



Contemporary Qatari dwelling design and household's social wellbeing

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ABSTRACT

Previous studies have suggested that physical environment directly and indirectly affects inhabitants' wellbeing. This study investigates the physical environment in which people spend most of their time: the residential context. It investigates the micro-scale of the residential environment – the dwelling – in relation to household wellbeing. Few studies have explored the dwelling scale, and specifically dwellings in the Middle East. The objective of this study was to develop an understanding of the Qatari detached-dwelling spatial layout and its impact on the social wellbeing of the household. Thirty-nine interviewees from Doha city shared their dwelling designs and daily social routines. The data were subjected to thematic and spatial analysis, with the findings combined to produce a comprehensive illustration of the dwellings' contribution to the social wellbeing of their inhabitants. The results show that the Qatari dwelling facilitates different levels of social interaction: nuclear family interaction, extended family interaction, and communal interaction. This research concludes that Qatari dwelling design reflects a strong emphasis on the values of communal living and hospitality and respect for privacy.

1. Introduction

Wellbeing studies are gaining popularity worldwide due to their significant impact on various aspects of life such as the physical, mental health, work performance, relationships, and overall quality of life (Mouratidis 2017). Many countries have set a goal of enhancing the wellbeing of their general populations, and governments have invested in measuring and quantifying their respective nations' wellbeing. Previous research has indicated that a population's wellbeing is influenced by various aspects of quality of life, including variables of the built environment (Das, 2008).

As people spend a significant amount of time in residential environments (Brasche and Bischof 2005; Biddulph 2007), this research aims to clarify the impact of dwelling design on inhabitants' wellbeing. To achieve this, it investigates the layouts and spatial uses of Qatari dwellings and their impact on the social wellbeing of the household.

There is a body of literature exploring the multidimensionality, complexity, and instability of wellbeing (Forgeard *et al.*, 2011). However, due to the subjective character of the concept of 'wellbeing', there is no universally agreed-upon definition – nor any single methodology for researching the subject (Teghe and Rendell, 2005; Alartartseva and Barysheva, 2015; Anderson *et al.*, 2021). Many studies use the World Health Organization (WHO) definition of wellbeing: 'The state of complete physical, mental and social wellbeing and not merely the absence

of disease or infirmity'.

Historically, there are two traditions in the study of wellbeing: the hedonic approach (concerned with happiness, positive affect, low negative affect, and life satisfaction) and the eudaimonic approach (good psychological functioning and human growth) (Dodge *et al.*, 2012; Allin and Hand, 2014; Alartartseva and Barysheva, 2015; Steemers, 2015). The hedonic and eudaimonic approaches are components of subjective wellbeing (Margolis *et al.*, 2020), while Western and Tomaszewski (2016) suggest that objective wellbeing is represented by the elements of a 'good life'. In their literature review, Felce and Perry (1995) observe that four types of wellbeing have been distinguished: physical, material (wealth and income), social, and emotional. Researchers have stated that it is difficult to distinguish between different types of wellbeing, as the domains of wellbeing correlate with one another (Allin and Hand, 2014; Margolis *et al.*, 2020). Other studies have shown that people can have high levels of subjective wellbeing, regardless of their objective wellbeing (Western and Tomaszewski, 2016). Teghe and Rendell (2005) note that wellbeing is subjective and commonly measured against a set of societal standards, indicating the importance of social factors to overall wellbeing. At the same time, social wellbeing bridges and affects other categories of wellbeing (Van Lente *et al.*, 2012). Therefore, this research focuses on the social aspect of Doha's inhabitants' wellbeing, and the following paragraphs define social wellbeing and its factors.

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Keyes (2016) defines social wellbeing as satisfaction with one’s situation and involvement in society, arguing that it correlates with other indicators of life satisfaction, happiness, and dysphoria. Putnam (2000) states that social wellbeing is characterised by ‘features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit’. Social capital is a concept widely used in social wellbeing studies. Menon et al. (2015) define it as the characteristics of social life that allow people to work together more effectively to achieve common goals. Social capital – alongside other forms of capital – is considered a sustaining element of wellbeing (OECD 2011). There are two kinds of social capital: bonding and bridging (Helliwell and Putnam, 2004). People from the same social categories (e. g., ethnicity, age, social class) share bonding social capital, whilst people from different categories experience bridging social capital. Muzayanah et al. (2020) state that scales of social capital are debated. For Lochner et al. (1999), there is national-scale, community-scale, and family-scale social wellbeing. National-scale social capital is concerned with economic policies, whilst community social capital concerns daily interactions between neighbours (Lochner et al., 1999). In addition, Wollny et al. (2010) note that little attention has been given to the family-scale social wellbeing that the current paper will discuss.

Wellbeing is the result of interactions between numerous variables (Teghe and Rendell, 2005). The variables of social wellbeing depend on the definition applied and the scope of the particular study. From a sociological point of view, Keyes (2016) suggests that social integration, acceptance, contribution, actualisation, and coherence are dimensions of social wellbeing. Teghe and Rendell (2005) propose that self-acceptance and actualisation are related to psychological wellbeing, and it is argued that social integration and cohesion are promoted by qualities of the physical environment (Keyes, 1998). Sociologists conclude that declines in social wellbeing are due to reductions in social interaction, as well as weaknesses in the design of the physical environment (Farahani, 2016).

