

## Exploring The Importance of Balconies in Amman's Residential Buildings During the Covid-19 Lockdown

Rama Al-Majali <sup>1</sup>, Rabab Muhsen <sup>2</sup>

### Abstract

The COVID-19 pandemic has brought about profound and lasting changes in how people engage with their residential built environments, elevating the importance of balconies in urban housing settings. In Amman, Jordan, a city characterized by high residential density, distinct climatic conditions, and rich cultural living traditions, balconies have transformed from peripheral architectural elements into vital semi-outdoor living spaces. These spaces have played a critical role during lockdown periods by supporting residents' physical activity, mental health, and social interaction, thereby mitigating some of the adverse effects of prolonged home confinement. This study employs a comprehensive mixed-methods approach, integrating quantitative data from an online survey of 150 residents alongside in-depth qualitative interviews with 20 participants, to investigate evolving balcony usage patterns. It particularly focuses on how physical characteristics—including balcony size, orientation, and shading—affect the ability of these spaces to adapt to varied user needs. The findings underscore the multifunctionality of balconies as restorative environments that foster inclusivity by accommodating people of different ages and abilities, while also revealing ongoing accessibility challenges that need to be addressed. Ultimately, this research offers evidence-based, climate- and culture-sensitive architectural and urban design recommendations aimed at enhancing residential resilience, promoting social equity, and ensuring the sustainability of urban living spaces in the post-pandemic era.

**Keywords:** COVID-19; Balconies; Amman; Residential Architecture; wellbeing.

Stable URL: <https://arcc-journal.org/index.php/arccjournal/article/view/1323>

DOI 10.17831/enq:arcc.v23i1.1323

Corresponding Author: Rama Al-Majali <sup>1</sup>, Rabab Muhsen <sup>2</sup> < <sup>1</sup>Department of Architecture Engineering, The Hashemite University, Zarqa, 13133, Jordan, Email: [rama@staff.hu.edu.jo](mailto:rama@staff.hu.edu.jo) < <sup>2</sup>Department of Architecture Engineering, The Hashemite University, Zarqa, 13133, Jordan, Email: [rabab.r.m@hu.edu.jo](mailto:rabab.r.m@hu.edu.jo)

Published by the Architectural Research Centers Consortium under the terms of the Attribution-NonCommercial-ShareAlike 4.0 International license

## 1. INTRODUCTION

The COVID-19 pandemic has profoundly and fundamentally reshaped the ways in which individuals interact with the built environment, especially within the confines of their residential spaces. The sweeping lockdowns and social distancing mandates imposed across the globe introduced unprecedented restrictions on mobility and face-to-face social interaction, compelling people to spend extended periods confined to their homes. This sudden confinement triggered a critical re-evaluation of the adequacy, flexibility, and healthfulness of domestic environments that traditionally served primarily as places of shelter and respite.

Residential balconies have long functioned as architectural thresholds mediating between the domestic interior and the urban exterior. Rather than being merely decorative appendages, scholars of everyday spatial practice have increasingly emphasized the role of transitional spaces—such as balconies, verandas, courtyards, and thresholds—in facilitating social life, informal work, and leisure activities. Studies of semi-public domestic spaces across diverse contexts highlight their importance in mediating privacy, social interaction, and environmental comfort. For example, Jagannathan (2024) describes the South Indian *thinna* as a quasi-public domestic platform enabling social and economic activity, while Taneja (2024) demonstrates how courtyards and semi-private outdoor spaces shape women's access to leisure and informal public life in Indian cities. These examples underscore the broader architectural significance of intermediary spatial typologies that blur the boundaries between private dwelling and collective urban life.

Within this broader architectural tradition of “in-between” spaces, balconies represent a distinctive typology in multi-storey residential buildings. Recent architectural scholarship has begun to recognize balconies not only as climatic devices or aesthetic elements but also as spatial infrastructures supporting everyday well-being, leisure, and social visibility (Ribeiro et al., 2024). During the COVID-19 pandemic, balconies acquired renewed significance as sites where domestic life extended outward into the city while maintaining physical distancing. Grigoriadou (2021) conceptualizes the urban balcony as a temporary form of micro-public space that allowed residents to maintain social presence during lockdown conditions. Situating the present study within this emerging body of scholarship enables a more nuanced understanding of balcony use in Amman. Rather than assuming that balconies became important only during the pandemic, the research examines how an existing architectural element—already embedded within the city's residential morphology—was

reinterpreted and intensified under the exceptional conditions of lockdown.

In densely populated urban centers such as Amman, Jordan, where private yards, gardens, and expansive terraces are rare due to intensifying residential density and constrained urban land availability, balconies assumed newfound importance as vital components of urban residential living (Frost et al., 2021; Ramiz et al., 2021). These semi-outdoor spaces provided residents with crucial physical access to fresh air, sunlight, and nature, offering a safe venue for physical activity at a time when public parks and recreational facilities were inaccessible. The importance of balconies was amplified by Amman's distinctive urban fabric—dense housing clusters interspersed with varied topographic elevations—and its Mediterranean climate characterized by long mild seasons favorable for outdoor living.

The pandemic catalyzed a remarkable transformation in how balconies were perceived, used, and valued. Formerly overlooked or underutilized, balconies rapidly became multifunctional extensions of the home, supporting a broad range of daily activities crucial to physical and mental health maintenance under lockdown conditions. Residents adapted balconies for exercise routines such as yoga and calisthenics, cultivated small gardens promoting biophilia and psychological relief, and substituted traditional workspaces with balcony-based remote working setups enhanced by portable furniture and connectivity technologies. Furthermore, balconies accommodated children's play and provided socially distanced venues for interaction with neighbors and the wider community, thus mitigating the isolation and psychological strain associated with prolonged confinement. This emergent multiplexity of function echoes changes documented in other global contexts during the COVID-19 pandemic, where balconies gained prominence as safe, semi-private spaces bridging enclosed homes and urban life (Aydin & Sayar, 2021).

However, these changes were neither uniform nor universally accessible; they were influenced by localized cultural norms, building typologies, climatic conditions, and socio-economic disparities. Amman's compact urban form, varied topography, and social customs around privacy and community shaped unique adaptive responses, accentuating the balcony's role as a contested but invaluable spatial resource.

To investigate these phenomena systematically, this study employs a rigorous mixed-methods approach. Quantitative analysis via surveys provides statistical insights into shifts in balcony usage patterns and correlations with physical characteristics such as size, orientation, and shading. Complementary qualitative interviews delve deeper into residents'

lived experiences, capturing the subjective meanings, emotional associations, and social practices that redefined balcony use during the pandemic.

This research focuses on the following key questions:

- How did lockdown conditions alter the frequency, diversity, and typology of activities conducted on balconies in Amman?
- How do balconies' spatial and environmental characteristics facilitate or constrain these adaptive uses?
- What psychological, social, and health benefits do residents derive from balcony use in extended confinement?
- Finally, what architectural and urban design strategies can be proposed to better integrate balconies as resilient, inclusive, and multifunctional components in future urban housing developments?

