

## Reinterpreting Residential Enclosed Open Space Of Lahore: A Study Into Elderly Occupant Perception

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### Abstract:

This study aims to address the effect of residential enclosed open space, the courtyard on the psychological and physiological wellbeing of the Pakistan's elderly residents aged sixty-five and above, highlighting how the absence of such spaces leads to a disconnect from nature, fostering feelings of gloom and emptiness among them. Qualitative questionnaire survey method is employed and respondents from both genders were interviewed through purposeful sampling. The findings and the conclusions lead to recommendations. Ultimately, this research aims to highlight the necessity of incorporating enclosed open spaces in residential designs to enhance the overall well-being of elderly residents.

**Key words:** Elderly well-being, Courtyard architecture, Psychological well-being, Physiological well-being, Elderly perception

### Introduction:

Fourteen million people in Pakistan come under the bracket of elderly that is sixty-five years and above. The elderly suffer from various age related ailments and they spend most of their time in their houses. This is partly due to their health issues and partly because of the time constraints of their family members who are unable to spend time with them. This leads to psychological distress, disappointment, and feelings of unwantedness among elderly. Residential spaces have considerable impact on the psychological and physical well-being of the residents. The research also looks into the elderly occupant's perception of the spatial typology under discussion by focusing on their activities in the open space. A comparison is drawn between the activities from the past with the present and possible activities of the future in the open space keeping in mind the changes in this spatial typology that have taken place over time and their impact on the elderly occupants.

Innovations in healthcare have resulted in the increase of elderly population in the recent years. The UN (2001) does not have specific numerical criteria of old age, however the general standard is sixty years and above. According to a British Council study, Pakistan is among the fifteen countries that have over ten million (fourteen million to be precise) population that is over sixty years of age; meaning therefore that an increasing population of elderly men and women will raise questions regarding empowerment and care across all sections of the society [1]. According to Statista; the 65-74 years old population in Pakistan is forecasted to be 10.83m in 2024 [2]. The population older than 75 years in Pakistan will be 6.22m in 2024. These elderly who according to WHO spend almost 95% of their time at home and have multiple health issues including boredom, neglect and low self-esteem due to change in their role from active to a sedentary family oriented lifestyle [3, 4]. WHO has also predicted that the population of elderly will double by 2050 and the population of eighty year olds will rise to 400 million. Recently the Islamabad Capital Territory Senior

<sup>1</sup> Zaidi, S., Hussain, F., and Ahmed, R. 2019. "Elderly Empowerment and Care: A Study in Pakistan." *British Council Report*.

<sup>2</sup> Statista. 2024. "Population Forecast of Pakistan for 65-74 Years and Above 75 Years." *Statista*. <https://www.statista.com/statistics/325080/population-pakistan-age-group-65-74/>.

<sup>3</sup> Hou, K., Liu, X., Kong, Z., Wang, H., Lu, M., and Hu, S. 2023. "Impacts of Corridor Design: An Investigation on Occupant Perception of Corridor Forms in Elderly Facilities." *Frontiers of Architectural Research*. <https://doi.org/10.1016/j.foar.2023.09.002>.

<sup>4</sup> Hishida, H., Oshima, H., and Tanaka, Y. 2010. *Aging and Urban Spaces: A Comparative Study*. Tokyo: Urban Press.

Citizen's Bill, 2021 was signed, that terms senior citizens as elderly people of sixty years above eligible for special privileges and discounts and exemption from payment of income tax. Older people in this study are men and women over 65 years of age.

Enclosed open space/courtyard by definition is a space that is within an architectural enclosure. Oxford Dictationary defines enclosed open space/courtyard as an open space that is usually part of a castle or a large house and it is completely or partly surrounded by buildings. (Lea & Runcie, 2002) [5] define enclosed open space/courtyard as an open to sky space that is partially or completely surrounded by walls or buildings typically forming part of a castle or house. In this research paper this enclosed open space will be referred as the enclosed open space / courtyard. This space has a long history and has existed since people started building houses [6]. Many scholars like Edwards [7], Oliver[8], Ayhan & Neslihan [9], have traced the history of this enclosed open space over thousands of years and have found them in the architecture of ancient civilizations like the Indus valley, Egypt, Sumer, China, Greece, Rome and Islamic empires. Enclosed open space / courtyards are "transitional" or "in-between spaces". It can come in various shapes such as U, L, H etc. depending upon the site, function and topography [10].