Hommerich and Tiefenbach (2018) agree that the variables of social wellbeing require mediating factors to exert an influence. Therefore, this research investigates the physical characteristics of Qatari dwellings as a mediating factor in the influence on inhabitants’ social wellbeing.

Before the discovery of oil, Doha was a small fishing village located in the eastern part of Qatar (Adham 2008). The 1930s were marked by poverty and famine in Doha, and it was claimed that the city lacked any distinctive local architecture (Wadi and Furlan 2017). However, by the end of the 1960s, Doha began to take shape, and new housing typologies, including apartment buildings, were introduced to the city (Adham 2008). Additionally, a department for social housing was established to provide affordable housing for low-income Qataris. As a result of the city’s development, many old neighbourhoods were demolished and replaced with high-rise residential buildings. The Ministry of Municipal Affairs purchased old houses and land from the local population and relocated them to new suburban developments (Gharib and Salama 2014). The local population was provided with land and an interest-free building-grant to design and construct their houses, resulting in diverse dwelling layouts and forms (Nagy 2006). Typically, the dwellings were detached two-storey homes, enclosed by high walls to ensure their privacy. These low-density housing areas are located outside the city centre (Nagy 2006). Wiedmann and Salama (2019) argue that the current development dynamics in Doha have resulted in a lack of social integration developments.

Characteristics of the residential environment are categorised as spatial features (architecture and urban planning), human and social features, functional features, or contextual features (Bonaiuto, 2004). Das (2008) proposes that the quality of the physical environment is determined by subjective and objective quality of life (QOL) elements (Fig. 1.1). The physical characteristics of the residential environment are the objective components of the physical environment such as the built environment form and layout (Menchik, 1972; Song and Knaap, 2004; Burton et al., 2011; Rezvani et al., 2013; Chan et al., 2019; Muzayanah

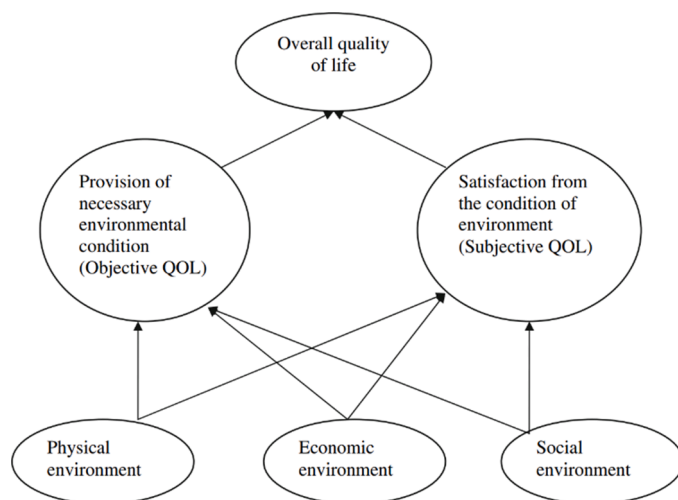


Fig. 1.1. The relationship between quality of life (QOL) and physical environment (Source: Das, 2008).

et al., 2020), whereas the social and contextual features are described as ‘perceived characteristics’ (Fernández et al., 2003; Bonaiuto, 2004; Dempsey, 2009; Leyden et al., 2011; Adams, 2013; Rezvani et al., 2013; Townshend, 2014; Farahani, 2016; Mouratidis, 2018).

The physical characteristic of dwellings includes the spatial and functional features. The spatial elements include the layout (Song and Knaap, 2004; Burton et al., 2011; Muzayanah et al., 2020; Ministry of Housing Communities and Local Government 2021); spatial connectivity (Bonaiuto, 2004; Burton et al., 2011; Muzayanah et al., 2020); and dwelling type and form (Menchik, 1972; Burton et al., 2011), while the functional features are related to spatial-use distribution. For example, different uses of the dwelling are grouped according to the physical or social characteristics of the space. In a comparative study of English and Australian dwellings, Lawrence (1981) categorises spatial use into clean and dirty, front and back, public and private, and day and night. Rosselin (1999) emphasises the neutral zone or threshold (such as the entrance hall) and its essential role in separating private and public spaces. Cieraad (2006) used time- and age-based zoning to describe different spatial uses in relation to the space users. Furthermore, Cieraad (2017) suggests that domestic spatial uses are also zoned based on users’ gender.

2. Methodology

The identified indicators suggest the need for both qualitative and quantitative methods. A mixed-methods methodology enriches the results and allows for a more comprehensive study by integrating data – subjective and objective – in different stages of the research (Bonaiuto, 2004; Hanson et al., 2005; Bonaiuto and Alves, 2012; Rezvani et al., 2013; Bakar et al., 2015; Creswell and Creswell, 2018). Table 4.5 lists the methods used in this research. All methods and tools were approved by the Welsh School of Architecture ethics committee.

Previous research has found variation in dwelling typology in

Table 4.5 Indicators and methods of measuring social wellbeing and residential environment design.

