

Interior Courtyard and its Impact on the Well-being of Inhabitants

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Abstract:

The aim of the present study has been to investigate the impact of the interior courtyard and garden on the wellbeing of inhabitants in Kuwaiti houses. The study seeks to test public acceptance of the courtyard house form and to measure public views of the advantages and disadvantages of implementing the courtyard house. The Kuwaiti public holds the courtyard house type near and dear to their hearts; courtyard houses are among the traditional house types in Kuwait. In fact modern, contemporary free standing houses lack many of the strong elements embedded in the courtyard house. This research paper introduces the courtyard house with its definition and an overview of the historical development of the courtyard house form. The introduction also gives an overview of the courtyard house in the Arab world. As well, some advantages and disadvantages of courtyard houses are provided. Next, this paper establishes a relation between the concept of wellbeing and the interior design of the house lived in. The definition of the concept of the wellbeing is presented and therefore confirms that the building environment has a large impact on inhabitants and users both physically and psychologically. Applying the descriptive approach, this paper uses qualitative descriptions to explain the studied phenomenon. Jointly, this research paper employs the quantitative method to test public views and preferences. Questions for purposes of the research were designed and distributed to a sample of the Kuwaiti public. The responses were collected and analyzed from the sample which were studied to arrive at the general findings. The findings of this research are valuable to planners, designers, and decision makers who deal with housing and development in the state of Kuwait.

Keywords:

*Interior Courtyard
Courtyard House
Free-Standing House
Domestic Space*

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1.0 Introduction

This research aims to investigate the impact of the interior courtyard and garden on the wellbeing of inhabitants in Kuwaiti houses. The purpose of this research seeks to test public acceptance of the courtyard house form and to measure public views of the advantages and disadvantages of implementing the courtyard house. The Kuwaiti public holds the courtyard house type near and dear to their hearts; courtyard houses are among the traditional house types in Kuwait. In fact modern, contemporary free standing houses lack many of the strong elements embedded in the courtyard house. This research paper introduces the courtyard house with its definition and an overview of the historical development of the courtyard house form. The introduction also gives an overview of the courtyard house in the Arab world. As well, some advantages and disadvantages of courtyard houses are provided. Next, this paper establishes a relation between the concept of wellbeing and the interior design of the house lived in. The definition of the concept of the wellbeing is presented and therefore confirms that

the building environment has a large impact on inhabitants and users both physically and psychologically. Applying the descriptive approach, this paper uses qualitative descriptions to explain the studied phenomenon. Jointly, this research paper employs the quantitative method to test public views and preferences. Questions for purposes of the research were designed and distributed to a sample of the Kuwaiti public. The responses were collected and analyzed from the sample which were studied to arrive at the general findings. The findings of this research are valuable to planners, designers, and decision makers who deal with housing and development in the state of Kuwait.

2.0 Research Question

The Main Research of this Paper Stems from the Following Question:

Does the interior courtyard and garden of the house have an impact on the mental or psychological well-being of the house inhabitants?

Research Objective:

To determine if the well-being of interior courtyard and garden homes in modern Kuwait's

inhabitants are in fact impacted by the design of their homes.

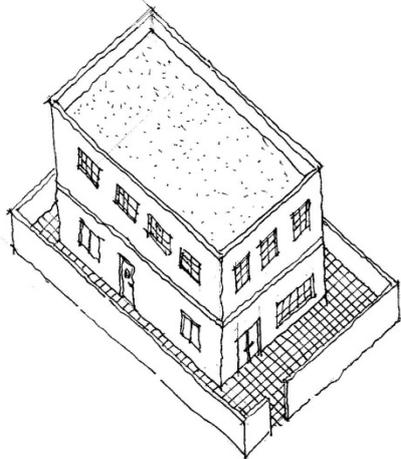
3.0 The Courtyard House

The courtyard is one of the traditional architectural forms that contributed to the climatic, physical, psychological and social environments in a courtyard home. Studies have revealed that courtyards around the world have similar forms, but the attributes can vary depending on the regions climatic characteristics. In this study, the focus will be on the courtyard in the Arabian Gulf area, which is similar to Kuwait because Arabian Gulf countries share the same topographic and environmental characteristics. Most of the courtyards around the world share similar greenery and vegetation in interior gardens. The contents of the courtyard is considered the most significant element. The interior gardens that are included in courtyard houses arguably have a significant impact on the wellbeing of those who inhabit a home with a courtyard or one that has a courtyard view. In the past, most of the traditional Kuwaiti houses had an interior courtyard, but after the discovery of oil in 1950 the architecture of these homes changed. Accordingly, the courtyard design has been reduced and replaced by foreign western architecture in the form of the free-standing house. Since Kuwait is a desert country

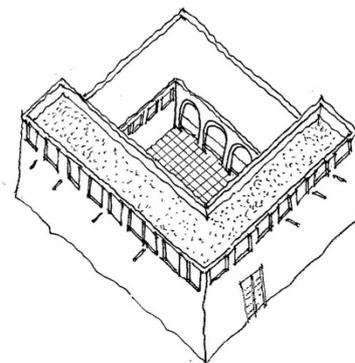
gardening can sometimes be tiring. Additionally, the temperature in Kuwait creates irrigation expenses and plantation maintenance for those who wish to garden. Studies show that Kuwaiti people are not interested in courtyards anymore for several reasons. First, courtyard gardens are considered as an old architecture trend for traditional houses. Second, the ruthless desert environment can create health problems or worsen health symptoms like allergies or asthma. Therefore, interior gardens within courtyard houses are currently a discarded element as well as gardening associated with them.