By addressing these questions, the study reframes balconies not simply as accessory features but as multifunctional, socially critical, and health-promoting elements of residential architecture. It highlights their potential to enhance urban resilience and human well-being especially in cities sharing Amman's characteristics—dense, climatically favorable, and culturally complex—offering crucial insights for reimagining urban living spaces in the post-pandemic era.

### 1.1 The Changing Role of Balconies in Contemporary Architecture

Traditionally, balconies in Middle Eastern and Mediterranean architecture have served both symbolic and practical roles—as thresholds between public and private realms, sources of passive cooling, and extensions of domestic life (Khalil & Eissa, 2022). However, in modern high-density housing in Amman, balconies are often relegated to minimal, decorative protrusions with limited functionality, particularly in middle-income apartment buildings (Department of Architecture Engineering, 2020). The pandemic disrupted this norm, revealing the latent potential of balconies as crucial spatial resources in urban housing. Studies globally illustrate similar transformations. In Rome and Madrid, balconies became platforms for community expression—applauding health workers, singing, and socially distanced interactions (Silva et al., 2022). In New York and São Paulo, residents converted balconies into home offices and gyms, showcasing their adaptability (Frost et al., 2021). These emergent uses resonate with Henri Lefebvre's (1991) concept of “appropriated space,” wherein people reclaim or

reimagine underutilized parts of their environment to meet immediate needs.

### 1.2 Psychological and Social Functions: Attention Restoration and Biophilia

The pandemic intensified awareness of the link between built environments and mental health. Balconies—by enabling exposure to sunlight, fresh air, greenery, and socially proximate interactions—align closely with Attention Restoration Theory (ART) (Kaplan & Kaplan, 1989) and biophilic design principles (Kellert et al., 2008). ART posits that exposure to natural or semi-natural environments supports cognitive recovery and emotional balance, especially during stress. Biophilic design builds on this by advocating for the integration of nature within architectural form to enhance wellbeing. Empirical studies during COVID-19 confirmed that residents with access to private or semi-private outdoor spaces—such as balconies—reported lower levels of stress, anxiety, and depressive symptoms (Radon et al., 2020; Bratman et al., 2020).

In Amman, where many families live in mid-rise apartments, balconies offered a rare means of safely experiencing the outdoors during lockdown, helping mitigate the psychological toll of confinement. Moreover, balconies became social lifelines, enabling socially distanced conversations, visual contact with neighbors, and maintaining community connections during extreme isolation (Søholt, 2020). These hybrid social-private spaces blurred traditional boundaries and underscored the need for spatial flexibility in residential architecture.

### 1.3 The Climatic and Urban Context of Amman

Amman's unique geography, characterized by hills and narrow urban corridors, contributes to high residential density in many districts. Climatic conditions—hot, dry summers and mild winters—make outdoor spaces desirable for much of the year. However, many contemporary residential buildings do not capitalize on this climatic advantage through thoughtful balcony design. Poor orientation, insufficient shading, and small dimensions often render balconies functionally obsolete for much of the year (Khalil & Eissa, 2022). During the pandemic, residents adapted even poorly designed balconies with makeshift shading, furniture, plants, and privacy screens. These ad hoc modifications reflect both a demand for and an opportunity to develop more deliberate architectural planning. Post-pandemic design strategies must therefore consider local climate, cultural norms, and adaptability, moving beyond standardized or minimal balcony typologies.

### 1.4 Theoretical Framework

This research draws from four key theoretical perspectives to provide an interdisciplinary understanding of balcony use during the COVID-19 pandemic:

- Attention Restoration Theory (ART) (Kaplan & Kaplan, 1989) highlights how exposure to natural or semi-natural environments, such as balconies enhanced with plants and daylight, supports cognitive recovery and mental wellbeing. Balconies thus serve as restorative settings mitigating pandemic-induced stress.
- Biophilic Design Principles (Kellert et al., 2008) emphasize the human affinity for nature and advocate integrating natural elements into architecture. Balconies function as critical biophilic spaces promoting wellness and environmental connection within dense urban homes.
- Henri Lefebvre's Spatial Theory provides a useful interpretive lens for understanding how residents reconfigure everyday spaces during periods of disruption. Lefebvre (1991) conceptualizes space as socially produced through interactions between spatial practices, representations of space, and lived experiences. Although Lefebvre's work primarily addresses urban public space, his framework also allows examination of how residents reinterpret semi-private environments within the domestic realm. In the context of residential balconies, this study uses Lefebvre's concept of spatial appropriation to describe how residents adapt existing architectural elements to meet emerging social and practical needs. Rather than suggesting that balconies become fully public spaces, the concept highlights how users actively transform spatial meanings through everyday practices such as gardening, exercising, or communicating with neighbors. In this sense, balconies can be understood as hybrid environments where private domestic activities intersect with forms of visual and social interaction with the surrounding urban environment.
- Urban Resilience Framework (Ahern, 2011) situates balconies as adaptable, flexible components of resilient housing, contributing to social, psychological, and environmental sustainability in response to urban shocks such as pandemics.

Together, these frameworks enable a holistic analysis of balconies as multifunctional spaces essential to urban residential wellbeing during and beyond the COVID-19 crisis.

### 1.5 Contribution of the Study

While existing literature extensively highlights the importance of balconies during the COVID-19 pandemic,

much of this work predominantly focuses on Western urban contexts characterized by different climatic conditions, cultural norms, residential densities, and architectural typologies. This geographic and cultural bias limits the global applicability of findings and design recommendations since residential environments and social practices around outdoor spaces vary substantially across regions. This study contributes uniquely by centering its investigation on Amman, Jordan—an underrepresented Middle Eastern urban context with distinct climatic, cultural, and urban characteristics. By doing so, it fills a critical gap in scholarship by providing localized empirical evidence on balcony use and adaptation during the pandemic, which is essential for culturally responsive and contextually relevant architectural practice.

Methodologically, the study advances research by employing a mixed-methods design that integrates quantitative data on behavioral patterns gathered through structured surveys with rich qualitative insights from semi-structured interviews. This dual approach captures both the measurable shifts in balcony usage and the nuanced subjective experiences, emotional attachments, and social meanings residents associate with these spaces. Such comprehensive data triangulation enhances the robustness and depth of understanding, addressing limitations of prior studies that often rely singularly on observational or quantitative methods.

Theoretically, this research advances interdisciplinary perspectives by weaving together psychological frameworks, particularly Attention Restoration Theory (Kaplan & Kaplan, 1989), with architectural design principles and sociological concepts of space appropriation (Lefebvre, 1991). This synthesis offers a holistic lens through which balconies are understood not merely as physical entities but as dynamic socio-spatial constructs that promote mental health, facilitate social resilience, and foster a sense of place and community amidst crises. By situating balconies as multifunctional, health-enhancing, and socially significant components of housing, the study calls for an expanded architectural discourse that integrates human experience and environmental sustainability more fully.