	Indicators	Measure	Tool
Social wellbeing	Social interaction	Frequency interaction	Interview
	Privacy	Type of interaction	
		Personal privacy Family privacy	
Residential environment	Layout	Connectivity Integration	Interview Spatial analysis Spatial analysis Space syntax
	Spatial use		

relation to the features of the space (Coolen, 2006). For example, Rollwagen (2014) used the number of floors in a dwelling to categorise the typologies of high-rise and low-rise dwellings, while Day (2000) classified dwellings into attached (townhouses) and detached. National surveys such as the English Housing Survey Housing Stock Report list several typologies, including terraced houses, semi-detached houses, detached houses, bungalows, flats, core and clustered accommodation, and shared/unshared dwellings (Department of Communities and Local Government 2016). The Ministry of Development Planning and Statistics lists nine types of dwellings in Qatar: palace/villa, public house/popular house/elderly house, additional building, apartment, separate room, part of a building/establishment, and beach house/other (Ministry of Development Planning and Statistics 2015). However, this is considered a general classification, and sub-typologies were identified during the data collection phase of this research.

Of the typologies available in Qatar, villas (the detached dwelling typology) were selected as the main focus of this research for physical and socio-economic reasons. The proportion of detached dwellings and the proposed national masterplan for Doha city indicate the dominance of and preference for low-density neighbourhoods and detached dwellings (Ministry of Development Planning and Statistics – Qatar 2017). Detached dwellings have wide layout variations. As for the socio-economic factors, 1) owner-occupied detached dwellings have a longer tenure, which ensures sufficient time for the evolution of social relationships within the neighbourhood (Lawrence, 2005) and similarly evolution dwellings spaces, and 2) studying a single typology eliminates the impact of affordability variation.

A case-study method was used to compare different layouts and spatial-use distribution within single dwelling typologies to identify their impact on inhabitants' social wellbeing in the cultural context of Doha.

To identify volunteers, the researcher contacted local networks within the case studies to introduce the research objectives and solicit participants. In order to reach a broader range of residents, a snowball sampling method was employed, whereby initial participants were asked to recommend neighbours who might be interested in participating. Eligibility for participation was limited to long-term residents who had resided in the neighbourhood for at least five years. This criterion was established to allow sufficient time for the establishment and development of social networks, facilitating a comprehensive understanding of the potential impact of housing design on both individual households and the community as a whole.

Additionally, the selection process carefully considered demographic characteristics to ensure a diverse range of participants. Various social groups, age groups (with participants aged over 16 years), genders, and work statuses were taken into account. This approach aimed to capture a comprehensive representation of the neighbourhood's demographic composition. However, it is important to acknowledge that the snowball sampling method may have resulted in limitations concerning the diversity of demographic characteristics. Participants tended to refer residents with similar demographic profiles, which may have influenced the final composition of the participant group.

The interviews involved open-ended questions. They each began with general questions about the demographic profile of the participant, followed by questions about the dwelling design and the family's routines and social patterns. The participant was asked to sketch a plan of their house themselves or to allow the researcher to walk through the dwelling to sketch it. Based on this sketch, the interview then explored the design quality and the participant's satisfaction with the house and mapped their routines and social activities within the indoor spaces. The interview sample size was set following the achievement of data saturation, which ensured that the study captured a comprehensive range of insights and experiences.

A thematic analysis of the interview data was conducted. This thematic analysis involved inductive and deductive approaches. The inductive analysis was based on findings from the literature, while the

deductive analysis was based on the interviewees' stated priorities, highlighting why they were essential to the interviewees. The findings of the thematic analysis were compared with those of the spatial analysis to interpret the sociological significance of the dwellings.

Owing to the lack of archival materials including drawings of dwellings obtained from the building permit department, desk-based research was conducted to explore the spatial qualities of the dwelling layouts, as drawn by the interviewees. Since a considerable number of the participants lacked basic sketching skills, the drawn plans were simplified into justified graphs by the researcher. The spatial arrangement analysis was conducted in three stages:

- 1 Analysis of the layouts as spatial arrangements, eliminating the spatial use. In this stage, the descriptive analysis compared the form characteristics across different typologies.
- 2 Investigation of spatial arrangement logic based on functions' integration/segregation value. The functions of the spaces were sorted based on the space integration values to trace the different moods of interaction within the family and the community.
- 3 Exploration of the relationships between spatial uses, seeking repeated spatial organisation unique to the cultural context.

3. Results

3.1. Dwelling design impact on community interaction

The analysis of the spatial organisation identified two methods of arrangement: ring spatial organisation (Fig. 3.1) and linear spatial organisation (Fig. 3.2). Living rooms, kitchens, dining rooms, *Majles*, and bedrooms were common elements of both the ring and linear orders. Just under half of the case studies (47%) were found to have an internal ring. Those with rings had more highly integrated spaces (Fig. 3.3) than dwellings with linear space organisation (Fig. 3.4).