3.1 Defining the Courtyard House

Constructions in the form of courtyards has existed since humans started building houses. The courtyard house is a type of a house that was built extensively from Morocco to China (Edward, 2006, p. 1). It is a large house and its main parts are disposed around a central courtyard (Jose, 2012, p. 840). Additionally, the courtyard is described as a room without a roof and it functions as the core of the house. However, a house may have a courtyard but that does not necessarily make it a courtyard house. For instance, a large house may have courtyards surrounded by corridors or service rooms.



Contemporary Free-standing House



Courtyard House

Figure 1 the contemporary free-standing house versus the typical courtyard house (the author)

The main characteristic of courtyard houses is that its main rooms are built to surround a courtyard. In fact, the exterior walls of the courtyard house may be windowless. The courtyard contributed to determining the climatic, psychological and physical environment in the courtyard house. Considering the historical presence of courtyard houses, their first appearances were made between 6400–6000 BC. They are known as the oldest form of human residence. The culture and the environment of the time determined the

characteristics of the courtyard houses (Abbas. F, 2016, p. 1). For instance, people would use the courtyard as an inner garden, while others functioned as the focal point in the house. Different people in different eras and regions have built courtyard houses comprised of multiple separate residences. This is notable in ancient Chinese dynasties, as well as in the Inca period, further supporting that courtyard houses have played a significant role throughout history. The use of courtyard houses has been neglected in the

last several centuries. Increased attention has been given to courtyard houses in recent times as a solution for different issues of condensed city housing (S. Fallah, 2015, p. 173).

In most cases, latitude determined the average size of a courtyard house. However, the size of the land played an influential role in determining the average size of the courtyard as well. The courtyard houses are built intentionally with narrow features to maintain a shaded portion during summer. However the courtyards are wide enough to allow for sufficient solar radiation during all seasons, especially winter. The house creates microeconomic factors, such as wind and radiation that controls the level of thermal comfort in the courtyard (F. Soflaei, 2016, p. 227).

The Courtyard House in History

The ancient Romans in their architecture built courtyard houses around vestibules. Moreover, courtyard houses existed with Romans and Asians, as well as in Islamic architecture (Bekleyen & Dalkilic, 2011, p. 910).

The courtyard houses were found in the Arab region, as well as other ancient civilizations, such as the Roman and Greek civilizations. According to Abdelsalam, (Abdelsalam, 2015, p. 27) the courtyard is designed with compacted fabric and narrow streets with solid external walls, which distinguish the Islamic architecture. The Islamic culture tended to neglect the external façade, and rather move towards an introverted approach of

housing designs. As well, there was a reliance on internal courtyards, which dominated as a main element of the Islamic house design. Courtyard houses existed in regions, such as Arabia, Syria, and North Africa, and served different purposes.

The courtyard house was a vital social and environmental component in traditional houses in the Arabian Peninsula. The courtyard worked as a socializing space for individuals who lived inside a private living range. Environmentally, there are many focal points involved by modifying the cruel atmosphere condition of the hot and dry district. The courtyard had a favorable position of giving space to open air exercises that were detached from hot wind, had views of sand and sun based glare and warmth. In some large houses, there were at least two courtyards. In these houses, one was utilized for ladies to guarantee their privacy in the home. Along these lines, courtyards assume a part in the house shape through their usefulness in the cultural setting.

According to Abdelsalam, many individuals in Saudi Arabia continue to believe that the courtyard house is a manifestation of the nearby custom connected fundamentally to their poor past. Many people in Saudi Arabia have questioned the property uses of the courtyard house in relation to the contemporary needs of Saudi society. Particularly, the zone of control and atmosphere of privacy have been noted (Abdelsalam, 2015, p. 27).



Figure 2. Islamic Arts (2011). The Courtyard Houses of Syria. Licensed by <http://islamic-arts.org>

Courtyard lodging is a structural gadget with a long history, initially showing up in the structures of Syria and Iraq three centuries back. Middle Easterner migrants initially utilized the idea of courtyard amid their voyages. They set up their tents around a focal space, which gave haven and security to their steers. With the advancement of Arab-Islamic civilization, the courtyard turned

into a basic typological component. It is likely that the past roaming desert lifestyle of Arabs impacted their changeless houses. The courtyard in this manner satisfies a profound requirement for an open living region (Edward, 2006, p. 144). Positioning likewise assumes an important part in the courtyards of customary Syrian houses. The courtyards include two principle classes, like

enlivening planting. For example, climbing jasmine and flower hedges add fragrance and shading to the courtyard air. As well, orange and lemon citrus trees are important in these houses. The veneers of the inner courtyard are exceptionally designed with random woven geometric patterns and shapes. All Syrian courtyard houses share a modest outer appearance. Be that as it may, their size and level of internal design relies upon the abundance of the families involved.

The courtyard houses in North Africa have unique characteristic also. The primary rectangular residences in Morocco presented the dominant model of the courtyard. In some Islamic nations, North Africa, and the Middle East, the courtyard in the Dar takes after the reasoning that "privacy and seclusion with a minimal display of the occupant's social status to the outside world" (Abbas, F, 2016, p. 2558). Private courtyards offer detached space for ladies to unwind in a shaded courtyard with a lock, pool, and outside furniture.