Practically, the study proposes culturally and climatically tailored design guidelines that address Amman's unique realities—such as the Mediterranean climate's influence on orientation and shading preferences, the compact urban morphology's impact on spatial availability, and cultural expectations regarding privacy and social interaction. These guidelines contribute to shaping resilient housing models capable of supporting diverse resident needs during emergencies like pandemics and beyond. Additionally, by identifying socioeconomic

disparities in balcony access and quality, the study foregrounds equity considerations, advocating for inclusive urban policies that ensure all residents benefit from healthy, adaptable outdoor spaces.

In essence, this study functions as both an empirical investigation and a conceptual framework, illuminating how balconies can be reconceived as essential elements in the post-pandemic urban fabric. Its insights offer actionable knowledge for architects, planners, policymakers, and public health professionals aiming to foster resilient, sustainable, and inclusive cities that better withstand future stresses while enhancing occupant well-being.

## 2. METHODOLOGY

This study utilized a sequential explanatory mixed-methods approach to investigate how balconies in Amman's residential architecture transformed during the COVID-19 lockdown. This approach consists of two connected phases, beginning with quantitative data collection and analysis to identify broad patterns and trends in balcony usage, spatial characteristics, and resident perceptions. Following this, a qualitative phase uses interviews to deepen understanding by exploring residents' personal experiences, cultural adaptations, and nuanced meanings tied to these quantitative findings (Creswell & Plano Clark, 2018). The sequential design allowed the research to combine numerical breadth with contextual depth, enhancing the validity and richness of the study results. Importantly, qualitative insights helped interpret and explain observed statistical patterns, offering a holistic view of balconies' evolving multifunctional roles during the pandemic.

### 2.1 Study Area and Context

Amman, Jordan's capital, serves as a complex urban milieu where residential density varies widely across districts marked by distinct architectural typologies and socio-economic profiles. Key neighborhoods selected for study—Tabrbour, Shmeisani, Jabal al-Nozha, Abdoun, and Badir al-Jadedda—offer heterogeneity in population density, household composition, and housing typologies ranging from mid-rise apartments to detached houses. Climatically characterized by a Mediterranean climate with hot, dry summers and mild winters, Amman presents a unique context for assessing balcony use relative to weather, cultural practices, and urban form. These contextual factors underpin an understanding of balconies as adaptive architectural elements responsive to local resident needs.

### 2.2 Phase 1: Quantitative Survey

#### 2.2.1 Instrument Development

The frontline quantitative data collection employed an online survey instrument developed through rigorous iterative design. The survey combined closed-ended questions, multiple-choice items, and Likert-scale measures developed from a comprehensive literature review on balcony use, residential adaptation, and lockdown behavioral changes (Radon et al., 2020; Silva et al., 2022). Survey categories covered detailed areas:

- **Demographics:** age, gender, income bracket, household size, residential neighborhood, and housing typology.
- **Balcony Physical Characteristics:** dimensions, orientation relative to sun path and wind, shading devices, privacy measures, and accessibility.
- **Use Patterns:** frequency and diversity of activities such as gardening, exercise, remote work, social interaction before and during the lockdown.
- **Perceived Benefits:** psychological restoration, social connection, functional utility.
- **Adaptations and Modifications:** furniture, lighting, plants, shade solutions added during the pandemic.

To enhance cultural relevance and clarity, the survey was designed bilingually in Arabic (primary) and English, with forward-back translations ensuring semantic equivalence. A pilot test with 10 respondents verified comprehensibility and contextual appropriateness, yielding substantive feedback that resulted in refinements such as simplified phrasing and expanded response options.

The survey included retrospective questions asking respondents to report how frequently they used their balconies before the COVID-19 lockdown as well as during the lockdown period. This approach enabled the study to identify perceived behavioral changes even though longitudinal observational data were not available. Respondents were asked to select from a predefined list of common activities identified through preliminary literature review and pilot interviews (e.g., sitting or resting, gardening, exercising, social interaction, remote work, and children's play). Participants were also given an open-ended option to report additional activities not listed in the survey. These responses informed the qualitative interview phase and helped refine the classification of balcony uses presented in the results section.

#### 2.2.2 Sampling and Recruitment

A purposive non-probability sampling strategy was used due to lockdown constraints and the need to target residents with balconies. Inclusion criteria mandated

resident access to private or semi-private balcony space and presence in Amman during the lockdown period. The survey was deployed online through coordinated social media outreach, community networks, residential associations, and neighborhood WhatsApp groups, ensuring geographical and socio-economic diversity within practical constraints. Recruitment emphasized voluntary participation and confidentiality, with an information sheet communicating research aims and data usage.

From June to August 2021, 150 completed responses were obtained, with participant demographics distributed as follows: 58% female and 42% male respondents, age ranging from 22 to 65 years (mean age 37), household sizes ranging from single occupants to families of 6 or more, and a balanced representation across housing types (apartments 72%, duplexes and multi-story homes 20%, villas 8%). Although not statistically generalizable to the entire Amman population, the sample provided sufficient breadth and depth for pattern identification.

## 2.3 Data Analysis

### 2.3.1 Quantitative Data Analysis

Quantitative data were analyzed using IBM SPSS Version 26. Descriptive statistics outlined baseline characteristics and trends, while inferential statistics including chi-square tests, Pearson's correlation, and ANOVA identified statistically significant relationships between balcony attributes and usage patterns.

### 2.3.2 Phase 2: Qualitative Interviews

#### 2.3.2.1 Participant Selection

From the survey respondents, 20 individuals were intentionally chosen for in-depth semi-structured interviews based on diverse balcony sizes, usage behaviors, demographic profiles, and willingness to engage further. This sample size ensured thematic saturation, where interview content consistently reinforced emerging patterns.

#### 2.3.2.2 Interview Process

Interviews were conducted via Zoom or telephone, lasting between 30 and 50 minutes. The discussion framework explored daily balcony routines during lockdown, emotional and psychological responses, any physical modifications to the space, comparisons of its importance before and after the pandemic, and residents' aspirations for future balcony design. Conversations were held in Arabic, then transcribed and translated into English by the researcher to maintain linguistic subtleties.

#### 2.3.2.3 Qualitative Synthesis

Qualitative data were examined through thematic analysis following Braun and Clarke's (2006) method. Multiple readings of transcripts facilitated identification of key themes such as balcony as an "emotional refuge," a "playground" or "workspace," strategies for personalization and adaptation, as well as design limitations causing frustration. Coding was performed manually and cross-checked for reliability by a second coder. Informed consent was obtained electronically for both the survey and interviews. Identifiable data were anonymized during transcription and analysis. Participation was entirely voluntary, with the option to withdraw at any time.

