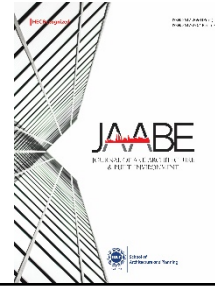




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Title: Analyzing Satisfaction about Mandatory Open Spaces of Residents Living in DHA Lahore

Author (s): Kamran Ahmad¹, Muhammad Zeshan Ashraf², Muhammad Umer Mustafa³


Affiliation (s): ¹Project Management Unit, Primary & Secondary Health Department, Pakistan
²University of the Punjab, Lahore, Pakistan
³Punjab Tianjin University of Technology, Lahore, Pakistan

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Analyzing Satisfaction with Mandatory Open Spaces available to Residents of DHA, Lahore

Kamran Ahmad^{1*}, Muhammad Zeshan Ashraf², and Umer Mustafa³

¹Project Management Unit, Primary & Secondary Health Department,
Pakistan

²University of the Punjab, Lahore, Pakistan

³Punjab Tianjin University of Technology, Lahore, Pakistan

Abstract

Housing is an essential requirement for all human beings. Therefore, the government has established certain laws and regulations for housing acquisitions. Human needs are just as vital as the presence of amenities when it comes to housing. In addition to serving as a place for living and daily activities, housing plays a crucial role in facilitating social interactions and engaging in social activities among people. To fulfill human needs, open spaces have been rendered mandatory by the government. The underlying intention of the current study was to determine citizens' satisfaction regarding the open spaces for the current house planning patterns in DHA, Lahore. The current research drew upon the data gathered from a comprehensive questionnaire that encompassed various queries aimed at assessing user satisfaction. Additionally, route analysis was conducted, considering both practical and social factors, including external variables, to predict the community's perception of open spaces and their corresponding satisfaction levels. Factors, such as a sense of privacy, compliance, and security emerged as the most significant influences on citizens' satisfaction. Moreover, based on the findings, citizens expressed the need for a review of the residential building regulation by-laws, emphasizing the importance of the above factors.

Keywords: by-laws, modern houses, open spaces, residents' satisfaction

Introduction

Housing is necessary for human beings; a basic and the most fundamental requirement for sustainability, although its form changes or evolves over time. Moreover, it would always occupy a paramount place in the lives of human beings. In reality, there are many different types of residential structures that can be built including vertical (apartment complexes,

* Corresponding Author: kamranahmad0036@gmail.com

condominiums) and horizontal structures (single-family homes, townhouses). Additionally, there has been a noticeable rise in the number of housing units that serve various socioeconomic groups including housing alternatives for the moderate to upper classes, middle classes, and lower middle classes. In addition to the watchful eyes of developers, the burgeoning residential development recognizes the potential of the property market in the region, owing to the high occupancy rate (Mohit & Raja, [2014](#)).

Open spaces within lodging facilities serve as a means for inhabitants to socialize and interact within their dwellings. This level of comfort is as necessary as any other necessity for survival and a balanced life-style. However, providing appropriate housing facilities to urban residents that are comfortable, healthy, and inexpensive, is a serious challenge in any growing country, particularly in metropolitan regions (Almhafdy et al., [2013](#)).

Apart from everyday operations of the society, the open space is an essential site to satisfy the demands of the community for leisure, relaxation, and active or passive activities. Social satisfaction refers to the division of society into groups based on many factors, such as wealth, income, race, education, gender, occupation, social status, or acquired power (social and political). Thus, hierarchy refers to a relative social status of individuals within a social group, category, or region, which are the true stakeholders when it comes to comfort and satisfaction of citizens based on their dwellings. The parameters that control the form of the open spaces include shape, degree of closure, size, dimensions, materials, colors, and style.

Literature Review

Globalization is a complex phenomenon that has had far-reaching consequences. It is no wonder that the term “universal” has gained a wide range of emotional meanings and has become a hot topic in the modern political discourse. On the other hand, globalization seems to be an unstoppable force and a real agent in bringing economic prosperity to people worldwide (Peterson Institute for International Economics, [2022](#)).

