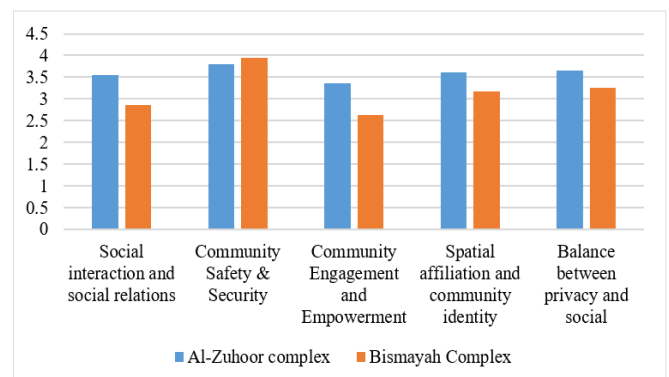


Figure 3. Comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in the five dimensions of social quality of life

Table 10. Comprehensive comparison between Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC) in the five dimensions of the quality of social life

Dimension	ZHC		BMC		T-Value	Significance Level
	Mean	SD	Mean	SD		
Social interaction and social relations	3.54	0.90	2.85	1.05	4.34	0.001**
Community Safety & Security	3.80	0.87	3.94	0.81	-1.28	0.202
Community Engagement and Empowerment	3.36	0.99	2.62	1.14	4.72	0.001**
Spatial affiliation and community identity	3.62	0.88	3.17	1.05	3.18	0.002**
Balance between privacy and social	3.66	0.86	3.26	1.02	2.94	0.004**
Overall average quality of social life	3.60	0.90	3.17	1.01	2.78	0.006**

p < 0.05 **, p < 0.01*

Table 11. Results of multiple regression analysis of the relationship between spatial design characteristics and quality of social life

Independent Variables (Spatial Design Characteristics)	Regression Coefficient (β)	Standard Error	T-Value	Significance Level
Spatial gradation between public and private spaces	0.42	0.08	5.25	0.001**
Movement and access organization	0.38	0.09	4.22	0.001**
Design of common spaces	0.36	0.07	5.14	0.001**
Integration of services and facilities	0.24	0.06	4.00	0.001**
Population density	-0.18	0.08	-2.25	0.025*
Percentage of green and open spaces	0.16	0.07	2.29	0.023*

R = 0.76, R² = 0.58, F = 42.68, p < 0.001

p < 0.05; ** p < 0.01*

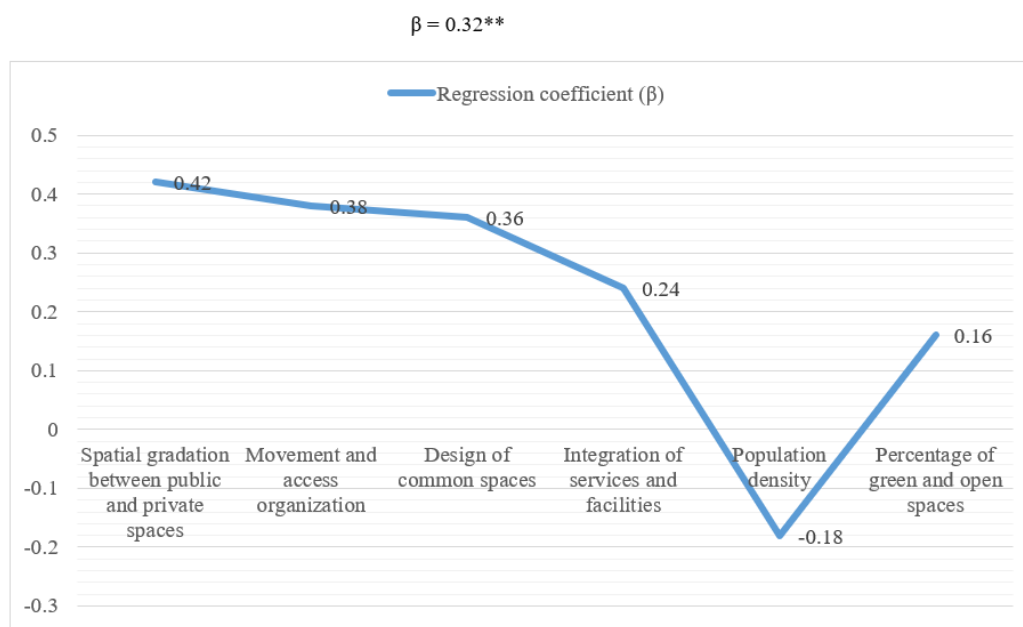


Figure 4. Path analysis model for the relationship between spatial design characteristics and quality of social life

Table 10 and Figure 3 show significantly higher scores in ZHC than BMC in social interaction, community participation, spatial belonging, and balance between privacy and social, while BMC excelled in community security.