## 3. RESULTS

The results presented below derive directly from the survey responses ( $N = 150$ ) and the thematic analysis of 20 semi-structured interviews. References to theoretical frameworks or previous studies are discussed later in the discussion section to maintain a clear distinction between empirical findings and interpretive analysis. The results of this study reveal clear shifts in balcony usage during the COVID-19 lockdown in Amman, marked by increased frequency, variety, and intensity of activities. Quantitative data show balconies were used more for socializing, gardening, recreation, and practical tasks. Qualitative insights highlight their important role in providing psychological relief, social connection, and functional outdoor space during confinement. This section details findings in five areas: changes in activity patterns, how physical balcony features influenced use, behavioral adaptations, psychological and social impacts, and design strategies developed in response to the pandemic. These results underline balconies' vital function as adaptable spaces that supported residents' wellbeing throughout the lockdown.

### 3.1 Increased Frequency and Diversity of Balcony Use

The majority of respondents (92%) reported a notable increase in their use of balconies during the COVID-19 lockdown. Activities that were previously occasional or non-existent became regular components of daily life. Table 1 compares usage patterns before and during lockdown.

These data show that balconies have become active, multi-use extensions of the home, rather than merely passive or decorative features.

"Before the pandemic, the balcony was just where we hung laundry. During lockdown, it became our gym, our garden, and sometimes even our escape room."—Female respondent, 34, Tabrbour

| Activity             | Pre-Lockdown Usage (%) | During Lockdown Usage (%) | Statistical Significance (p) |
|----------------------|------------------------|---------------------------|------------------------------|
| Children's Play      | 47.5%                  | 82%                       | $p < 0.01$                   |
| Exercise             | 10.6%                  | 31.2%                     | $p < 0.01$                   |
| Remote Work          | 5%                     | 22%                       | $p < 0.05$                   |
| Gardening            | 8%                     | 20%                       | $p < 0.05$                   |
| Social Interaction   | 15%                    | 35%                       | $p < 0.01$                   |
| Passive Sitting/Rest | 60%                    | 87%                       | $p < 0.01$                   |

Table 1. Changes in Balcony Activities (Pre- and Post-Lockdown, N=150)

| Balcony Size (m <sup>2</sup> ) | % of Respondents |
|--------------------------------|------------------|
| $< 4 \text{ m}^2$              | 20%              |
| $4-6 \text{ m}^2$              | 35%              |
| $> 6 \text{ m}^2$              | 45%              |

Table 2. Balcony Size Distribution

| Orientation | Children's Play | Exercise | Remote Work | Gardening |
|-------------|-----------------|----------|-------------|-----------|
| North       | 60%             | 20%      | 10%         | 15%       |
| South       | 70%             | 40%      | 35%         | 30%       |
| East        | 65%             | 25%      | 15%         | 20%       |
| West        | 75%             | 45%      | 40%         | 35%       |

Table 3. Frequency of Activities by Orientation (% reporting regular use)

### 3.2 Correlations between Balcony Characteristics and Use

The study examined how physical attributes such as size, orientation, and shading influenced balcony functionality. Significant correlations were identified, particularly with size.

Correlation analysis indicated that balcony size showed a positive correlation ( $r = 0.42$ ,  $p < 0.05$ ) with the number of activities performed, the duration of daily use, and perceived satisfaction with the space. Respondents with balconies larger than  $6\text{ m}^2$  were significantly more likely to report remote working, exercising, and hosting small family gatherings.

### 3.3 Impact of Orientation and Shading

Orientation significantly affected thermal comfort and usability.

South- and west-facing balconies were highly preferred, particularly during morning and late afternoon hours, due to favorable sunlight exposure and cross-ventilation.

"In the late afternoon, the sun hits our west balcony just right. It became the warmest and most welcoming part of the apartment."— Male respondent, 40, Abdoun

In addition, artificial shading structures (e.g., canvas, bamboo screens) were installed by 38% of respondents. These modifications significantly extended usable hours and increased thermal comfort for residents.

### 3.4 Behavioral Adaptations and Modifications

Residents engaged in creative adaptations to transform balconies into functional environments. The most common modifications included:

- Furniture additions (79%)
- Decorative changes (plants, textiles) (62%)
- Shade installations (38%)
- Privacy screens (24%)
- Electricity or Wi-Fi extensions (18%)

"We extended a power outlet to the balcony so I could work outside. It changed everything—fresh air, sun, and less noise than inside."— Female respondent, 28, Jabal al-Nozha

These interventions aligned with the concept of "appropriated space" (Lefebvre, 1991), showing how balconies were reinterpreted and reinvented under stress.

### 3.5 Psychological and Social Impacts

Respondents consistently described their balconies as spaces that supported mental health, emotional regulation, and social connection, echoing theories of restorative environments.

| Statement                                                        | % Agree or Strongly Agree |
|------------------------------------------------------------------|---------------------------|
| My balcony helped reduce feelings of confinement                 | 84%                       |
| Being outside improved my mood during lockdown                   | 91%                       |
| I felt more connected to my neighbors through balcony visibility | 52%                       |
| Gardening or nature exposure helped me feel calm                 | 67%                       |

Table 4. Reported Psychological Outcomes (Likert-scale Agreement)

| Theme                     | Key Findings                                                                     |
|---------------------------|----------------------------------------------------------------------------------|
| Activity Increase         | Significant rise in physical, recreational, and work-related use during lockdown |
| Physical Characteristics  | Size, orientation, and shading strongly influenced usability                     |
| Creative Adaptation       | Residents modified balconies with furniture, greenery, and tech enhancements     |
| Psychological Wellbeing   | Reported decreases in stress and improved mood with regular balcony use          |
| Social Engagement         | Balconies supported safe communication and neighbor visibility                   |
| Accessibility Limitations | Barriers existed for users with physical limitations or safety concerns          |

Table 5. Summary of Key Findings

“Just seeing plants grow every day gave me something to look forward to. It was like a therapy session with nature.”— Female respondent, 52, Shmeisani

Some participants noted increased informal communication with neighbors—waving, chatting across buildings, or playing music together—which contributed to a sense of collective resilience.

### 3.6 Inclusivity and Accessibility Challenges

While balconies offered many benefits, not all users experienced them equally. Interview data revealed unique physical barriers for:

- Elderly users, who found some balconies unsafe or hard to access.
- Residents with disabilities, due to step barriers or narrow doorways.
- Families with small children, who expressed concerns about rail height and fall risk.

“I use a wheelchair, and the balcony threshold is impossible to cross without assistance. So, I only looked through the window.”— Male respondent, 39, Khalda

These experiences point to a critical gap in balcony design standards and the urgent need for inclusive design interventions.

### 3.8 Gendered Patterns of Balcony Use

In response to Reviewer A’s suggestion, the survey data were further examined to identify potential gender differences in balcony use. While the study was not originally designed to test gendered spatial practices, descriptive analysis revealed several patterns worth noting. Female respondents reported slightly higher frequencies of gardening and passive leisure activities such as sitting or relaxation, whereas male respondents reported marginally higher engagement in activities such as exercise or remote work.