Moreover, on the better end of the bargain, the natural barriers of time and space are greatly reduced due to globalization worldwide, the cost of transporting information, people, goods, and money has also dropped dramatically, while global communications have become cheaper, faster,

and more frequent. This has greatly increased the potential for global economic trade as markets can now be global and include a growing range of goods and services, thus making the world a global village. Media flow and technological advances, such as TV, cinema, the Internet, and other important things enable us to connect with remote communities that may be culturally different from us. Such contacts formed a common international culture. Stuart Hall emphasizes that a new form of globalization has been introduced, in which global elements have been integrated into local elements and this new form of globalization is a product of American culture (Hall, [2008](#)). The influence of any culture over the other and way of life around the world is much more diverse as compared to the past and comes from a visible center. Owing to new communications and media technologies, culture has become an object, manufactured, supplied and marketed, thus it has become a commercial commodity (Bouaissa & Chalal, [2017](#)). The center of this global market has become the only public space that is brought together by the cultural transport of semantic systems and symbolic forms. Metropolises are high-tech cities, developed or converted into international currency, have high investment rates with improved communication, transportation technology, and telecommunications to communicate with others. The unequal integration of cities into the global economy, however, can also contribute to urban sprawl, rising urban crime, poverty and fear. The effects of globalization divide the way of life of human beings once and for all the expectations of city dwellers and encourage efforts to build safe areas free from the potential threats posed by the openness of the spaces (Kenna, [2008](#)).

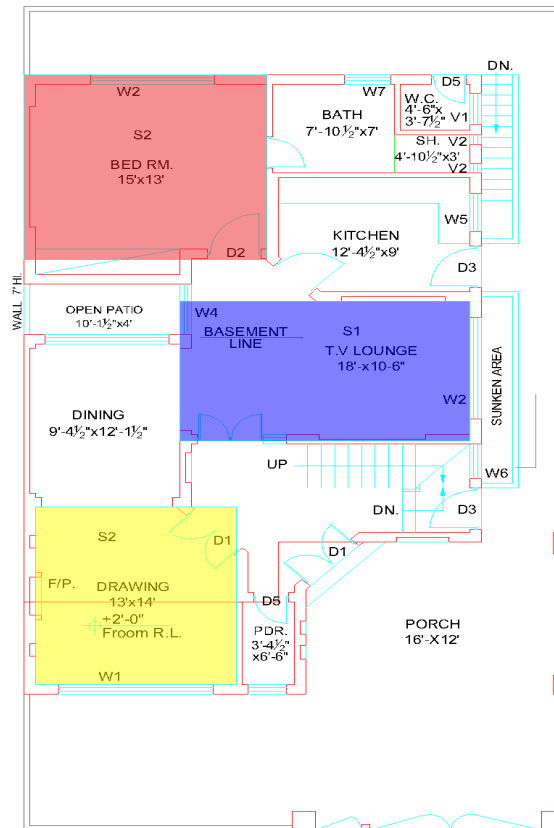
In the near future, the resurgence of attached housing is likely to be facilitated by evolving building regulations. These regulations serve as a primary focus for governments to uphold construction quality standards. They are applicable in most countries and share similar objectives, although enforcement may vary from public institutions to private organizations. In England and Wales, as in other regions, construction control mechanisms aim to enhance the suitability of building structures in terms of public health and safety considerations. They encompass a range of technical and practical requirements that buildings must adhere to, with regulatory compliance evaluated based on fundamental performance standards. This encompasses various aspects including guidelines and specifications for effective drainage systems and the provision of surface water supply.