The aggregate results show that ZHC has better scores on social interaction, community participation, spatial belonging, and balance of privacy and social life than BMC, which can be achieved only in particular indicators of security.

4.8 Analysis of the relationship between the characteristics of spatial design and the quality of social life

To understand the relationship between spatial design characteristics and the quality of social life more deeply, multiple regression analysis was performed, and path analysis

was used to test the proposed theoretical model, as shown in Table 11 and Figure 4. All regression and path models are based on the factor-validated composite scales described in the Methodology section, with higher scores indicating higher levels of social interaction, participation/empowerment, spatial belonging/identity and perceived community security.

Table 11 shows a statistically significant relationship between spatial design characteristics and social quality of life, as these characteristics together are associated with 58% of the explained variance in the quality of social life (R² = 0.58). Spatial hierarchy between public and private spaces had the strongest association with (β = 0.42), followed by movement and access regulation (β = 0.38), and design of shared spaces (β = 0.36).

Figure 4 presents a regression-based path diagram that

summarises the direct and indirect associations between spatial design and the quality of social life derived from the sequence of OLS models. Besides the direct association between spatial design and the quality of social life on the quality of social life ($\beta = 0.18$), there are indirect effects through social interaction and social relationships ($\beta = 0.32$), community participation and empowerment ($\beta = 0.28$), and spatial belonging and community identity ($\beta = 0.24$). The model also shows the role of spatial affiliation and community identity as a major mediating variable in the relationship between social interaction and community participation on the one hand, and the quality of social life on the other.

The results partly validate, yet also invalidate, prevailing global discourses of high-rise living. Similar to much of the literature, the higher the socio-spatial gradation and the better-utilized shared spaces, the greater the degree of social interaction and perceived social quality. But the Baghdad case demonstrates that these effects are closely mediated by culturally specific privacy norms and by the history of conflict and insecurity. Dense everyday interaction and high social capital go hand in hand in ZHC, and there is less perceived community security, but more formal security infrastructure does not necessarily lead to stronger social ties in BMC. This mixed pattern indicates that in conflict-related situations,

design and governance need to strike a more delicate balance of openness, surveillance, and the control that residents require than is commonly presumed in the international literature.

In addition, although participation is consistently associated with positive outcomes in the literature in most circumstances, the comparison reveals that formal participation structures in BMC are still weak when they lack any meaningful power of decision-making and trust, and more effective in building solidarity, suggesting that cultural embeddedness may compensate for the absence of formal institutional structures in some contexts.

4.9 Analytical comparison of design and planning characteristics between the two complexes

A comprehensive spatial analysis of the two complexes to understand the structural characteristics of the urban fabric and their impact on patterns of movement and social interaction. Table 12 shows the most important design and planning characteristics of the two complexes.

Figure 5 illustrates how spatial design and planning characteristics are associated with social quality of life through four intermediary mechanisms, within the broader cultural context.

Table 12. Comparison between the design and planning characteristics of the Al-Zuhur Housing Complex (ZHC) and Bismayah New City (BMC)

Design or Planning Feature	ZHC	BMC
General planning style	Semi-closed, regular around central spaces	Open, mesh with linear regulation
Number of residential buildings	24	252 (Phase I)
Building height	8-12 floors	10-18 floors
Number of Housing Units	1,250	25,000 (Phase I)
Average area of the housing unit	140 m ²	120 m ²
Percentage of green and open spaces	35%	40%
Spatial gradient	Medium to Strong	Weak to medium
Integration of services and facilities	medium	High
Movement and access pattern	Gradual, with balanced movement distribution	Hierarchical, with a focus on movement on the main axes
Isolate pedestrians from car traffic	partial	full
Organization of common spaces	Homogeneous, dispenser	Central, gradient size
The degree of visual openness	Medium	high
Integration with the surrounding urban fabric	Medium to High	low