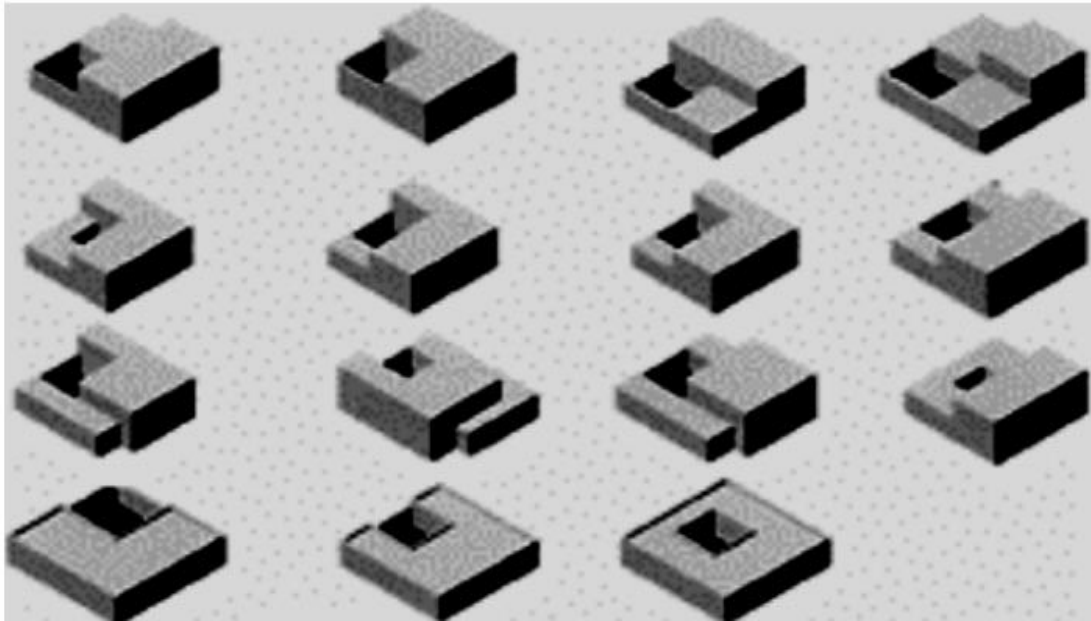


Fig 1: Forms of enclosed open space (Edwards, 2006).

### The Case of Lahore:

Enclosed open space/courtyard is an important design typology that has been part of the traditional architecture of the sub-continent and in particular Lahore. It has served multiple purposes from climatic to socio-cultural to psychological. Most importantly, in the traditional residential architecture of Lahore, open space used to be a space of centrality, the core space where all the activities of the house manifested into actualization. Various open space typologies are found in different historical periods in the residential architecture of Lahore. The traditional residential architecture of the Walled city of Lahore had an open enclosed space in the form of courtyard or a *mug*. The daily chores and activities especially included the elderly, who because of age and related health factors lead a sedentary life. Most of the living spaces including the kitchen opened into the enclosed open space/courtyard. The semi covered spaces such as the verandas were used as intermediary spaces and the elderly felt that they were an important part of the house hold and participated in various activities as important members in the domestic hierarchy.

Open space typologies found in Lahore are defined in Table 1.

Definitions by Merriam Webster Dictationary [11]

<sup>5</sup> Lea, D., and Runcie, C. 2002. *Oxford Dictionary of Architecture and Landscape Architecture*. Oxford: Oxford University Press.

<sup>6</sup> Brisdon, A. 2012. *The Courtyard Houses of Ancient Egypt: Architecture and Meaning*. Oxford: Oxford University Press.

<sup>7</sup> Edwards, B. 2006. *Courtyard Housing: Past, Present, and Future*. London: Taylor & Francis.