Figure 3. Fleisher, Elan. (2013) *The Art of the Moroccan Riad*. Licensed by <http://www.metropolismag.com>

3.2 The Advantages of Courtyards on Interior Spaces

The Social and Cultural Dimension of Courtyard Houses

The idea of courtyard planning and settlement plans can be traced back thousands of years to the Neolithic settlement. This idea extensively existed from China to Morocco. However, courtyard planning has become a generic typology in hot, arid areas. As well, courtyard planning forms the foundation of urban pattern in the Islamic world. At first, protection from external forces, such as human invasion, was the main logic behind such settlements. However, more recently courtyard planning has been modified to fit the social, cultural, and religious values of communities.

The Provision of Private Space

Courtyard houses enhance privacy which is a very important aspect of life. As seen in the Middle East, the courtyard house design is fitted to local culture (Bekleyen & Dalkilic, 2011, p. 72). Women from Muslim societies sought to be segregated from the outside world in order to practice freely within the privacy of their homes. Therefore, there was a need to design an introverted house setting.

The enclosure of houses with high walls is evident. Moreover, according to (Bekleyen & Dalkilic, 2011, p. 243) findings, window positioning was strict. Placing a window on the outer wall was only allowed if it was for the purpose of providing more light and could only be placed at greater heights. The inner wall windows were positioned at lower heights than the outer walls. The number of windows facing the street was also limited. In addition, height was taken into consideration in privacy enhancement. Adjacent houses were limited to two floors.

The Provision of Domestic Space for Work

The courtyard house plan included the provision of space for domestic and commercial workshops for manufacture and commerce within the courtyards. Some houses had more than one courtyard, where one was surrounded by living and sleeping rooms, and the other was surrounded by the kitchen, animal sheds, and other storage facilities. In that case, the courtyard allowed households to conduct their domestic activities with ease and privacy.

Some commercial activities within the city were also conducted in courtyard buildings. In these, groups of shops and workshops surrounded a

shared courtyard. According to Van (Van, 2011, p. 35), these workshops mainly served the people living within the same courtyard. Some were open during the day and night while others were restricted to operate during the day. Therefore, domestic sociality was enhanced because commercial, manufacturing and residential activities were integrated within the same courtyard (Van, 2011, p. 86).

The Provision of Domestic Space for Leisure Activities

As time went by, there was a tremendous change in the peoples' lifestyle. Thus, a need for space for leisure activities emerged. The courtyard was the only place where small children, too young to be sent to the outdoors, could play. Accommodation space had greatly decreased, and it was also perceived safer for children to play in the courtyard (Stubbs & Makas, 2011, p. 236).

The courtyard house form is very practical. The courtyard house provided useful, practical space for the domestic work of the family. There, people can partake in gardening, children play, and families gather and various household tasks are carried on. As seen in the above discussion, culture, religion, and social activities dictated courtyard designs. Moreover, cultural erosion and lack of land due to increasing population have effected courtyard planning and design.

The Environmental Dimension of Courtyard Houses

Courtyard housing was originally used in the Middle East, Mediterranean and tropical regions. Its key function was to moderate the climate of the area. The climate in the Middle East is hot and dry with intense sunlight, hence courtyards had to be designed in a way for people to be comfortable in such an environment. A lot of changes have been made, such as solar shading, the provision of internal gardens and thermal protection. Enhancing comfortability in a harsh climatic environment is assessed.

The courtyards in tropical regions where the sun is hot, are modified to create a conducive environment with proper shading from direct sunlight. According to Weber (Weber, 2013, p. 16) this is made possible by designing houses to be small in size and have small windows. Additionally, high walls provide shading coupled with an external wall of neighboring houses. Shading is also available in shady verandas and patios that facilitate outdoor living during summer seasons. Due to this, the courtyard acts as a second room for living in the summer. Consequently, the direct exposure of the vertical surface was minimized and direct sunlight exposure in hot

areas was avoided. Likewise, in the northern climates the houses need optimal exposure to sunlight so courtyards are wide and have large windows to allow penetration of the light. During winter seasons, this area of the courtyards may act as the indoors which is prevented from the wind.

Equally important, courtyards are used to provide internal gardens and fountains. These gardens are used to cool the air through evaporation and creates a conducive environment. In addition, the internal garden can be used as a place of relaxation and fresh air, shading from oppressive sunlight, and a place where children can play (Bristol, 2015). Moreover, birds and insects found in the gardens coupled with flowers grown there added to the beautiful scenery. Accordingly, (Bristol, 1991, p. 78) food crops were also grown in the garden; thus increasing availability of food for both domestic and commercial purposes.

Courtyard planning incorporates measures to boost thermal protection. According to Weber, in hot climatic regions, the courtyards may overheat consequently overheating the houses due to high solar radiation. To curb this, the courtyards are made small in size and are built with high walls, which give shade and minimize direct sunlight. However, this consequently regulates the microclimate of the surrounding by giving shadow and cool air (Zhang, 2013, p. 45) (Bridson, 2012, p. 3). Also, the climate in the courtyards can be modified by airflow effect where the courtyard windows are widened to allow cool and fresh air in and the warm overheated air out of the rooms.

Similarly, the courtyards which are naturally suited to hot climatic areas are made of thick walls, wide eave, and foliage. The thick walls and small windows keep the interiors cool since the courtyard layout allows cross ventilation. The regulation of cross ventilation cycles all over the courtyard and it gives moderate climate in the summer feeling of freshness latent inside the house. As well, excessive heat that could be generated is removed.

3.3 The Potential Disadvantages of Courtyards on the Interior:

With modernization, we saw that many home owners reverted to the modern western forms of housing. These homes are free standing in the middle of the plot. It was envisioned that such modern form reflected progress and the spirit of modernization. Also, it was thought that the modern house addressed the disadvantages of the courtyard house.