Fig. 3.5 shows that some dwellings had more than one visitor space (*Majles*). The men's *Majles* is located as close as possible to the public space (the street), with low integration value and a weak relationship to the main family space (the living room) (Fig. 3.6), while the women's has a stronger relationship to the living room and a higher integration value. The men's *Majles* are also visually connected to the public space, using more permeable material and shorter fences (Fig. 3.7).

When an inhabitant had an extended social network, this was found to affect the design of their dwelling. Some interviewees had added spaces to their dwellings to better serve their social activities:

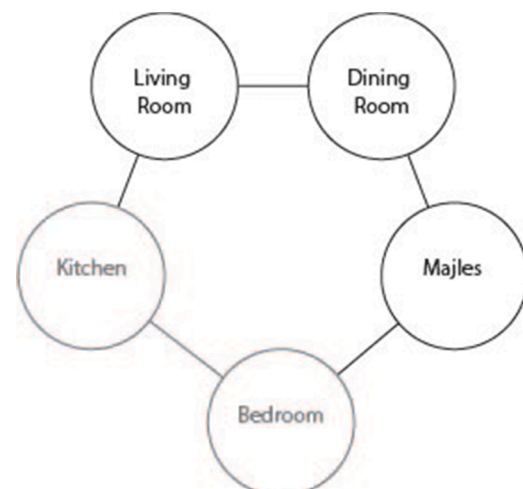


Fig. 3.1. Ring spatial arrangement.

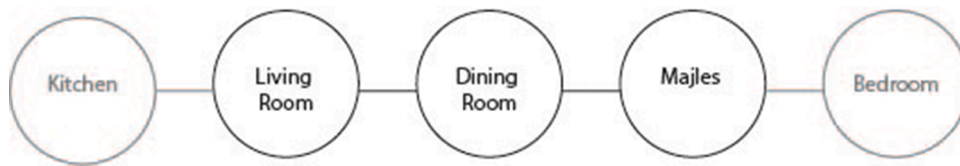


Fig. 3.2. Linear spatial arrangement.

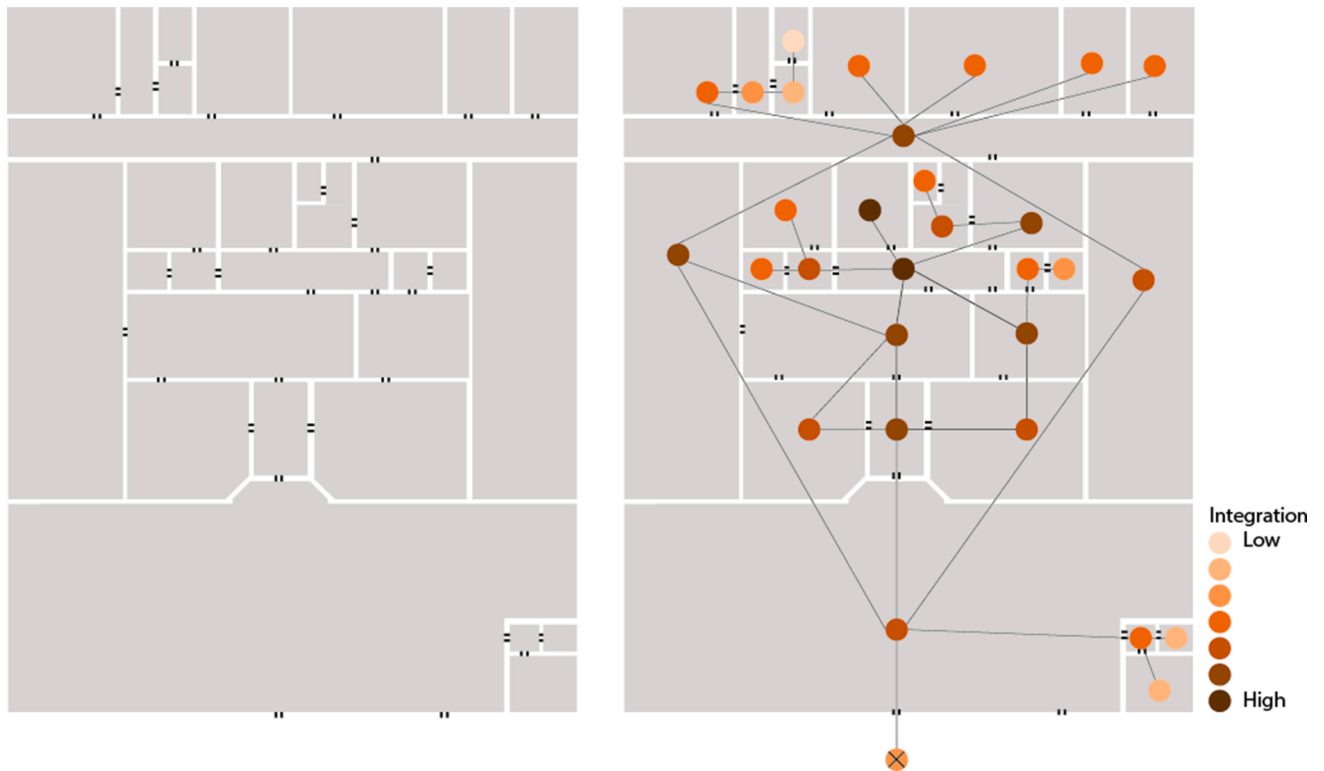


Fig. 3.3. Convex map of a dwelling layout, with ring spatial organisation and integration graph.