Figure 1*Typical Planning Pattern of 1 Kanal Modern House in Lahore*

User satisfaction is one of the important points to measure the accomplishment of SI. Therefore, this is a measure of the success of highly dependent information systems and resources. The most common use of this scale allows to easily exploit the lack of monitoring software of the system used in the study as well as the potential impact of a specific behavior measurement system in the most common use of this metaphor due to its potential for influence (Sun et al., [2012](#)).

Home satisfaction is defined as the sense of satisfaction that a homeowner wants, dreams of, or gets, is an important signal and tools are used by the designer, architect, and legislator in many ways. The concept of housing aspirations, housing policy, and construction theory of mind as well as insightful research have used these ideas or incorporated them into their learning design (Anggiani et al., [2019](#)). In addition to the variety that represents the characteristics of housing and settlements, social factors and demographics, their perceptions of living conditions, and neighborhoods are analyzed in additional research which shows that citizens need more research as a general goal of satisfaction (Sun et al., [2012](#)).

Figure 2
Planning Pattern of 10 Marla Modern House in Lahore



LAYOUT PLAN

SCALE:-1"=16'-0"

Housing satisfaction consists of fewer professionals and specialists. Some of them try to draw on a time scale until others try to separate it from the multidimensional aspect.

Speaking of Pakistan's rich history and cultural architecture which includes housing design, thus relying on social, economic, personal, and intellectual focus in addition to what appears to be building construction. This association with house design encourages the participants to use modern and traditional power that leads to a complex diagram of house design in the end. Human beings cannot imagine themselves outside their

homes. Additionally, it reflects social norms and family aesthetics in two aspects namely from the inside, through the arrangement of spaces and exterior and through the features of facade of the structures. This context reflects a variety of architectural styles in the layout and design of the house. These various projects create confusion in setting up housing structures in local languages. A general survey suggested that some homeowners may go for unique designs to decorate surface water tanks. Traditional designs disappeared from the lifestyle of Lahore and were replaced by modern designs. Familiarity with traditional home design is more important than modern home construction. Due to limited research on this topic, the current study aimed to provide an understanding of the transformation of the Lahore building from traditional to modern. Regardless of the regional need for housing design, housing construction trends are more prone to Western style architecture and planning. Therefore, it is important to keep the built-in examples of homes in mind that have survived environmental scrutiny over the years. A simultaneous study of modern and traditional home design topics can help to document the degree of change in urban life.

A city is home to various historical monuments, buildings and gardens as well as a Walled City during the Mughal period (1524-1752), that is, Sikh period and the British colonial period. The Walled City, also called the '*Androon*' in the local language, was an important social and economic center of the city at that time. The houses were constructed by solid building elements, such as 'Jharokhs (balconies) and showcase decorative elements (Benyoucef & Olga, [2019](#)). The adjoining houses were filled with floor coverings and the size of small rooms, respectively. The method of construction of adjoining houses is considered stable in terms of climate and strong social development. It is pointed out that traditional buildings retain a warm luxury, while architectural elements, such as screens, brooms (balconies), fountains, plants, fixtures (Overhangs), courtyards, and basements contribute to their unique charm and character. (Saiedlue et al., [2016](#)). The combined walls of houses and narrow streets often promote the daily interaction of neighbors which creates a sense of security and safety since people are accustomed to live inside and outside their doors. They are always willing to share everything with each other while equally enjoying the beauty of the roofs of their houses. The houses, though tall and seemingly well-built on the outside, are crowded and airy on the inside. After the end of Mughal period and the invasion of the British emperors,

the houses attached to the walled city started losing their popularity and then Lahore started develop into another town planning area (Gillani, [2014](#)).

User Satisfaction Measurement

The successful Importance Satisfaction (IS) study was conducted in the 1970s and early 1980s, with the initial survey focused on examining users' happiness.. At this point, the link between user satisfaction, usability, and IS's success was identified. It has also been said that there is no way to draw a comparison with the many previous studies completed during this time period. This need aroused the curiosity of many scholars (Meir et al., [2009](#)).