In a way, courtyard houses are randomly planned and they used to be scattered haphazardly in the

urban fabric of cities and towns. As such, they lacked adequate utilities and infrastructure. Also, with the provisions of modern technology especially in the area of ventilation and air-conditioning. Residents felt that the courtyard is no longer necessary for ventilation and the outdoor area is uncomfortable. The same goes with the provision of electricity and artificial light, which eliminated the need for natural light. The flexible building regulations that allowed some buildings to reach unprecedented heights permitted neighboring buildings to have view of the courtyards of neighbors. Therefore, the primary advantage of having a private space was cancelled. In addition, there was a provision that modern amenities and services substituted the need for interior space for children to play and for household domestic work.

The Concept of Wellbeing in Architecture and Interior Design

Human being spends approximately 90% of their lives indoors. Architecture and interior design has an impact on the health and wellbeing of a person. The characteristics of the built environment can have a direct influence on health. In fact, the impacts may have long-term implications for the quality of life. For instance, the building environment has impacts on both physical and psychological wellbeing and health. To improve the wellbeing and health of people, building designs should not only optimize single parameters, such as humidity, temperature, and security, but also should consider factors that support human behaviors. This section examines the relationship between interior design and human health and wellbeing by considering the concept of wellbeing in architecture, defining wellbeing, and discussing the latest developments in the concept of wellbeing. It also looks at the role of nature in enhancing wellbeing, as well as how the courtyard house effects the physical and psychological well-being of inhabitants.

3.4 Defining Wellbeing

The building's environment plays a critical role in enhancing wellbeing and health of the inhabitants in a house. Designers add therapeutic design concepts to the built environment. The therapeutic designs are capable of improving the mental health of the inhabitants. Gillis and Gatersleben noted that human beings possess an innate connection to the natural world; therefore, the connection to the natural world is vital to their wellbeing. This concept informs the idea of biophilic design, which is the incorporation of natural features and systems to the building's environment (Gillis & Gatersleben, 2015, p. 950).

The characteristics and quality of housing have a direct impact on the mental and physical wellbeing of the occupants. For instance, a wet and cold home or a home with allergens can put the occupants at risk of contracting asthma and other respiratory illnesses (Medell, Mirer, Cheung, Tong, & Douwes, 2011, p. 748). The size and height of housing has health impacts on the occupants. For instance, research by Graham, Gosling, and Travis (Graham, Gosling, & Travis, 2015, p. 346) found out that the size and number of windows in a house effect the psychological state of the occupant. High-rise housing was associated with psychological stress, especially with people of low income. Because the sun is the ultimate and the best source of light, a house with large windows is associated with happiness. According to color psychology, vibrant shades such as orange, yellow and green are known to encourage communication and socialization. Whereas white and dark colors, such as red, deep blue, and dark shades of green are known to promote a gloomy feeling (Mehta & Zhu, 2009, p. 1226).

3.5 Latest Developments in the Concept of Wellbeing:

The recent decades have witnessed development in the concept of wellbeing. A major development is the definition of wellbeing. Many different definitions have emerged since the World Health Organization (WHO) introduced the concept of wellbeing for the first time in 1948. However, the concept of wellbeing is as old as the first civilizations. (Pasanen, Tyrvaainen, & Korpela, p. 4). The concept of wellbeing is important to a range of disciplines. Each of the disciplines has a different understanding of how wellbeing relates to its underlying attitudes, beliefs, and practices. The human wellbeing is widely considered as a multidimensional phenomenon, in which normal mental and physical states are some facets.

The present century has brought with it tremendous change. People have found a way to control how they interact and adapt to the environment and social situations. Therefore, they have found a way to influence their wellbeing positively. For instance, architecture and Interior Design are used to improve the wellbeing of human beings. The changes have been brought through social transformation, environmental changes, and technological development, all of which pose a challenge to people. Despite the challenges, human beings still struggle to achieve happiness. One way human beings have struggled to attain happiness is through improving their wellbeing. Another development in the concept of

wellbeing is the measurement of wellbeing (Kaplan & Kaplan, 2011, p. 12).

3.6 The Role of Nature in the Enhancement of Wellbeing on Inhabitants

Nature is a phenomenon of physical universal that has largely contributed to the enhancement of the well-being of the people. Conducive environments reduce fear, depression, anger, and increases the psychological well-being of the inhabitants (Little, 2014, p. 76). Nature connects inhabitants to a universal world where they can find beauty and their interests. On the other hand, Razak, Othman, and Nazir (Razak, Othman, & Nazir, 2016, p. 476) note that an unpleasant environment brings feelings of anxiousness, helplessness, and stress that suppress the immune system and elevate blood pressure of the inhabitant.

The natural environment has provided a physical, mental and social benefit to the well-being of the inhabitants. As Little (Little, 2014, p. 65) says, exposure to nature and by viewing its scenes, nature promotes healing by increasing pleasant feelings of better emotions. This leads to the production of stress hormones that are used to fight stress and depression, thus reducing blood pressure. Additionally, pleasant feelings result in a reduction of muscle tension, fear, and anger, which intern may lead to reduced mortality risk (Razak, Othman, & Nazir, 2016, p. 54).

Nature helps with psychological restoration, especially when urban living may lead to physical and psychological problems. Therefore, by viewing the scenes of nature, the ability of inhabitants to pay attention and improve their moods are increased and stress and fear are reduced (Little, 2014, p. 78). According to Razak, Othman, and Nazir, (Razak, Othman, & Nazir, 2016, p. 64) nature connects the inhabitants with others and the physical environment in the world as they move to view its scenes. These scenes include rivers, mountains, wildlife, trees, and lakes. Due to these, they interact and become connected to each other.