However, these differences were modest and should be interpreted cautiously given the sample size and the study’s exploratory design. Interviews suggested that balcony use was often shaped more strongly by household composition and available indoor space than by gender alone. Nevertheless, the findings highlight the importance of considering how domestic spatial arrangements intersect with gendered roles and everyday practices within residential environments. Future research could investigate these dynamics more systematically.



Figure 1. Example of a creatively adapted balcony in Amman, where furniture and wall art transformed the space into a multifunctional environment for leisure and social interaction during confinement.



Figure 2 (a & b). Balconies in Amman were adapted with vibrant seating, lighting, and plants, illustrating how residents personalized outdoor spaces during lockdown to enhance comfort and usability.

#### 4. DISCUSSION

The findings indicate that balconies played an expanded role in residents' daily routines during the COVID-19 lockdown in Amman. Survey responses and interview narratives suggest that many households increased the frequency and diversity of balcony activities during this period. These changes appear to reflect the broader spatial constraints imposed by lockdown measures, which limited access to public parks and other outdoor environments.

##### 4.1 Balconies as Dynamic, Multifunctional Spaces

During the pandemic, residents were compelled to reconsider their home environments, particularly in dense urban areas with limited access to outdoor spaces. As shown in Figures 1 and 2, balconies became "explored spaces" as conceptualized by Lefebvre (1991), shifting from underutilized areas to creatively appropriated settings that supported diverse activities. Residents converted these spaces into gyms, remote workstations equipped with Wi-Fi and electrical outlets, children's play zones, urban gardens, and retreats for contemplation and relaxation. These findings resonate

with global research documenting the transition of balconies from static components to active, performative domestic spaces (Bettaieb & Alsabban, 2020; Hajjar, 2021) and align with emerging architectural paradigms prioritizing flexibility and user-driven adaptation.

The findings of this study vividly demonstrate that balconies in Amman's residential buildings underwent a profound transformation during the COVID-19 lockdown, substantiating and enriching extant scholarly perspectives outlined in the literature review. Conventionally regarded as secondary architectural appendages primarily contributing to aesthetics or limited climatic regulation, balconies asserted themselves as crucial multifunctional arenas integral to the lived experience of urban dwellers under lockdown constraints. This realignment of function corroborates Lefebvre's (1991) spatial theory of "appropriated space" or "explored space," wherein users actively redefine and repurpose spatial elements to meet evolving needs. Amman's residents exemplified this phenomenon by transforming balconies into sites of diverse activity, accommodating an array of physical, social, and psychological imperatives.

Notably, this research's quantitative and qualitative data parallel global phenomena where balconies became pivotal during pandemic lockdowns. Frost et al. (2021) and Silva et al. (2022) reported similar adaptive appropriations in European metropolises, where balconies functioned as stages for exercising, remote working, social performances, and community bonding. Amman's unique context, however, adds nuanced insights, highlighting how cultural sensibilities around privacy, family dynamics, and urban sociality mediate balcony usage. For example, residents balanced the ambivalence between outward social engagement and inward family seclusion—often shaping balcony modifications to ensure privacy while facilitating visual or verbal contact with neighbors, a dynamic resonant with Lefebvre's dialectical interaction of private and public realms.

The psychological benefits residents derived from balcony use affirm Kaplan and Kaplan's (1989) Attention Restoration Theory, providing compelling evidence that balconies serve as key restorative environments. Exposure to natural elements—sunlight, fresh air, and the presence of plants—was repeatedly linked with reductions in stress, anxiety, and mental fatigue induced by prolonged confinement. These findings align with Bratman et al.'s (2020) confirmation of nature's salubrious effects in urban health contexts. Emotional testimonies underscored balconies as therapeutic refuges and cognitive respite, fostering mindfulness and well-being amidst crisis, illustrating an often-overlooked intersection between architecture and mental health.

Moreover, balconies emerged as social resilience incubators, catalyzing neighborly interactions and collective rituals instrumental in attenuating pandemic-induced isolation. These social functions corroborate Pitarch's (2020) recognition of balconies as temporary urban piazzas facilitating informal sociality and community solidarity. Balcony-based communal activities such as clapping for healthcare workers manifested a shared socio-political consciousness, reinforcing urban social capital. In Amman, these phenomena acquired specific cultural resonance, embedded within longstanding practices of community interdependence and respectful social distance.

Architectural and climatic conditions further influenced balcony adaptability, substantiating Khalil and Eissa's (2022) assertions regarding optimal balcony orientation, size, and shading in Middle Eastern urban contexts. Residents' spontaneous measures to enhance usability—shading installations, temporary enclosures—reflect a pragmatic engagement with spatial affordances. However, disparities in balcony quality and size, linked to socio-economic variables, mirror Radon et al.'s (2020) concerns regarding environmental justice and urban

inequality. Access to quality outdoor space emerged as a privileged asset, underscoring the need for intentional design and policy interventions to democratize balcony benefits.

Technology's role surfaced as a crucial enabler of balcony versatility, resonating with contemporary discourses (Silva et al., 2022) that advocate for the integration of digital infrastructure to augment residential adaptability. Participants' reliance on internet facilities for remote work and education spotlights balconies as hybrid domestic-workspaces, blurring traditional spatial boundaries. This underscores a demand for forward-looking architectural standards incorporating technological readiness in balcony design.

Furthermore, residents' deliberate incorporation of vegetation and personalized furnishings on balconies manifests biophilic design principles, which Kellert et al. (2008) identify as essential for enhancing human-nature connections in urban settings. Beyond individual well-being, these micro-ecologies contribute to broader environmental objectives, supporting urban biodiversity, air purification, and microclimate regulation—environmental functions postulated by Ahern (2011) within urban resilience frameworks.

This study advances the academic dialogue by contextualizing global balcony transformations within Amman's particular socio-cultural, climatic, and urban fabric. The intricate interplay of private appropriation and public interaction, physical design and emergent use, psychological relief and social solidarity, environmental sustainability and technological integration collectively inform a nuanced understanding of balconies as indispensable components of resilient urban living. These findings advocate a re-imagination of residential architecture and urban planning that elevates balconies from aesthetic afterthoughts to pivotal spatial infrastructures promoting inclusivity, health, and sustainability in a rapidly urbanizing world vulnerable to systemic shocks

## 4.2 Inclusivity and Accessibility in Private Residential Space

The concept of inclusivity in this study refers primarily to accessibility and design considerations rather than public access. Because balconies are private components of residential dwellings, they cannot be considered inclusive in the same sense as public urban spaces. Instead, inclusivity here refers to the extent to which balcony design accommodates diverse users, including older adults, children, and individuals with mobility limitations.

Interview data indicated that certain design features—such as raised thresholds, narrow doorways, or

inadequate railing heights—limited balcony accessibility for some residents. These observations highlight opportunities for improving universal design standards within residential architecture rather than suggesting that balconies themselves function as inclusive public spaces.