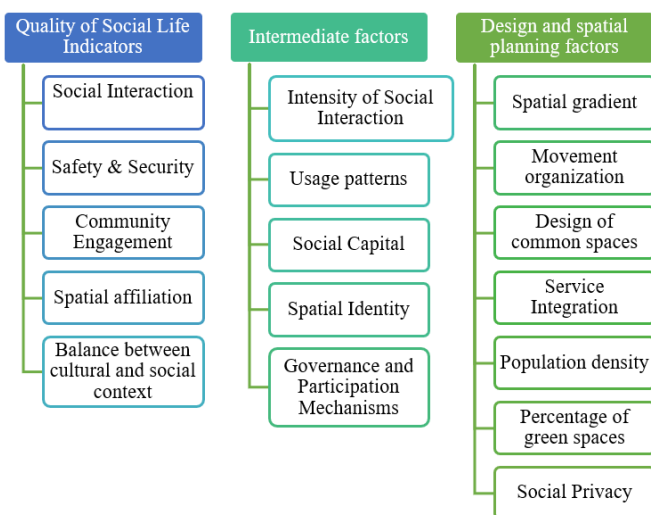


Figure 5. An integrated model of the factors affecting the quality of social life in vertical housing complexes

The model explains the differences between ZHC and BMC

by the following mechanisms:

1. **Spatial gradient and social interaction:** The ZHC is characterized by a clearer spatial hierarchy between public and private spaces, which provides more opportunities for gradual and transitional social interaction, and contributes to building social capital and enhancing spatial identity.
2. **Spatial appropriation and adaptability:** The design of common spaces in the ZHC provides greater opportunities for adaptation and modification by residents, which enhances the sense of ownership and belonging, and increases the use of these spaces and the intensity of social interactions in them.
3. **Mechanism of participation and governance:** The administrative structure of ZHC provides greater opportunities for community participation in decision-making processes, which enhances the sense of empowerment and shared responsibility, and contributes to building a more cohesive and cohesive society.
4. **The mechanism of balance between privacy and social:** The design of the ZHC succeeds in balancing the competing needs of privacy and social interaction,

reducing the tension between them and enhancing the quality of social life.

A key limitation is that, although we collected and reported basic socio-demographic differences between ZHC and BMC, these variables could not be fully modelled as covariates in the regression/path analysis, so some unobserved compositional effects may still influence the comparison.

5. CONCLUSIONS

- 1) The study shows that the spatial design of vertical housing in Baghdad is strongly linked to social life and quality of life and quality of life, as well as the physical and functional aspects. ZHC, with a more nuanced socio-spatial gradation and more flexible common areas, has higher values in terms of social interaction, participation, and place attachment than BMC, which has higher values only in terms of security.
- 2) The research demonstrates the important role of social-spatial gradation from the streets to the semi-public courtyards and entrances and to the private units in negotiating privacy and sociability in vertical housing. When this gradation is more pronounced and in line with cultural expectations, residents tend to have higher levels of social capital, a more resilient sense of community, and a higher quality of life.
- 3) The results reveal that participatory and context-sensitive governance schemes are vital in maintaining social quality of life within vertical housing complexes. Greater social interaction, greater perceptions of fairness and belonging to the space are closely tied to more flexible management structures, greater resident involvement, and locally based rules in ZHC than the more centralized, standardized management model in BMC.
- 4) As a practical policy suggestion, future vertical housing projects in Baghdad must establish neighborhood committees that have legal decision-making authority on the utilization of shared spaces, neighborhood events, and minor design alterations. The inclusion of such a participatory
- 5) A form of structure in housing policies and project agreements would assist in harmonizing the management activities with the Iraqi socio-cultural standards and build more inclusive and robust communities.

6. RECOMMENDATIONS

- 1) In designing future vertical housing and upgrading existing vertical housing complexes, planners and designers should adopt distinct socio-spatial gradients that structure public, semi-public, and private spaces according to Iraqi cultural practice of privacy and sociability. This involves conceptualising transitions, halls, and courtyards as intermediary spaces for encounter that do not impinge on domestic privacy.
- 2) Local and project managers should establish participatory governance structures, such as residents' committees, periodic consultation meetings, and effective complaint and feedback channels, to ensure that residents can self-manage shared spaces and engage in decision-making processes affecting their social quality

of life.