Nature helps the inhabitants cope with the pain since it acts as a soother. "In a study of 337 children in five rural upstate New York communities in grades 3 through 5, Wells and Evans (2003) found that the impact of life stress and adversity was lower among children who lived close to nature and vegetation than among those with little access to natural settings." (Wells, 2016).

All in all, the courtyard is a space within the house that allows residents to have natural views, natural ventilation, and natural light. Courtyards are very valuable and can contribute to the

enhancement of the wellbeing of residents.

3.7 Built Environment and the Physical Wellbeing of Inhabitants

Air quality in the built environment has a significant effect on the physical well-being of its inhabitants. Air quality is categorized into indoor and outdoor air quality (Kaplan & Kaplan, 2011, p. 42). Harmful substances, such as radon, tobacco smoke, volatile organic compounds, cooking pollutants, and asbestos effect indoor air quality. Ventilation and filtration control or mitigate indoor air pollutants. Industrial and traffic emissions are the major sources of outdoor air pollution in the UK. According to Pasanen et al. (Pasanen, Tyrvaiven, & Korpela, 2014, p. 337), exposure to hazardous pollutants reduces life expectancy and accelerates the effects of chronic respiratory diseases and cancer. Indoor pollution is believed to be a significant cause of asthma in the United States. Outdoor pollutants also increase the incidence of asthma (Kaplan & Kaplan, 2011, p. 67).

On another study were gait tests were carried out that supports the benefits of gardening on human health. "Gardeners were significantly more likely to have better balance and gait, and as a group were 30 percent less likely to report falls. These relationships were confirmed in multiple regressions; gardeners were essentially healthier. In particular, being a gardener, controlling for other factors (such as age, gender, education, and functional limitations), was related to a higher chance of passing the gait tests and two out of three balance tests." (Buck, 2016, p. 16). Gait tests are those tests that study human motion using the observation of an expert and other instruments to measure the body movement and the activity of the body.

3.8 Built Environment and its Effects on Psychological Well-Being of the Inhabitants

The built environment has a considerable effect on the mental health of an individual. According to Huppert, (Huppert, 2009, p. 34) nature has a moderating effect on stress for both adults and children. However, research shows that the effect is stronger among children. Halpern (Huppert, 2009, p. 145) adds that children who live with nature close to their homes have their psychological well-being protected. Additionally, having green space at home enhances children's cognitive activity. Research reveals that life stress was minimal among those who lived near nature and vegetation, unlike those who had little access to natural settings (Huppert, 2009, p. 86).

Moreover, plants bring the green effect in the

indoor environment, hence psychological studies support placing plants inside the house to enhance health and well-being (Halpern, 2013, p. 180). As well, plants help in stress reduction and pain endurance. According to Halpern's (Halpern, 2013, p. 130) findings, productivity in the office increases as the plant population increases in an office set up. Additionally, Huppert (Huppert, 2009, p. 73) suggests that building occupants should maintain a connection with the external world such as through allowing natural sunlight processes. Accordingly, the psychological merits of restoration through natural light are supported.

Equally important is the effect of natural landscape and ecosystems on the psychological well-being. Research on benefits of green views for patients recovering from gallbladder surgery reveals that patients recover faster and require minimum pain medication if they are able to view green vegetation (Halpern, 2013, p. 127). In Urban areas where green nature is limited, green roofs are alternatively retrospective. The built environment has a considerable effect on the health and well-being of its inhabitants. Accordingly, the built environment has an impact on both physical and mental well-being of individuals (Huppert, 2009, p. 38). Therefore, urban housing developers and Interior Designers should take into account the elements that affect the well-being, such as exposure to nature in designing structures.

The courtyard house offers a flexible open space at the heart of the house, and within that space many activities can occur. This allows residents to personalize the space and use it in many ways. This feature plays a role in enhancing the wellbeing of inhabitants. "There is also strong evidence that suggests the more control and autonomy people have to personalize or modify the spaces in which they interact, the more they report a greater sense of psychological comfort and well-being" (Knight & Haslam, 2010, p. 717).

The courtyard provides an opportunity to create internal gardens that allows residents to have direct contact with nature. In turn, this direct contact enhances their general wellbeing. "In a study, people were asked how they felt in a room with three different treatments: no colorful objects, colorful objects, and interior plants (Lohr and Pearson-Mims, 2000). People felt significantly more "carefree or playful" and more "friendly or affectionate" in the room with interior plants than in the room with or without decorative objects. Another study compared office workers in buildings with or without

interior plants and with or without windows with views of green spaces (Dravigne et al., 2008). No more than 60% of people working in offices without plants, whether they had views of green or not, reported feeling "content" or "very happy." On the other hand, 69% of people working in offices with plants but no windows and 82% of those with both plants and window views were "content" or "very happy" (Lohr, 2010, p. 677). Whether in office or at home with natural sunlight, pleasant views and views of vegetation can improve an occupants general wellbeing and satisfaction.

"Theories concerning condition of the workplace and human psychological and physiological response indicate that windows in the workplace provides workers relief from stress and higher satisfaction with the working environment. A small portion of nature in the view is often sufficient to help. The duration of viewing nature does not have to be long either. Even viewing artificial nature helps with stress and anxiety relief" (Ulrich, 1991) (Chang & Chen, 2005, p. 1354).

"They incorporate natural and biophilic elements, like courtyards, plants, and natural materials which still have a place in our evolutionary memory. Using natural materials can present a sense of scale, texture, color, and materiality that have a naturally calming effect on people. These effects are on biological and neurological levels and promote reducing stress hormones and physical fatigue" (LITTLE, 2017).