In order to measure the performance and function of a building, post-occupancy assessment (POE) is often used to determine whether decisions made by construction and property management professionals meet the intended requirements of end users and development commissions. Such work carries significant implications for the soft position (within the building delivery process) by ensuring that future decisions made about similar architectural projects are based on lessons learned from the functionality of the existing structure and the fulfillment of client and user needs. POE considers a wide range of performance metrics including property use, energy consumption, maintenance costs, and user satisfaction. Surprisingly, the implementation of POE is not internationally consistent and the current process within the United States is far more advanced than that of its international counterparts. In the UK, two excellent regulatory documents provide insights into the financial significance of POE (Meir et al., [2009](#)).

There are several important limitations to use an explanatory scientific lens as part of a pedagogical research approach. Firstly, translator researchers believe that access to reality is building a community on POE as a shared educational discourse. Secondly, as a branch of positivism, the field of descriptive philosophy also emphasizes quantitative analysis of the vis-a-vis standard (Hadjri & Crozier, [2009](#)).

Mandatory Open spaces

An open space refers to shape, frame, plan, development, and exercises that leave a positive impact on the quality of living space. An advanced house can be separated into numerous spaces depending on protection, reconnaissance, and compliance. Spatial arrangement can be partitioned into open, semi-republic, semi-private, and private regions. The private

zone is saved for a building as well as private regions, such as indoor and open air ranges. A few ranges are secured by ciphers and borders and others are joined to walls, dividers, and entryways.

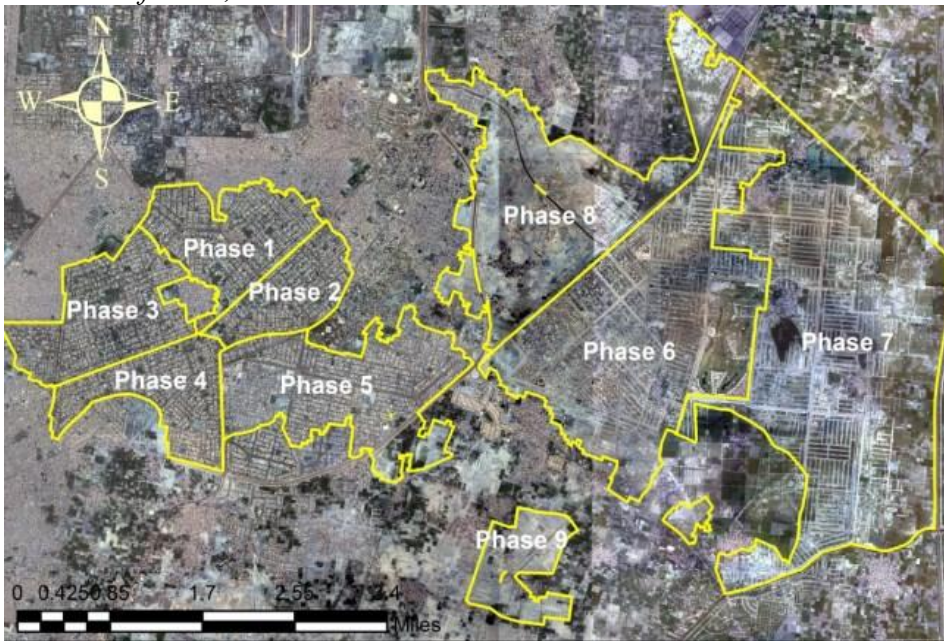
Figure 3

Showing Mandatory Open Spaces in Typical Modern House of Lahore



Figure 4

9 Phases of DHA, Lahore



Location

The Defense Housing Authority (DHA) was established on March 19, 1975. It covers an area of 516.8 hectares (64 sq km). The study area is part of the DHA-controlled neighborhood, covering an area of approximately 116.5 sq km. DHA-controlled Phase I covers an area of approximately 64 square miles (1-9). The study included areas near the DHA border.