The findings of this study vividly demonstrate that balconies in Amman's residential buildings underwent a profound transformation during the COVID-19 lockdown, substantiating and enriching extant scholarly perspectives outlined in the literature review. Conventionally regarded as secondary architectural appendages primarily contributing to aesthetics or limited climatic regulation, balconies asserted themselves as crucial multifunctional arenas integral to the lived experience of urban dwellers under lockdown constraints. This realignment of function corroborates Lefebvre's (1991) spatial theory of "appropriated space" or "explored space," wherein users actively redefine and repurpose spatial elements to meet evolving needs. Amman's residents exemplified this phenomenon by transforming balconies into sites of diverse activity, accommodating an array of physical, social, and psychological imperatives.

Notably, this research's quantitative and qualitative data parallel global phenomena where balconies became pivotal during pandemic lockdowns. Frost et al. (2021) and Silva et al. (2022) reported similar adaptive appropriations in European metropolises, where balconies functioned as stages for exercising, remote working, social performances, and community bonding. Amman's unique context, however, adds nuanced insights, highlighting how cultural sensibilities around privacy, family dynamics, and urban sociality mediate balcony usage. For example, residents balanced the ambivalence between outward social engagement and inward family seclusion—often shaping balcony modifications to ensure privacy while facilitating visual or verbal contact with neighbors, a dynamic resonant with Lefebvre's dialectical interaction of private and public realms.

The psychological benefits residents derived from balcony use affirm Kaplan and Kaplan's (1989) Attention Restoration Theory, providing compelling evidence that balconies serve as key restorative environments. Exposure to natural elements—sunlight, fresh air, and the presence of plants—was repeatedly linked with reductions in stress, anxiety, and mental fatigue induced by prolonged confinement. These findings align with Bratman et al.'s (2020) confirmation of nature's salubrious effects in urban health contexts. Emotional testimonies underscored balconies as therapeutic refuges and cognitive respite, fostering mindfulness and well-being amidst crisis, illustrating an often-overlooked

intersection between architecture and mental health.

Moreover, balconies emerged as social resilience incubators, catalyzing neighborly interactions and collective rituals instrumental in attenuating pandemic-induced isolation. These social functions corroborate Pitarch's (2020) recognition of balconies as temporary urban piazzas facilitating informal sociality and community solidarity. Balcony-based communal activities such as clapping for healthcare workers manifested a shared socio-political consciousness, reinforcing urban social capital. In Amman, these phenomena acquired specific cultural resonance, embedded within longstanding practices of community interdependence and respectful social distance.

Architectural and climatic conditions further influenced balcony adaptability, substantiating Khalil and Eissa's (2022) assertions regarding optimal balcony orientation, size, and shading in Middle Eastern urban contexts. Residents' spontaneous measures to enhance usability—shading installations, temporary enclosures—reflect a pragmatic engagement with spatial affordances. However, disparities in balcony quality and size, linked to socio-economic variables, mirror Radon et al.'s (2020) concerns regarding environmental justice and urban inequality. Access to quality outdoor space emerged as a privileged asset, underscoring the need for intentional design and policy interventions to democratize balcony benefits.

Technology's role surfaced as a crucial enabler of balcony versatility, resonating with contemporary discourses (Silva et al., 2022) that advocate for the integration of digital infrastructure to augment residential adaptability. Participants' reliance on internet facilities for remote work and education spotlights balconies as hybrid domestic-workspaces, blurring traditional spatial boundaries. This underscores a demand for forward-looking architectural standards incorporating technological readiness in balcony design.

Furthermore, residents' deliberate incorporation of vegetation and personalized furnishings on balconies manifests biophilic design principles, which Kellert et al. (2008) identify as essential for enhancing human-nature connections in urban settings. Beyond individual well-being, these micro-ecologies contribute to broader environmental objectives, supporting urban biodiversity, air purification, and microclimate regulation—environmental functions postulated by Ahern (2011) within urban resilience frameworks.

This study advances the academic dialogue by contextualizing global balcony transformations within Amman's particular socio-cultural, climatic, and urban fabric. The intricate interplay of private appropriation

and public interaction, physical design and emergent use, psychological relief and social solidarity, environmental sustainability and technological integration collectively inform a nuanced understanding of balconies as indispensable components of resilient urban living. These findings advocate a re-imagination of residential architecture and urban planning that elevates balconies from aesthetic afterthoughts to pivotal spatial infrastructures promoting inclusivity, health, and sustainability in a rapidly urbanizing world vulnerable to systemic shocks.

#### 4.3 Inclusivity and Accessibility in Private Residential Space

The concept of inclusivity in this study refers primarily to accessibility and design considerations rather than public access. Because balconies are private components of residential dwellings, they cannot be considered inclusive in the same sense as public urban spaces. Instead, inclusivity here refers to the extent to

which balcony design accommodates diverse users, including older adults, children, and individuals with mobility limitations.

Interview data indicated that certain design features—such as raised thresholds, narrow doorways, or inadequate railing heights—limited balcony accessibility for some residents. These observations highlight opportunities for improving universal design standards within residential architecture rather than suggesting that balconies themselves function as inclusive public spaces.

#### 4.4 Summary of Implications

A summary of implications for this research can be found in Table 6 below.

| Domain          | Implications                                                               |
|-----------------|----------------------------------------------------------------------------|
| Architecture    | Balconies must be larger, tech-enabled, shaded, and adaptable              |
| Urban Policy    | Balcony access should be codified as a right, not a luxury                 |
| Mental Health   | Outdoor semi-private spaces support psychological resilience               |
| Sustainability  | Balconies aid in passive cooling and local biodiversity                    |
| Equity          | Housing policy must address balcony exclusion in low-income developments   |
| Future Research | Longitudinal and comparative studies are needed across cities and climates |

Table 6. Domain-Specific Implications

## 5. CONCLUSION

The COVID-19 pandemic has vividly highlighted the vital importance of balconies within the urban landscape, especially in densely populated cities like Amman where access to outdoor space is limited. With widespread lockdowns confining residents indoors, balconies evolved from marginal architectural elements to indispensable multifunctional spaces that sustained daily life under unprecedented constraints. This study presents strong empirical evidence that balconies assumed critical roles in providing not only physical space for essential everyday activities but also facilitating psychological resilience, social connectivity, and contributing to urban environmental sustainability. Balconies reinforced their integral role in resilient post-pandemic urban design by bridging the divide between private home environments and the external urban fabric.

### 5.1 Balconies as Anchors of Urban Resilience

The pandemic triggered a significant paradigm shift in the perception and utilization of balconies, elevating them from peripheral architectural features to central components of domestic life and urban wellbeing. In Amman, balconies became vital platforms supporting a diverse array of functions including physical exercise, remote work, children's play, and urban gardening. These spaces empowered residents to adapt creatively to strict lockdown constraints, fostering a sense of autonomy, psychological comfort, and social connection—not only within their own homes but also to the broader urban context and natural environment.