"Results suggest that active interaction with indoor plants can reduce physiological and psychological stress compared with mental work. This is accomplished through suppression of the sympathetic nervous system, diastolic blood pressure, and promotion of comfortable, soothing, and natural feelings" (Lee, Lee, Park, & Miyazaki, 2015).

Noise pollution is strongly associated with psychological distress among individuals. Research on health and mental health regarding exposure to airport noise reveals that psychiatric admissions were high among those living near the airports (Halpern, 2013, p. 203). Another study also shows that children exposed to traffic and industrial noise were at high risk for psychological distress (Huppert, 2009, p. 89).

In conclusion, the quality and characteristics of housing have a direct impact on the physical and mental wellbeing of the housing occupants. The built environment includes physical structures where people work, play, live, and socialize. Equally important are the links between these

spaces; namely, the built infrastructure and a variety of natural features. The built environment also incorporates significant health determiners, such as housing, neighborhood conditions, and transportation. Moreover, another essential element is that an integration of built and natural environment creates a conducive environment for people to lead healthy lives. The natural environment also plays a significant role in the built environment, and thus should be preserved to

ensure a continuous enjoyment of its benefits. Viewing of the beauty of scenes of nature, such as bodies of water, trees, and plants captures the mind of the inhabitant and distracts inhabitant from pain and discomfort. Therefore, nature cannot be underrated in relation to the enhancement of the wellbeing of inhabitants, and humans should try their best to protect and conserve nature to enjoy the benefits of nature continuously.



Figure 4. Interior garden and courtyard (Little, 2017)

4.0 Methodology

The descriptive approach has been chosen to investigate the public's preferences for the courtyard house. This approach seeks to describe the phenomena clearly and define it using qualitative descriptions and features. The descriptive approach also applies quantitative methods using numbers and tables to explain the extent of each phenomenon and its association with other phenomena.

Scholars have developed a variety of research tools and means of collecting and analyzing information, which include direct interviews, telephone interviews, sending questionnaires by fax, mail or email, and publishing a questionnaire on the internet. The researcher conducted this research through utilizing an electronic survey. Electronic surveys are popular tools for researchers because they provide tools for efficient distribution and analysis. Electronic questionnaires are online questionnaires that can be distributed to a large sample. It allows the researcher to monitor real time data from day one. The researcher then can analyze the gathered responses through integrated IT software. Using the software, data can be analyzed without the costly need to input data from a hard copy like with the procedures for

postal surveys.

The researchers aimed to keep the questionnaire short in order to encourage participants to complete it and answer the questions with focus and honesty.

Study Procedures

There are certain procedures that need to be followed when using research questionnaires (Gall, 1996, p. 291).

Define the research problem.

- 1- Choose the pilot sample.
- 2- Design the questionnaire.
- 3- Conduct an initial test to check the level of questions.
- 4- Pre-contact participants.
- 5- Distribute the questionnaire with a simple introduction on the subject of the research.
- 6- Analyze the questionnaire answers.

Based on the above, the researcher defined the research problem and listed the research objectives by first setting out the general idea and then gradually defining the objectives. Considering the research objectives, the pilot sample was taken from Kuwaiti adults (over 18 years old). The researcher also recognized the importance of designing the questionnaire so that it would be interesting for the participants. It is well known

that the design of a questionnaire and its questions plays a significant role in motivating participants to respond and answer honestly. In this context, the research was conducted to follow the guidelines below when designing the questionnaire.

- Keep the questions as short as possible.
- Avoid words and terms that might confuse participants.
- Design the questionnaire in an attractive way.
- Organize the questionnaire elements in a logical way that helps participants to interact positively and read it more easily.
- Provide an initial description that explains the purpose of the research.
- Provide a brief explanation when using any term so as to help the participant to answer correctly.
- Avoid criticism or offensive words because they can stimulate mental chaos and may affect participants' sequence of ideas, possibly leading to inaccurate or incorrect answers.
- Avoid the use of positive or negative words that would affect the neutrality and hence the

integrity and objectivity of the questionnaire.

- Avoid the use of words that do not convey a clear and precise meaning.
- Avoid asking questions that need two separate ideas in one answer.

After preparing the questions, the researcher tested the questionnaire in a pilot test by distributing a number to a group of respondents. Spaces were left to enable the participants to write their comments or criticize questions. The questionnaire was tested several times to ensure the correct understanding of the questions.

The Questionnaire

The questionnaire was distributed electronically through various means, including e-mail, SMS messages, and Whatsapp to a sample of Kuwaitis living throughout the metropolitan area. A total of 583 correctly completed questionnaires were received. Table 1 describes the sample according to the different study variables.

The responses to specific questions are shown in Tables 2, 3, 6, 10, 14 and 18 and are discussed below. After that, the responses for each question has been analyzed according to age group and then responses to Question 9 as shown below.

Table 1. The sample responses according to the various variables

Variable	%	Number
Sex		
Male	39.6	231
Female	40.4	352
Age		
Under 20 years old	6.8	40
20 to 29 years old	21.6	126
30 to 39 years old	20.9	122
40 to 49 years old	23.8	139
50 years old and above	26.9	157
Education		
Higher education	17.3	101
University graduate	52.3	305
Diploma	16.4	96
High school	11.1	65
Intermediate school	3.2	19
Social status		
Married	68.2	398
Single	31.7	185
Work		
Governmental Sector	46.8	273
Private Sector	9.7	57
Retired	20.2	118
Currently Not Working	23.1	135
Residence Location		
Capital	31	181
Hawalli	20	122
Al Farwaniya	13	76

Al Jahra	8.2	48
Al Ahmadi	10.4	61
Mubarak Al Kabeer	16.3	95

Q7. What type of house do you live in currently?