Methodology

The current research was based on the data collected and analyzed through a questionnaire designed to assess users' perceptions about open spaces. Moreover, the study aimed to evaluate the level of satisfaction by using a strategy that included aspects, such as proximity, relevance, utility, and social considerations. Key factors influencing the user satisfaction, such as a sense of segregation, insights, and security were given careful consideration during the data collection process (Taherdoost, [2016](#)).

To ensure an understanding of the design and environment for the residents, a combination of subjective and quantitative methods was employed. Qualitative interviews were conducted to gather in-depth information, while surveys were distributed to obtain a wider range of responses. The researcher's expertise played a vital role in capturing relevant insights and input from the residents was also taken into account (Easwaramoorthy & Zarinpoush, [2006](#)).

In order to select a representative sample, a subset of individuals was chosen, serving as a representation of the larger population. This approach aimed to ensure a tangible and accurate experience in analyzing the satisfaction levels of residents living in DHA, Lahore.

Non-probabilistic sampling methods, unlike probabilistic sampling methods, do not employ random selection techniques to obtain samples. Instead, non-probabilistic sampling methods rely on various strategies that require ingenuity. Rather than selecting individuals through randomization, they were chosen based on their easy accessibility or other non-random criteria. (Taherdoost, [2016](#)).

For this type of sample, a researcher selects the survivors closest to him/her as respondents. The topics selected for easy sampling include the ones that are easily accessible or available to the researcher.

Discussions help to gather comprehensive data regarding people's perspectives, observations, knowledge, and sentiments. Personal data

collected within the survey encompassed the respondents' usernames, categories, DHA addresses, age groups, durations of residence, and previous residences. The current yard and house addresses, along with accompanying photographs, were included to assess users' familiarity with traditional yard layouts.

The section dedicated to community satisfaction encompassed questions pertaining to the community activities for both residents and children living in the house. Additionally, inquiries regarding events and social gatherings were also incorporated in this section. The data collection took place in the months of April and May. A total of approximately 350 questionnaires were distributed throughout various phases of DHA (Convent sampling) to ensure the acquisition of optimal data representing the diverse phases within DHA Lahore.

Results

DHA Lahore is frequently mentioned as one of the top socioeconomic housing schemes of Pakistan which is considered as a favored and prioritized place to live. Interestingly, it is the oldest project among all the DHA chapters nationwide. Although, there is a reasonable level of satisfaction (60%) among DHA residents with respect to the amount of open space offered in Lahore homes, they have expressed concerns regarding privacy in these places, a lack of integration across open spaces, and challenges with child care in such settings. The residents' top concerns included the safety and security of their children. Residents of DHA suggested to devise a new planning strategy, considering open spaces associated with other areas of the home. The total quantity of respondents was 350 out of which 316 people responded correctly (Completely filled Questionnaire). The details of age groups are as follows (See Figure 5).

It is critical to understand the residents' prior residential areas since it has a significant influence on their thinking process and comparative study of living quality, thus the question of where you lived, before becoming a DHA resident, was asked. Five possibilities were available out of which the 'Walled City of Lahore' was the first choice. Lahore came on second number (other than the walled city) and the third possibility was outside of Lahore. Punjab was the fourth choice and the final option was outside Punjab. The majority of inhabitants (95.3%) responded that they used to live in a Lahore

neighborhood before moving to DHA. Some claimed to be from the “Walled City of Lahore” (See Figure 6) .