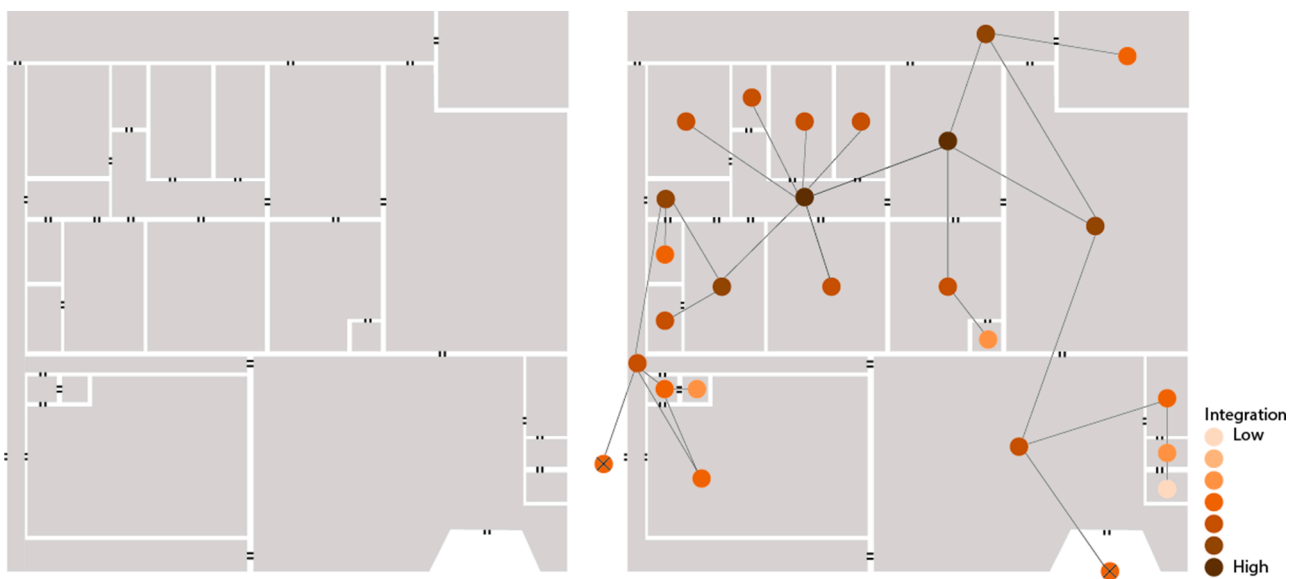


Fig. 3.4. Convex map of a dwelling layout, with linear spatial organisation and integration graph.

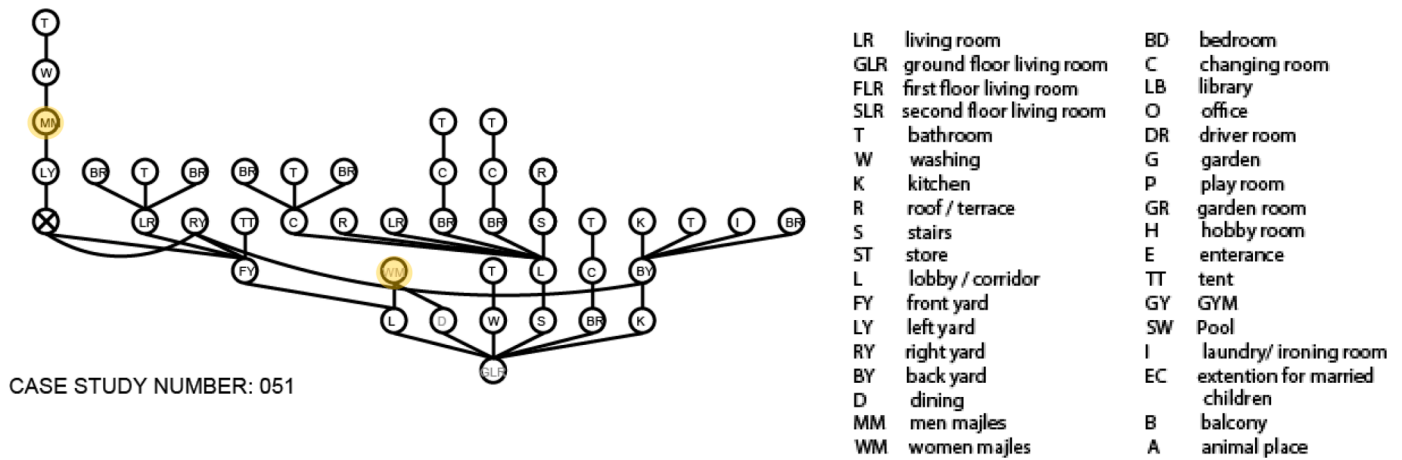


Fig. 3.5. Locations and numbers of Majles spaces.



Fig. 3.6. Sequence of spaces, based on integration value.



Fig. 3.7. Physical characteristics that distinguish the men's Majles.