Table 2. Question 7: What type of house do you live in currently?

Response	%	Frequency
Single Family House	58.3	340
A floor in a single-family house	9.4	55
A flat within the family house	15.7	92
Renting a house	2.9	17
Renting an apartment in a single-family house	10.8	63
Renting an apartment in a high rise building	2.5	15
Owens an apartment	.0017	1

Reading the responses, the researcher found that 58% of the respondents live in a single family house, 15.7% live in a flat within the family house, 10.8% rent an apartment within a single-family house, and 9.4% live in a full floor within a family house.

The answers indicate the type of the residence the responses live in at the time of answering the questionnaire and give an idea about the independence of their residence and level of privacy.

Q8. Have you ever lived in a courtyard house?

Table 3. Question 8: Have you ever lived in a courtyard house?

Response	%	Frequency
Yes	67.7	395
No	32.2	188

From Table 2 and the replies to question 8, one can see that the majority of responses indicated that they have experienced living in a courtyard house 67.7% , while only 32.2% indicated that they never lived in a courtyard house.

This is crucial to measure the general understanding of the concept of the courtyard house and it is relation to the rest of the questionnaire.

Table 4. Analysis of Responses to Question 8 According to Age.

	Yes	%	No	%	Total response
Under 20 years old	36	90	4	10	40
20 to 29 years old	76	60.4	50	39.6	126
30 to 39 years old	68	55.7	54	44.2	122
40 to 49 years old	95	68.3	44	31.6	139
50 years old and above	120	76.4	73	23.5	157

Table 4 analyze the responses to Question 8 according to age groups. Of those who answered Yes, the majority are of (50 years old and above) and the percentage decreases as the subjects

belong to the younger groups.

Q9. Would you like to live in a courtyard house?

Table 5. Question 9: Would you like to live in a courtyard house?

Response	%	Frequency
Yes	84.5	493
No	15.4	90

From Table 6, we can see that the majority of responses expressed a desire to live in a

courtyard house, 84.5%. A small minority responded that they would not want to live in a

courtyard house, 15.5%. This is a solid indication of the popular preference for the courtyard house type.

Table 6. Analysis of Responses to Question 9 According to Age

	Yes	%	No	%	Total response
Under 20 years old	38	95	2	5	40
20 to 29 years old	102	80.9	24	19	126
30 to 39 years old	105	86	17	13.9	122
40 to 49 years old	125	89.9	14	10	139
50 years old and above	124	78.9	33	21	158

Table 7 illustrates the analysis of responses according to age group. The high positive responses confirm that all age groups would like to live in a courtyard house.

Table 7. Analysis of responses to Question 9 according to responses to question 8: Have you ever lived in a courtyard House?

	Yes	%	No	%	Total response
Lived in Courtyard House	350	88.6	45	11.4	395
Never lived in courtyard House	143	76	25	23.9	188

The research aimed to find a correlation between the preference to live in a courtyard house and previous experience of living in such a type of house. Table 9 shows that 88.6% of those who have experienced living in a courtyard house still would like to live in a similar type house.

Table 9 also illustrates that even those who have never experienced to live in a courtyard house would like to live in a courtyard house.

Q10. Do you believe that the courtyard house effects your wellbeing physically and mentally?

Table 8. Question 10: Do you believe that the courtyard house effect you wellbeing physically and mentally?

Response	Frequency	%
Yes	458	78.5
No	125	21.5

From Table 10, we can see that a large majority of responses believe that living in a courtyard house can affect one's wellbeing physically and

mentally, 78.5%. A small minority responded that they disagree 21.5%.

Table 9. Analysis of Responses to Question 10 According to Age

	Yes	%	No	%	Total response
Under 20 years old	28	70	12	30	40
20 to 29 years old	97	77	25	23	126
30 to 39 years old	97	79.5	25	20.5	122
40 to 49 years old	111	79.8	28	20.1	130
50 years old and above	126	80.2	31	19.75	157

When analyzing the responses to question 10 according to age groups, the researcher found in Table 11 that the vast majority of all age groups

hold the belief that a courtyard house affects one's wellbeing mentally and physically.

Table 10. Analysis of responses to Question 10 according to responses to question 8: Have you ever lived in a courtyard House?

	Yes	%	No	%	Total response
Lived in Courtyard House	313	79.2	82	20.7	395
Never lived in courtyard House	145	77.1	43	22.8	188

It is notes that when analyzing the responses according to answers to question 10, we can see

that both who have experienced living in a courtyard house and those who never experienced living in a courtyard house confirm the general view that a courtyard house can contribute to the

wellbeing of the residents.

Q11. What do you Think are the Advantages of the Courtyard House?

Table 11. Question 11: What do you think are the advantages of the courtyard house?

Response	%	Frequency
Privacy	34	198
View	30.7	178
Ease of circulation	13.1	77
Increase spaciousness	8.2	49
Other	13.8	81

Table 13 highlights the responses to question 11, where members were asked to identify the advantages of the courtyard house. We can see that 33% chose privacy, 30% views, 13% ease of circulation, and 8% selected spaciousness. When

permitted to list other answers, the provisions of natural lighting, natural ventilation, and the provision of secure space for children to play were given. The courtyard house is a nice feature that remind of traditional Kuwaiti house.