Figure 5
Showing Age Group

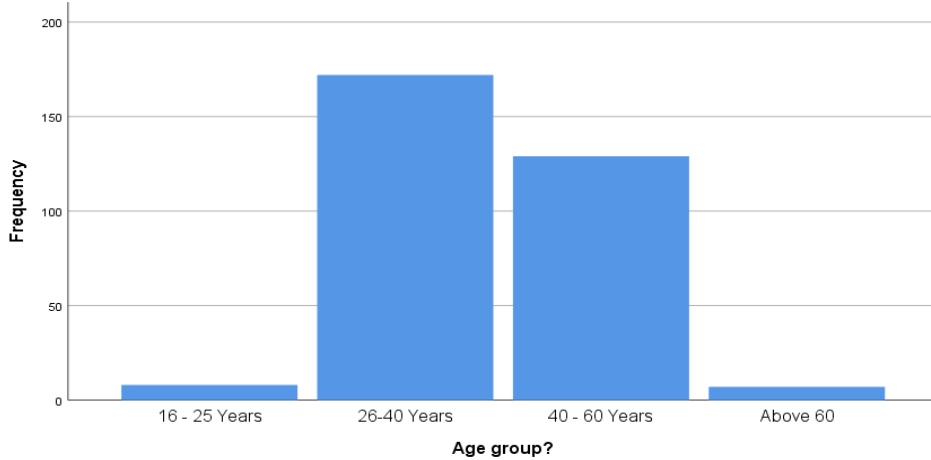
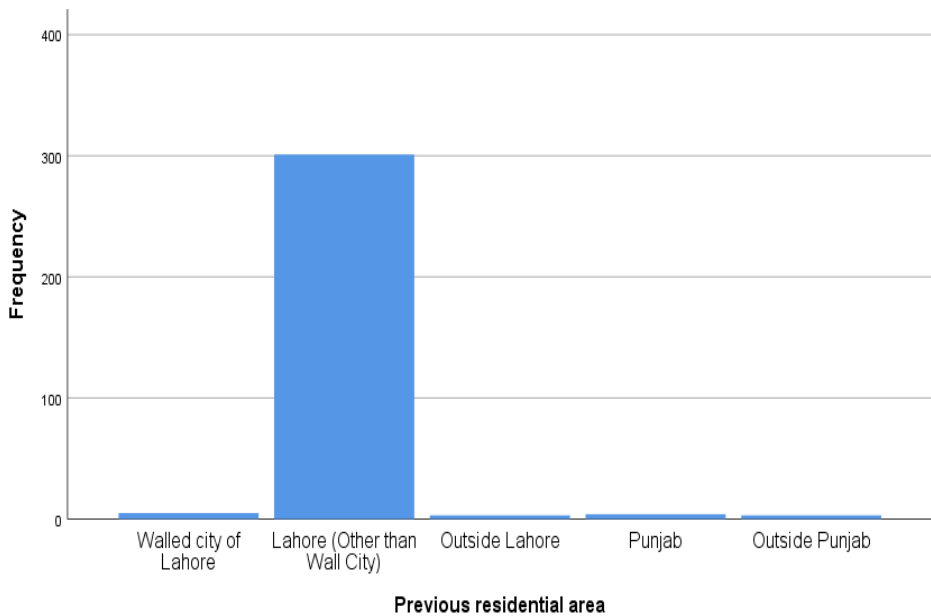
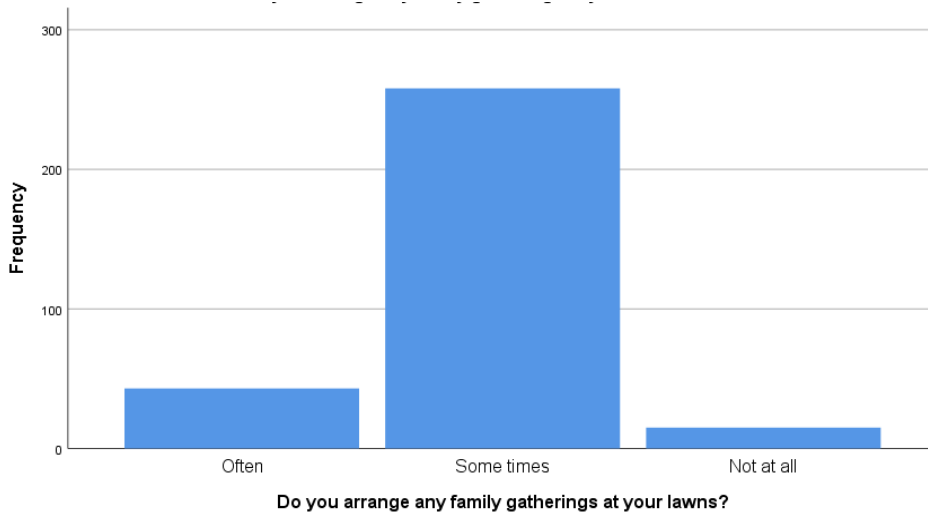