- 3) Baghdad's building design guidelines for vertical housing projects should expand quantitative criteria (density, gross floor area, parking spaces) to explicitly consider social quality-of-life indicators (social interaction, spatial belonging, security) as part of their evaluation in project approval and post-occupancy assessments.
- 4) In projects like BMC, where security is relatively high but spatial interaction is low, local strategies should prioritise the activation of underused shared spaces with community-based programs, low-cost landscape interventions, and flexible low-cost place attachment upgrades that encourage spatial appropriation and customisation by residents.
- 5) At the policy level, national and municipal housing policies should consider vertical complexes as socio-spatial, rather than real-estate, products. This means incorporating urban design, social policy, and housing management approaches to enable inclusive, culturally sensitive, and socially sustainable high-rise housing in Baghdad.

6.1 Prospects for future studies

- 1) Comparative studies can be conducted between vertical residential complexes in Iraq and their counterparts in other Arab and Islamic countries, as well as in diverse cultural contexts, to understand the impact of cultural and social factors on the relationship between spatial design and the quality of social life.
- 2) Studies of the impact of modern technology (such as the Internet, social media, and smart technologies) on social life in vertical residential complexes, and the possibilities of using this technology to enhance the quality of social life.
- 3) Studies can be conducted on the impact of major crises and changes (such as the COVID-19 pandemic, climate change, and economic crises) on life in vertical residential complexes, and how these complexes adapt to these challenges.
- 4) Assess the changing perceptions and expectations of residents of vertical housing and how these perceptions affect resident satisfaction, mobility, and retention in vertical residential developments.

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AUTHOR CONTRIBUTIONS

Writing—original draft preparation, A.I.S., A.A.M., and M.H.M.; writing—review and editing, A.A.M., H.F.J., and M.H.M.; Research Administration, A.I.S., and M.H.M.; Final Revision & Proof Reading, A.I.S., A.A.M., H.F.J., and M.H.M. All authors have read and agreed to the published version of the manuscript.