Drawing on Lefebvre's (1991) concept of "explored spaces," balconies acted as thresholds bridging private and semi-public realms, enabling social exchanges through neighborly interactions, shared collective rituals such as applauding frontline workers, and expressions of community solidarity. Such uses underscore the balcony's symbolic and functional value as a space of urban sociability and mutual support. This research aligns with international studies emphasizing balconies' critical contributions to social cohesion and psychological endurance during crises (Pitarch, 2020; Frost et al., 2021). Moreover, balconies provided restorative environments consistent with Attention Restoration Theory (Kaplan & Kaplan, 1989), offering residents vital exposure to sunlight, greenery, and fresh air that alleviated lockdown-induced stress and mental fatigue. These psychological and social functions position balconies as essential to fostering urban resilience in times of acute challenges.

### 5.2 Architectural and Design Recommendations

Insights from this research strongly advocate a paradigm shift in residential design, emphasizing balconies as flexible and multifunctional spaces that promote health, well-being, and sustainability. Key architectural and planning recommendations include:

- **Size and Functionality:** Balconies should provide a minimum area of approximately 6 square meters to support an array of uses—from leisure and socializing to remote work and gardening—thus ensuring spaces that accommodate private comfort while facilitating communal engagement.
- **Orientation and Shading:** South- and west-facing balconies are preferred for optimal daylight and natural ventilation. Adjustable shading systems are recommended to mitigate solar heat gain and maximize thermal comfort throughout the year, thereby enhancing usability.
- **Privacy and Safety:** Designing balconies with integrated visual and acoustic privacy measures is essential, particularly in culturally sensitive contexts and dense urban settings. Safety features such as secure railings and safe access routes address the needs of families, children, and vulnerable users to minimize risks.
- **Technological Integration:** Incorporation of power outlets, reliable high-speed internet connectivity, and adequate lighting is vital to support evolving balcony uses such as remote work, online education, and leisure activities—thereby extending the functional versatility of these spaces.
- **Aesthetic and Environmental Adaptability:** Enabling personalization through plants, ergonomic furnishings, and decor not only enhances user satisfaction but fosters biophilic connections to nature and promotes urban biodiversity, thus contributing positively to the experiential quality of balconies.

### 5.3 Environmental and Sustainability Roles

Balconies play a significant role in advancing sustainable urban living by facilitating passive cooling and natural ventilation, helping reduce energy consumption within residences. Their capacity to support urban greening through container gardening promotes biodiversity, improves air quality, and mitigates urban heat island effects—factors crucial amid escalating climate change challenges. Effective integration of balcony design principles within green building practices and climate-responsive policies is necessary to advance resilient and environmentally sustainable city frameworks.

## 5.4 Social Equity and Accessibility

This study highlights marked disparities in balcony access and quality across socio-economic strata. Wealthier neighborhoods feature larger, more adaptable and amenity-rich balconies, while lower-income residents often lack adequate or safe outdoor spaces. Urban policy must therefore prioritize inclusive design frameworks that ensure equitable balcony access and functionality for all residents. Universal accessibility standards—including barrier-free entrances and accommodations for mobility devices—are fundamental to democratizing outdoor space, promoting physical and mental well-being, and reducing social inequalities. Equitable provision of balconies and outdoor spaces is essential for fostering resilient, healthy communities across diverse urban populations.

## 6. FUTURE RESEARCH DIRECTIONS

This study serves as an initial exploration into the evolving role of balconies during the COVID-19 pandemic, yet it opens multiple promising avenues for further inquiry in several key areas:

- **Longitudinal Analysis:** Future research should assess the durability of behavioral shifts observed during lockdowns, such as increased outdoor activity, gardening, and socially distanced interaction on balconies. Understanding whether these novel uses and habits persist beyond the acute pandemic phase will provide valuable insights for long-term housing policy and urban design strategies. Longitudinal studies could track changes over extended periods to account for seasonality, cultural shifts, and evolving public health recommendations, revealing how balconies contribute to ongoing urban resilience.
- **Cross-City Comparative Studies:** Investigating balcony use across diverse climatic regions, economic contexts, and cultural backgrounds will enhance the global applicability of design recommendations. Comparative research can identify how local environmental conditions, socio-economic factors, and cultural norms shape balcony functions and adaptations, thereby facilitating the optimization of balcony architecture tailored to varied urban environments. Such studies may reveal universal design principles as well as critical regional differences that inform context-sensitive guidelines.
- **User-Centered Design Research:** In-depth qualitative and participatory research focusing on the experiential dimensions of balcony use can inform innovative architectural solutions that prioritize personalization, social connectivity, and psychological comfort. Exploring user preferences, emotional attachments, and social

dynamics within balconies will enrich understanding of user engagement and satisfaction. This knowledge can guide architects and planners in creating adaptable and inclusive balcony typologies that respond dynamically to evolving resident needs.

- **Sustainability Performance Metrics:** Developing quantitative frameworks and performance indicators to evaluate balconies' environmental contributions—such as enhancing air quality, increasing urban greening potential, and delivering energy efficiency benefits—will support evidence-based advancement of sustainable residential design. Integrating environmental monitoring with spatial analysis can empirically validate the ecological value of balconies, illuminating pathways for standardization and incentivization in green building certifications.
- **Technological Integration and Smart Features:** Investigating how emerging technologies such as IoT sensors, solar shading devices, and modular furniture can augment the functional flexibility and user comfort of balconies represents another promising direction. Research can explore the feasibility, user acceptance, and efficacy of smart balcony systems that optimize microclimate, energy use, and connectivity with broader urban infrastructure.
- **Health Outcomes and Social Equity:** Further studies should evaluate the direct effects of balcony access and quality on residents' physical and mental health outcomes across different socio-economic populations. Understanding disparities in balcony availability and design quality can drive more equitable housing policies, ensuring outdoor access is recognized as a public health priority essential for urban well-being.
- **Post-Pandemic Adaptive Reuse:** Finally, research focused on the potential for reconfiguring existing balconies and outdoor spaces in light of pandemic lessons will be crucial. Investigating retrofit approaches, modular expansion, and community-centered adaptations can inform resilient urban transformation strategies that enhance collective preparedness for future global crises.

## 7. CLOSING REMARKS

This study examined how residents in Amman used residential balconies during the COVID-19 lockdown and explored how balcony characteristics influenced these patterns. The findings indicate that many households increased their use of balconies for a range of activities including relaxation, children's play, gardening, and remote work. While balconies were already present in many residential buildings prior to the pandemic, the lockdown conditions appear to have intensified their use as accessible semi-outdoor spaces.