'We often visit one another's houses [the neighbours] for advice and meetings. They come to my *Majles* regularly, so I have enlarged my *Majles* many times.' (male, 50s)

built the exterior *Majles*, both of us (men and women) were comfortable and happy.' (female, 50s)

Building, expanding, and changing one's dwelling design to facilitate positive interactions with one's neighbours is a unique practice in the Qatari community.

3.2. Dwelling design impact on household interaction

Dwellings with limited visitor space suffered from limited privacy for their inhabitants. One interviewee expressed the privacy issues as follows:

The spatial integration analysis found that the living room had the highest integration value of all spaces. The thematic analysis of the interview findings indicated the frequent use of the living room as the main location for household interaction. The analysis found that the size of the living room influenced the regular use of the space. Many dwellings were found to have multiple living rooms (Fig. 3.8), including extended family living rooms, daily living rooms, and nuclear family living rooms. They varied in terms of integration, permitting different levels of privacy and uses. The presence of multiple living rooms revealed the importance of household social interaction at both the extended family scale and the nuclear family scale.

'We built the male *Majles* in the yard, with a separate dining room and toilets. The old *Majles* located in the main dwelling building is used for female visitors because the women's *Majles* was tiny room and not enough. Also, when the male *Majles* was in the main dwelling building, we (women) needed to keep quiet. When they

the activities that took place there:

'Mostly, we use the living room. The place is very good because it is enough for family members and visiting relatives. Its location is central in the house, surrounded by the rooms. Let's say it is the interaction place.' (male, 20s)

3.3. Dwelling design impact on extended family wellbeing

It is common practice in Qatar for a newly married son and his wife to live with his family. More than 47% of the case studies were extended family dwellings hosting at least one nuclear family, while some of the remaining 53% had previously hosted nuclear families who had since moved out.

Family growth and changes in family structure were reflected in the use of the spaces in the dwellings. The spaces and form of a dwelling undergo dynamic change, as a household ages (Hanson, 1999). The use of flexible layout designs in some dwellings reflects the importance of family cohesion, with dwelling layout design found to influence family-scale social support.

The justified graph of an extended family dwelling can be distinguished from others dwellings' justified graphs by the nuclear family spatial presence. The accommodation of nuclear families take three forms. The first involves pre-emptively designing the dwelling to include bedrooms for single children and suites for them to occupy after marriage (Fig. 3.10). The second involves modifying existing features to host the nuclear families (Fig. 3.11), while the third involves building vertical or horizontal extensions when children get married (Fig. 3.12). All three methods promote more frequent family interaction than is enjoyed when the nuclear family resides outside of the dwelling, with varying levels of privacy and integration into the extended family. Many of the senior interviewees expressed sentiments regarding the frequency of gatherings with their married children:

'My married son and my daughter-in-law are in their own flat upstairs. They are busy with their life and work. I see them once a day

only. On Fridays, we have lunch for all my children who live with me or in their own houses.' (male, 60s)

'I regret that we hadn't considered family growth. Now, I see my grandchildren once a week. I wish they were around me.' (female, 60s)

The interview analysis revealed that the dwelling designs and modifications to extended family dwellings were intended to foster family solidarity, with changes in room use and dwelling extensions. The length of the nuclear family's stay depended on the available space, with some owners planning for family growth during design and others making changes or building extensions later. The conversion of a *Majles* into a suite for newly married children was common in dwellings with multiple guest spaces. Some interviewees expressed dissatisfaction with the size of their yards, having found themselves unable to extend their dwellings to accommodate family expansion. This dissatisfaction had encouraged them to move out of the neighbourhood to find places in which it would be possible to live beside their children in clusters.

'My children moved from their rooms to suite rooms after their marriages.' (male, 60s)

'The exterior men's *Majles* was converted into a flat for my married son. Once he left, we returned it to a *Majles*.' (male, 60s)

'I am dissatisfied with the size of the yard. I want a larger yard. I want my children to be around me. I don't want them to go away.' (male, 60s)

3.4. Impact of dwelling design on privacy

Dwelling layout has an impact on both the indoor and outdoor privacy of the household (Fig. 3.13). As described above, outdoor (yard) privacy is affected by the visual accessibility of private spaces. The layout of the dwelling also affects yard privacy, with yards giving physical access to strange men (visitors and servants). In some dwellings, the male spaces are located by the dwelling fence, with access from the street and no access to the family yard, thereby maximising privacy.