Table 12. Analysis of Responses to Question 11 According to Age

	Privacy		Views		Ease of Circulation		Increase Spaciousness		Other		
Under 20 years old	10	23	17	41	9	20	2	5	5	10.2	43
20 to 29 years old	33	31	28	25.2	18	15.5	15	13.5	16	14.5	110
30 to 39 years old	44	39.8	37	32.4	12	9.2	12	9.2	12	9.2	117
40 to 49 years old	48	34.3	51	35.8	15	9.7	9	5.2	22	14.9	145
50 years old and above	56	35.1	42	25.8	27	15.2	15	7.2	28	16.5	168

When analyzing the responses to Question 11 according to age groups, the researcher found the

top three top advantages remained the same and all age groups confirmed the general responses.

Table 13. Analysis of Responses to Question 11 According to Responses to Question 8: Have you ever lived in a courtyard House?

	Privacy		Views		Ease of Circulation		Increase Spaciousness		Other		Total
Lived In Courtyard House	125	31	122	30	53	13	37	9	65	16	402
Never Lived IN courtyard House	74	41	56	31	24	13	11	6	16	9	181

When analyzing the responses according to answers to Question 11, which examine answers according to experiencing living in a courtyard house, we can see that all age groups confirm

general findings.

Q12. What do you think are the disadvantages of the courtyard house?

Table 14. Question 12: What do you think are the disadvantages of the courtyard house?

Response	%	Frequency
Environmentally not suitable	41	239
Not Spacious	16.5	96
Not common	14.5	85
Not Modern	11.3	66
Other	10.5	61
Limited View	6	36

Table 18 highlights the responses to question 12, where the sample was asked to identify the disadvantages of the courtyard house. We can see that 41% felt that the courtyard is not suitable due to the harsh environment of Kuwait, 16.5% of the responses indicated that a courtyard would waste space of the plot and house, 14.5% indicated that the courtyard house is uncommon, 11.4% believed that the courtyard house is not modern, 10.5% of the respondents suggested other disadvantages of

the courtyard house, and 6% thought that the courtyard house limited outside views being inward looking.

10.5% of the respondents suggested other disadvantages of the courtyard house. They mentioned the need for maintenance and cleaning, lack of privacy, that the current building regulation does not serve the courtyard design, and that the neighboring building creates lack of privacy.

Table 15. Analysis of Responses to Question 12 According to Age

	Uncommon		Not Modern		Unspaciouss		Limited Views		Environmentally Not Suitable		Other		Total
Under 20 years old	6	15	9	22.5	3	7.5	5	12.5	14	35	3	7.5	40
20 to 29 years old	14	11	21	16.6	26	20.6	9	7.1	41	21.5	15	11.9	126
30 to 39 years old	19	15.6	11	9	29	23.7	6	4.9	47	38.5	10	8.2	122
40 to 49 years old	24	17.2	12	8.6	22	15.8	4	2.9	63	45.3	14	10	139
50 years old and above	22	14	14	8.9	16	10.2	12	7.6	74	47.1	19	12	157

When analyzing the responses to Question 12 according to age groups, the researcher found the top three disadvantages remained the same and all age groups confirmed the general responses.

However, younger age groups (under 20 years old) and (20 to 29 years old) noted the harsh environment and the tight space indicated that the courtyard house is not a modern house type.

Table 16. Analysis of Responses to Question 12 According to Responses to Question 8: Have you ever lived in a courtyard house?

	Uncommon		Not Modern		Un-spacious		Limited Views		Environmental ly Not Suitable		Other		
Lived In Courtyard House	64	16.2	43	10.8	60	15	31	7.8	151	38	46	11.6	395
Never Lived IN courtyard House	21	11	23	12.2	36	19	5	2.7	88	46.8	15	7.9	188

The general responses to Question 12 indicated that the main disadvantages of the courtyard house thought it is not suitable due to the harsh environment of Kuwait, the courtyard house type wasted space, and the courtyard house is uncommon. When analyzing the responses according to answers to Question 12, which examine answers according to experiencing living in a courtyard house, we can see that all age groups confirm general findings.

5.0 Findings

This research aims to investigate the impact of the interior courtyard and garden on the wellbeing of inhabitants and the Kuwaiti house. It seeks to test the public acceptance of the courtyard house form and measure the public view of the main advantages and disadvantages of the courtyard house.

The courtyard house is a historical house type that is indigenous to the Arabian Peninsula and Kuwait until the discovery of oil (1950). The courtyard house offers many social and cultural advantages, such as the provision of indoor private space and the provision of space for domestic work and

leisure activities.

The courtyard house enhances the environment of the house through solar shading, internal gardens, and thermal protection. As a source of natural ventilation, the courtyard can have a significant effect on the physical wellbeing of the inhabitants. The internal courtyard is a space that can be used for gardening and it plays a role in lowering the stress among inhabitants. Houses with internal courtyards, where windows open inward rather than toward the exterior, decreases noise pollution and improves the psychological wellbeing of inhabitants.

It was impressive to discover from this research that a vast majority of the Kuwaiti public would like to live in a courtyard house. It was also notable to find that a large majority of the Kuwaiti public believe that a courtyard house can have a positive impact on one’s physical and psychological wellbeing.

The majority of the responses that were collected for this research believe that the three main advantages of the courtyard house are privacy, pleasant interior views, and ease of circulation. On

the other hand, the majority of responses saw the three disadvantages of the courtyard house, which include unsuitability for the harsh environment of Kuwait, not being spacious, and not being a common house type today.

The author believes that the findings of this research can be of value to planners, designers, and decision makers who deal with housing in the state of Kuwait.

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