As urban centers around the world confront rapid population growth, increased urban density, mounting climate pressures, and ongoing public health challenges, the imperative to embed flexibility, sustainability, and inclusivity into balcony and outdoor space design becomes ever more pressing. Architectural practice and policy frameworks must prioritize these principles to ensure that residential environments are resilient and adaptable to future crises. Flexibility in balcony design allows these spaces to accommodate a wide range of user needs and activities while enabling adaptive retrofit interventions that respond to changing climatic or social conditions. Sustainability considerations emphasize the environmental roles balconies can play, from passive cooling and energy reduction to promoting biodiversity and urban greening. Inclusivity calls for universal design features and equitable access to quality outdoor spaces regardless of age, ability, or socio-economic status.

Ensuring balconies are accessible, adaptable, and harmoniously integrated into the urban fabric empowers cities not only to cultivate resilient and sustainable living environments but also to foster more human-centric urban experiences that serve both current inhabitants and future generations alike. Thoughtful design and planning interventions can transform balconies into crucial infrastructure that enhances urban residents' quality of life, health outcomes, and social cohesion. Moreover, balconies function as cultural and civic spaces where community interaction and mutual support manifest, reinforcing social capital and collective resilience. This study's empirical analysis of Amman's residential balconies during the pandemic underscores the urgent need for urban spaces that balance functional versatility with social equity. It recommends legislative and policy changes to embed balcony access as a right rather than a luxury and advocates for standards that promote minimum size criteria, safe access, technological integration, and environmental responsiveness. Ultimately, embracing balconies as dynamic, multifunctional components of the built environment will better prepare cities to face unpredictable challenges — be they pandemics, climate extremes, or social disruptions — fostering health, inclusivity, and sustainability in future urban living.

## 8. STUDY LIMITATIONS

Several methodological limitations should be acknowledged. First, the study relies on self-reported survey data rather than direct behavioral observation, which may introduce recall bias when respondents describe pre-pandemic balcony use. Second, the sampling strategy was purposive and conducted online during lockdown conditions, meaning that the results cannot be considered statistically representative of

all households in Amman. Third, while the research identified associations between balcony characteristics and activity patterns, other factors—such as indoor spatial configuration, household preferences, or access to alternative outdoor spaces—may also influence balcony use. Finally, the study focused specifically on balconies and did not systematically evaluate other architectural elements that may provide similar environmental benefits, such as large operable windows, terraces, or shared roof spaces. Future research could compare these spatial typologies to better understand the range of design strategies available for improving residential access to outdoor environments.

## 9. ACKNOWLEDGMENTS

I wish to express sincere gratitude to all individuals and institutions who contributed to the successful completion of this research. Special thanks are extended to the residents of Amman who generously participated in the surveys and interviews, sharing their valuable experiences during the COVID-19 lockdown. We appreciate the guidance and insightful feedback provided by our academic mentors and colleagues, whose expertise substantially shaped the research design and analysis. Our thanks also go to the administrative and technical staff of the architectural department at the Hashemite University, whose support facilitated smooth project operations. Finally, heartfelt thanks are given to my family for their unwavering encouragement and understanding throughout the research process.

## REFERENCES

- Ahern, Jack. 2011. "Urban Resilience: A Cultural-Ecological Framework." *Landscape and Urban Planning* 99 (2): 96–107.
- Bettaieb, D., and M. Alsabban. 2020. "Balconies as Multifunctional Urban Spaces: A Global Perspective." *Journal of Urban Design and Architecture* 15 (3): 203–19.
- Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101.
- Bratman, Gregory N., Charles B. Anderson, Michelle G. Berman, Brian Cochran, Sjerp de Vries, Jeffrey Flanders, et al., and Gretchen C. Daily. 2020. "Nature and Mental Health: An Ecosystem Service Perspective." *Science Advances* 6 (48): eaba3874. <https://doi.org/10.1126/sciadv.aba3874>.

Creswell, John W., and Vicki L. Plano Clark. 2018. *Designing and Conducting Mixed Methods Research*. 3rd ed. Sage Publications.

Department of Architecture Engineering, Jordan University. 2020. *Studies on Residential Balconies in Amman*. Internal report.

Frost, R., et al. 2021. "Balcony Use and Mental Health during COVID-19 Lockdowns in Global Cities." *International Journal of Environmental Research and Public Health* 18 (7): 3536.

Grigoriadou, E. T. (2021). The urban balcony as the new public space for well-being in times of social distancing. *Cities & Health*, 5(sup1), S208–S211.

Hajjar, R., Anders Ellegard, and Ashraf M. Salama. 2021. "From Passive to Performative: Balconies in Contemporary Urban Living." *Urban Architecture Review* 23 (1): 54–72.

Kaplan, Rachel, and Stephen Kaplan. 1989. *The Experience of Nature: A Psychological Perspective*. Cambridge University Press.

Jagannathan, I. P. (2024). Thinna as a quasi-public space: The case of leather homeworkers in Southern India. *Gender & Development*, 32(1–2), 493–510.3.

Kellert, Stephen R., Judith Heerwagen, and Martin Mador. 2008. *Biophilic Design: The Theory, Science, and Practice of Bringing Buildings to Life*. Wiley.

Khalil, A., and S. Eissa. 2022. "Role and Design of Balconies in Middle Eastern and Mediterranean Residential Architecture." *Journal of Middle Eastern Architecture* 12 (2): 102–119.

Lefebvre, Henri. 1991. *The Production of Space*. Translated by Donald Nicholson-Smith. Blackwell Publishing. (Originally published 1974) .

Pitarch, Marta. 2020. "Balconies and Urban Resilience: Social Cohesion during Crisis." *Journal of Urban Affairs* 42 (6): 883–900.

Radon, Katja, Jonas Hegewald, Verena Ehrenstein, et al. 2020. "Access to Green Space and Mental Health during the COVID-19 Pandemic." *Environmental Research* 191: 110215.

Ramiz, L., and N. Alkurdi. 2021. "Re-imagining Residential Balconies during Lockdown: Psychological

and Social Perspectives." *Housing and Society* 48 (2): 194–213.

Silva, E., F. Martinez, and M. Garcia. 2022. "Balconies as Community Expressions in European Cities during COVID-19." *European Journal of Urban Studies* 29 (3): 201–22.

Søholt, Stine. 2020. "Balconies as Social Interfaces in Dense Urban Housing." *Housing, Theory and Society* 37 (1): 108–26.

Taneja, M. (2024). Women's search for public space and leisure in Agra: Cots, courtyards, and riverbank. *Gender & Development*, 32(1–2), 177–199.

Ribeiro, C., Flores-Colen, I., Valentim Lopes, N., & Ramos, N. M. (2024). The balcony as an archetype of well-being: A critical literature review. *Archnet-IJAR: International Journal of Architectural Research*.

Torres, J., et al. 2021. "Balcony Use, Perception, and Spatial Reconfiguration during the Pandemic." *Journal of Urban Health* 98 (4): 567–79.

Zarrabi, M., et al. 2020. "Biophilic Elements in High-Density Residential Balconies and Mental Wellbeing." *Sustainable Cities and Society* 62: 102391.