Figure 6
Showing Residents’ Area before coming to DHA



Citizens too advised revising existing by-laws and making open spaces safer. Spending time with family assures a decent social life, thus the issue of how much time people spend with their families on the front grassy ground of their homes was asked. It was discovered that more than 72% of the residents devote their time to their families for about an hour.

Figure 7
Inquiring about Investing Time alone in the Garden

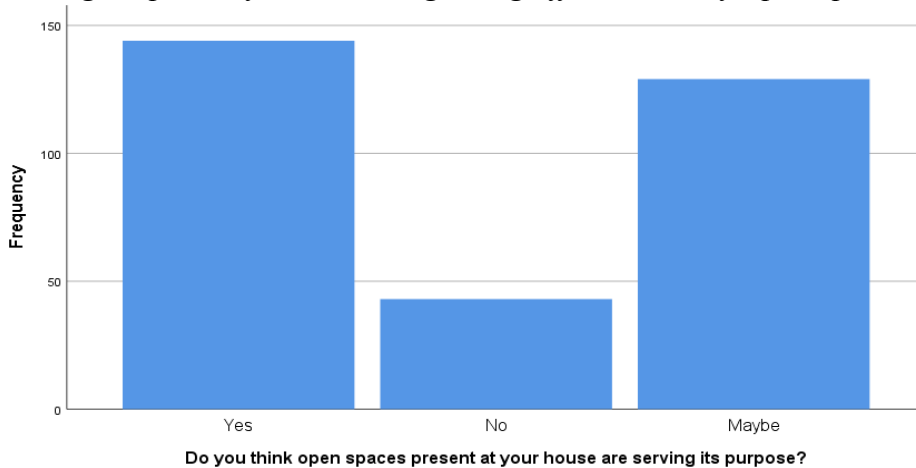


The results showed that most of the inhabitants spend exceptionally little time in their lawns with their family members. Spending time with ones' families makes a huge difference in life. The address was inquired about investing time alone in the garden which was replied by 316 inhabitants. Three alternatives were advertised. The primary choice was "Yes", the 2nd alternative was "No", and the 3rd choice was "A few expansions". Almost 72.8% of the inhabitants said that they love to spend time in their own garden, whereas 13.6% said that they did not love to spend time in their gardens. Children's lives are crucially impacted by sports and wellness which support their whole development. In answer to a poll, a large majority of customers (95%) said that their kids like doing outdoor activities. Only 2.5% of those who surveyed said that their kids don't like to play outside. Another question was purposefully posed to determine the clients' overall pleasure with the community and to measure their social satisfaction.

According to the building byelaws of DHA, open areas should occupy roughly 40% of the entire space in a typical modern home. However, the findings showed that 45.6% of the users said that the current open spaces effectively suit their needs when they were asked about their happiness with these public places. On the other side, about 55% of the respondents either voiced unhappiness with the open areas or were uncertain about their purpose. The results imply that locals were not totally satisfied with the current functioning of the open spaces or were unsure of their intended usage.

Figure 8

Showing Response of Residents regarding Effectiveness of Open Spaces



Therefore, three choices were also advertised, that is, around 82% said that they now and then organize family get-togethers in their lawns. About 13.6% of the respondents said that they often arrange family get-togethers in their lawns. Most of the residents plan their family get-togethers from time to time. The result of this question regarding indoor spaces showed that people were quite confused about social events and communication. Many people also indicated reconsideration of the current planning pattern.