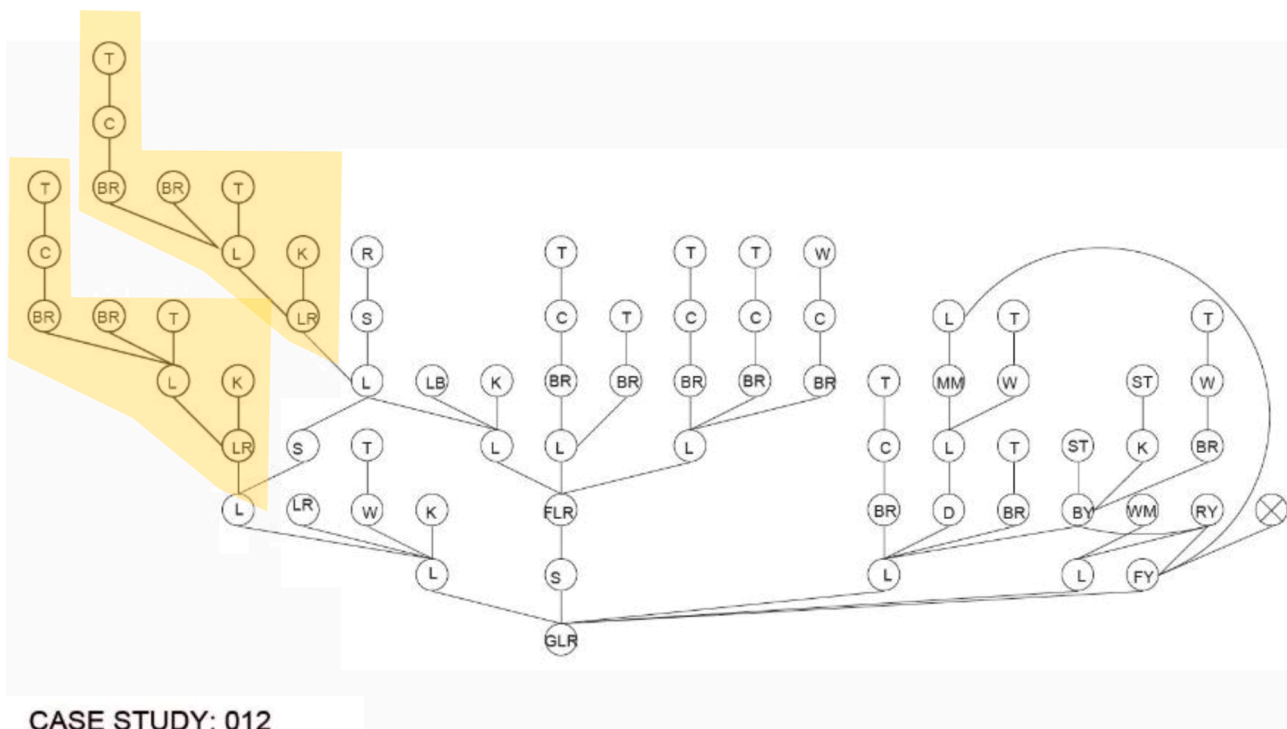


Fig. 3.10. Nuclear family flat, considered when designing the dwelling.

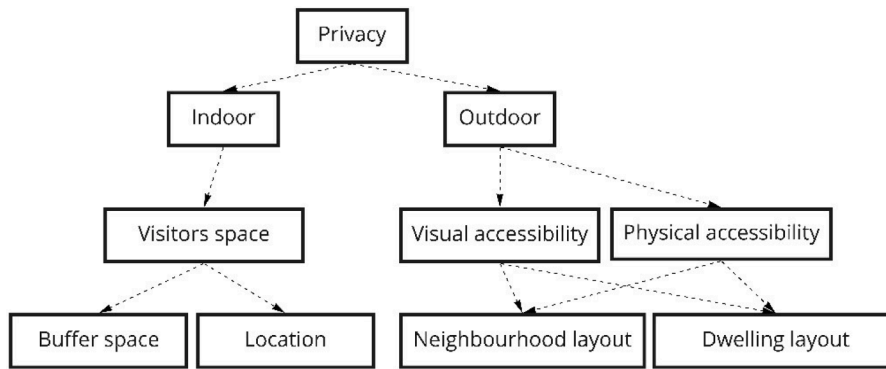


Fig. 3.13. Factors that impact household privacy (Source: author).

fence of the dwelling (Fig. 3.14). The yard is considered a buffer between the men’s *Majles* and the private indoor family space. The interviewees talked about visitor spaces and privacy management:

‘There is no conflict with family privacy, as we make sure that my brothers and father are not at home during the visits.’ (female, 30s)

‘We host formal visitors in the *Majles*. If we have female and male visitors, we use the living room for women and the *Majles* for men.’ (female, 40s)

Although the spatial analyses identified the dining room as a key space in the Qatari dwellings, the interviewees who had separate spaces for dining reported irregular use of them. The dining room usually mediates the living room and the *Majles*. Its relationship to the *Majles* influences its use as part of the visitors’ space, rather than as a daily household space. The dining room facilitates household privacy by separating the visitor space and reducing direct access.

4. Discussion

The findings of the study strongly suggest that the emotional and social significance of the Qatari home goes beyond its physical structure – the dwelling–, and is closely linked to the wellbeing of the individuals and families who inhabit it. Through an analysis of thirty-nine dwellings, the spatial use and organisation of the Qatar home address three levels of social wellbeing (household, community, and extended family)

and thus also affect other categories and scales of wellbeing.