REFERENCES

- [1] Trop, T. (2017). Social impact assessment of rebuilding an urban neighborhood: A case study of a demolition and reconstruction project in Petah Tikva, Israel. *Sustainability*, 9(6): 1076. <https://doi.org/10.3390/SU9061076>
- [2] Sohaimi, N.S., Azura Ramli, R. (2023). Community wellbeing in cities through sustainable affordable housing. *International Journal of Academic Research in Business and Social Sciences*, 13(15): 18793. <https://doi.org/10.6007/IJARBS/V13-I15/18793>
- [3] Das, S., Gupta, M., Bose, S. (2016). Assessing the need for adaptive changes for emerging NORCs in urban India. *Creative Space*, 4(1): 115-132. <https://doi.org/10.15415/cs.2016.41007>
- [4] Novikov, S., Gimazutdinova, E. (2021). The vertical cities: Reality or utopia of the future. *E3S Web of Conferences*, 274: 01014. <https://doi.org/10.1051/e3sconf/202127401014>
- [5] Karim, H.S., Tayib, A.Y. (2024). The influence of immediate common space and building layout on social interaction in residential apartments: A case study in Sulaimani. *Journal of Engineering*, 30(3): 60-77. <https://doi.org/10.31026/j.eng.2024.03.05>
- [6] Abdulrahman, Y.F., Motlak, J.B. (2023). Quality of social life in vertical residential complexes: Salhia residential complex in Baghdad. *IOP conference series: Earth and Environmental Science*, 1129(1): 012018. <https://doi.org/10.1088/1755-1315/1129/1/012018>
- [7] Amiryar, M.R., Asano, J. (2022). A study on transformation of housing typology and its environmental and social effects on the living conditions of residents in planned residential neighborhoods of Kabul City. *Urban Science*, 6(3): 45. <https://doi.org/10.3390/urbansci6030045>
- [8] Eizenberg, E., Sasson, O., Shilon, M. (2019). Urban morphology and qualitative topology: Open green spaces in high-rise residential developments. *Urban Planning*, 4(4): 73-85. <https://doi.org/10.17645/UP.V4I4.2276>
- [9] Lefebvre, H. (2007). *The Production of Space* (D. Nicholson-Smith, Trans.). Blackwell Publishing.
- [10] Stanek, L. (2011). *Henri Lefebvre on Space: Architecture, Urban Research, and the Production of Theory*. University of Minnesota Press.
- [11] De Certeau, M. (2011). *The Practice of Everyday Life* (Steven Rendall, Tran.; 3rd Edition). University of California Press.
- [12] Soja, E.W. (2013). *Seeking Spatial Justice* (Vol. 16). University of Minnesota Press.
- [13] Harvey, D. (2019). *Rebel Cities: From the Right to the City to the Urban Revolution*. Verso Books.
- [14] Buchholz, T. (2011). Seeking spatial justice. *Tijdschrift Voor Economische en Sociale Geografie*, 102(3): 378-380. <https://doi.org/10.1111/j.1467-9663.2011.00655.x>
- [15] Brenner, N., Schmid, C. (2015). Towards a new epistemology of the urban? *City*, 19(2-3): 151-182. <https://doi.org/10.1080/13604813.2015.1014712>
- [16] Altman, I. (1975). *The Environment and Social Behavior: Privacy, Personal Space, Territory, and Crowding*. Brooks/Cde.
- [17] Westin, A.F. (2003). Social and political dimensions of privacy. *Journal of Social Issues*, 59(2): 431-453. <https://doi.org/10.1111/1540-4560.00072>
- [18] Merrifield, A. (2002). Henri Lefebvre: A socialist in space. In *Thinking Space*, pp. 167-182. <https://doi.org/10.4324/9780203411148-11>
- [19] Purcell, M. (2014). Possible worlds: Henri Lefebvre and the right to the city. *Journal of Urban Affairs*, 36(1): 141-154. <https://doi.org/10.1111/JUAF.12034>
- [20] Putnam, R.D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster.
- [21] Gehl, J. (2010). First we shape the cities - then they shape us. In *Cities for People*, pp. 9-18.
- [22] Gehl, J. (2012). *Life Between Buildings* (Jo. Koch, Tran.; 1st.). Island Press.
- [23] Forrest, R., Kearns, A. (2001). Social cohesion, social capital and the neighbourhood. *Urban Studies*, 38(12): 2125-2143. <https://doi.org/10.1080/00420980120087081>
- [24] Abbasoglu, M.S., Dagli, U.U. (2019). Women's visual privacy analysis in traditional houses and modern apartment block neighbourhoods in Famagusta (North Cyprus). In *5th International Postgraduate Research Conference in the Built and Human Environment*. <https://www.irbnet.de/daten/iconda/CIB16717.pdf>
- [25] Mustafa, M.H., Al-Saate, H.H., Al-Bakry, H.M.J., Sabur, A.I., et al. (2025). The importance of empowering the smart city in Iraq: A case study of Baghdad municipalities. *International Journal of Sustainable Development and Planning*, 20(3): 1133-1141. <https://doi.org/10.18280/ijstdp.200319>
- [26] Gehl, J. (2012). *Life Between Buildings: Using Public Space*. Princeton University Press.
- [27] Mohson, Z.H., Ismael, Z.A. (2025). Impact of implementing green roof and green facade on existing buildings. *NED University Journal of Research*, 22(1/2): 45-63. <https://doi.org/10.35453/NEDJR-ASCN-2024-0049.R3>
- [28] Almdhaffer, A.F., Ali Asghar, M.S., Mustafa, M.H. (2024). Review of nanotechnology materials in architecture and their impact on the external environment of buildings. *AIP Conference Proceedings*, 3079(1): 060009. <https://doi.org/10.1063/5.0202148>
- [29] Uysal, M., Berbekova, A., Wang, J. (2025). Quality-of-life: A critical examination of research progress. *Tourism Management*, 107: 105070. <https://doi.org/10.1016/j.tourman.2024.105070>
- [30] Qi, J., Mazumdar, S., Vasconcelos, A.C. (2024). Understanding the relationship between urban public space and social cohesion: A systematic review. *International Journal of Community Well-Being*, 7(2): 155-212. <https://doi.org/10.1007/S42413-024-00204-5>
- [31] Patel, H., Pettitt, M., Wilson, J.R. (2012). Factors of collaborative working: A framework for a collaboration model. *Applied Ergonomics*, 43(1): 1-26. <https://doi.org/10.1016/j.apergo.2011.04.009>
- [32] Hopkins, N., Reicher, S.D., Khan, S.S., Tewari, S., Srinivasan, N., Stevenson, C. (2016). Explaining effervescence: Investigating the relationship between shared social identity and positive experience in crowds. *Cognition and Emotion*, 30(1): 20-32. <https://doi.org/10.1080/02699931.2015.1015969>
- [33] Del Águila, M.R., González-Ramírez, A.R. (2014). Sample size calculation. *Allergologia et Immunopathologia*, 42(5): 485-492. <https://doi.org/10.1016/j.aller.2013.03.008>