The front lawn, side, and back alley areas are considered as open spaces. A question regarding the percentage of mandatory open spaces was asked to determine what percentage of people living in their homes think it is an open space. In response, the majority of people said that 30% of the area is open space which is not true. The results showed that the visual effect of the open space was not exceptionally positive. DHA has set up byelaws for

open spaces for various domestic and commercial buildings In a typical modern home in DHA, the required open space is provided for about 40% of the overall area. About 45.6% of the customers who were surveyed about their use and satisfaction of these required open areas said that these areas fulfil their intended functions. The utility and purpose of these open spaces, however, was either a source of unhappiness or uncertainty for over 55% of the respondents. The results showed that the inhabitants were not totally satisfied or were uncertain regarding the usage of these open places. Therefore, the residents were asked if the alleys (open spaces located on the sides and back) were helpful to them. About 95.3% answered ‘yes’ which means most users find them useful.

Table 1
Satisfaction Level Chart

Sr. No	Question	0-20%	21-40%	41-60%	61-80%	81-100%
1	Satisfied by open spaces in house			●		
2	Understanding the purpose of back alleys	●				
3	Usefulness of alleys		●			
4	Satisfaction regarding lawn			●		
5	Satisfaction regarding bylaws		●			
6	Social activities at front lawn		●			
7	children play in open spaces		●			
8	Open spaces of family gatherings		●			
9	Outside open spaces vs indoor spaces for social activates		●			
10	Front lawn most suitable for social activities		●			
11	Current spatial planning of modern house is satisfactory		●			

Opinion of Experts

The expression of personal character and culture in domestic development reflects the significance of past, display, and future structures. In any case, conventional houses are considered to be the foremost well-known cases of Lahore normal legacy and culture. Open spaces are included to conventional houses with enclosed spaces. . The space arrangement was a combined cutting edge house that is well-used for the dead zone. The core of modern houses revolve around distinct security and other comfort features for example the plot size, in comparison to traditional houses are

generally smaller in contemporary houses. The brick dividers were more profound than the conventional houses. From the outside, a noteworthy altar was seen within the region of the (conventional) inside floors (modern). The conventional domestic was more naturally inviting than the modern. Entryways and windows were intensely brightened in the past. Within the conventional exterior, the competition for light beautification was apparent in comparison to the advanced statues. In this respect, extraordinary conventional highlights incorporating courtyards, thick brick dividers, tall ceilings, and patios can be combined with the most recent building styles to meet the constrained sort of house plan in the DHA, Lahore.

Conclusion

The purpose of the current study was to develop a model related to residential satisfaction and to provide guidelines for architects in order to plan for future residential housing that integrates a variety of approaches. This research was conducted with reference to different types of houses in DHA Lahore. The assessed structure consisted of two main dimensions namely social and functional, with quality as the most basic aspect was examined through several studies. Privacy, harmony, and a sense of security are the most important criteria that affect peoples' satisfaction.

Many DHA residents suffer from mental and physical health problems, especially the elderly people due to lack of social activities. Numerous inhabitants accepted that modelers ought to pay more consideration to the security of open spaces. Inhabitants tend to have limited contact with open spaces. This investigation focused on the progress of neighborhood gardens. Designers and inhabitants appear to be totally ignorant of the significance of neighborhood tree planting and the concept of greenery and fauna.

The current research affirmed the significance of open space plans to the satisfaction of citizens which provides a sense of well-being to them. In spite of the fact that the architects frequently consider the insides of a building to be a fundamental portion of the plan, open space incorporates a significant impact on the vibes of inhabitants and the fulfillment of the encompassing range. It is additionally important to extend the estimate of open spaces. Open spaces require enhanced security measures to enable individuals to fulfill their obligations within them. There is a need to gauge the existing personal satisfaction with different scales of interior and exterior of buildings.

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