The findings of this research indicate that a typical Qatari dwelling layout consists of a living room, dining room, and *Majles* space arranged in a ring that expands to reflect changes in family size and status. A solid ring spatial organisation, with a central living room, increases casual interaction between inhabitants. The *Majles* included in the ring is not directly connected to the family space. The dining room has a strategic location to mediate the visitor and family spaces and works as a buffer between the two spaces. In most cases, the *Majles* located within the main spatial ring is dedicated to female visitors. In contrast, the male *Majles* is located close to the street (public) and separated physically by a buffer zone (the yard). Personal spaces (bedrooms and married children’s suites) are kept private by locating them in the most segregated spaces. The flexibility of the dwelling layout accommodates the growth of the extended family, benefitting family solidarity and maintaining the stability of social relationships on the neighbourhood level.

5. Conclusion

The motivation for this study was to address the gap in wellbeing research in the Middle Eastern region, particularly from countries in the Gulf Cooperation Council. The study investigated the impact of the micro residential environment (the dwelling) on social wellbeing in the cultural context of Doha city. The spatial analysis revealed that Qatari homes reflect a strong emphasis on the values of communal living and

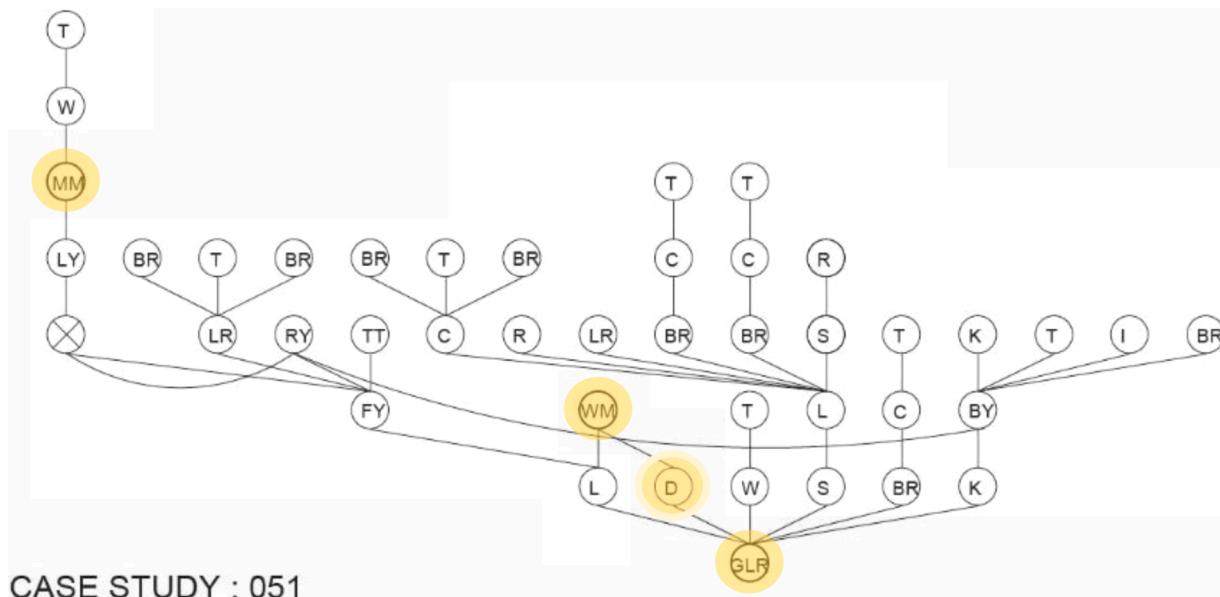


Fig. 3.14. Spatial arrangement of visitor and family spaces.

hospitality and the need for privacy. This was made physically evident by the provision of multiple gathering spaces for different user groups (male, female, nuclear families, and extended families) and by the flexibility of the designs, which allowed them to expand and change incrementally to satisfy family expansion. The design of Qatari dwellings highlights the prioritisation of communal living over individualism. In contrast, social interaction spaces have less value in other cultural contexts. Indeed, some studies argue that then new lifestyle of individuals has changed and therefore eliminating dwelling scale social interaction spaces would enhance social wellbeing on the community scale (Puigjaner, 2019).

The research findings also shed light on the impact of micro residential-environment design on the broader macro scale of the residential environment, particularly the neighbourhood. The findings reveal that rigid dwelling designs that do not allow for modifications or expansions can result in residential instability, which can ultimately reduce the social wellbeing of the neighbours.

This research contributes to the contemporary academic discourse on Doha, which has focused on future developments and contemporary modern and postmodern interventions, rather than seeking to understand and evaluate the consequences of the existing built environment. This research found that the characteristics of the residential environment have a remarkable impact on the social wellbeing of the inhabitants. This finding emphasises the need for cultural sensitivity and social awareness in the education and training of future architects and designers to ensure the creation of built environments that promote social wellbeing and enhance the quality of life of their inhabitants.

The limitations of this study include its small sample size, its focus on a single city, and its investigation of just one dimension of wellbeing (social wellbeing). These factors may limit the generalisability of the conclusions and the ability to transfer these findings to other locations. Furthermore, the study utilised cross-sectional methods to explore the relationship between dwelling design and social wellbeing, which can only indicate associations rather than causality. However, despite these limitations, the investigation employed multiple methods of data collection, allowing for a more robust analysis and reliable conclusions.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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