<sup>8</sup> Oliver, Paul. 2003. *Dwellings: The Vernacular House Worldwide*. London: Phaidon Press.

<sup>9</sup> Ayhan, Z., and Neslihan, Y. 2011. "Traditional Courtyard Houses and Their Climatic Adaptations." *Energy and Buildings* 43, no. 6: 1234–1240.

<sup>10</sup> Gupta, R., and Joshi, A. 2021. "Open Space Typologies in Traditional Residential Architecture." *Architecture Today* 10, no. 2: 45-57.

<sup>11</sup> Merriam-Webster, Inc. *Merriam-Webster's Collegiate Dictionary*. 11th ed. Springfield, MA: Merriam-Webster, 2003.

Open and Semi-covered spaces	Operational Definitions
Courtyard	Void enclosed by a volume court or enclosure adjacent to a building such as a house or palace
Terrace	Raised platform can be located on the roof top as well ground floor, a flat roof or open platform
Balconies	A small platform jutting out of a building enclosed by a railing
Jharokas	A window projecting from a wall or face of the building overlooking an open space
Barsattis	Semi covered space a feature of walled city of Lahore architecture, located on the roof top with windows
Mughas	Rectangular or square openings in the ceiling at times covered with latticed wood work for ventilation and light.
verandas,	Semi covered space with one or more parts facing a courtyard or garden
Pavilions	volume enclosed in a void

**Table 1: Open and Semi-covered space typologies in residential architecture of Lahore and their operational definitions: Table by Author**

### The Present Situation:

After Partition the Pakistani society has evolved from a joint family unit to a nuclear family unit, however; it still holds the values of respect and care for the elderly and the concept of old homes has little acceptance. The elderly live with their families and a Pakistani household harbours three generations living in the same space. However, there are many variables that effect their satisfaction with life. Some studies postulate that elderly living with their grown children show lesser satisfaction with life and are depressed. Their happiness levels are lesser in comparison to those elderly who have grandchildren, but overall sharing a household without one's spouse makes them prone to depression [12]. The enclosed open space/courtyard as an outdoor living room directly affects the physical and mental wellbeing of the occupants. The spaces we live in play an important role in our daily perception of the world around us. Psychologists Stephen Kaplan and Talbot gave the concept of *Restorative Environments* [13] defining environments that helped people to recuperate from stress and negative emotions. Due to urbanization and population growth, majority of people living in cities especially in the high density areas face issues of space constraint which leads to decreasing ratio of open space in residential architecture. A study carried out in 2019 by GBD (Global burden of Disease) [14] postulates that mental illnesses like depression and anxiety are among the twenty five top leading diseases contributing to the world wide health burden that is a carry forward for men and women throughout life in various settings. Research shows that isolation and loneliness are major factors that lead to depression and reduced wellbeing contributing towards a low quality of life in the elderly [15]. One out of seven elderly over sixty five years of age are affected by depression [16]. Mental health and psychological issues will take prominence on other health issues. Mental health is given a low priority in developing countries including Pakistan [17]. With age, mobility and level of independence also changes bringing about major change in psychological behaviour leading to depression, feelings of unwantedness and boredom.

The traditional residential architecture of Lahore used to have open spaces that contributed towards establishing connection between the elderly occupants with various activities that sustained them psychologically. In the sub-continent, post partition architecture started following the modernist direction replacing the traditional architectural practices. Post partition architecture was influenced by modernist trends that led to a change in the form of residential architecture with mostly enclosed and covered space. Globalization levelled the long standing differences between landscapes, climates and sub-cultures [18]. The traditional residential architecture has been replaced by contemporary residences without a centralised open space [19].

<sup>12</sup> Ren, Q., and Treiman, D. J. 2015. "Living Arrangements of the Elderly in China: The Effects of Children's Gender and Marital Status." *Journal of Gerontology* 70, no. 3: 495–504.

<sup>13</sup> Kaplan, Stephen, and Talbot, J. F. "Restorative Environments: Psychological Benefits of Open Spaces." *Psychological Studies in Environmental Design*, no publication date available.

<sup>14</sup> Global Burden of Disease (GBD). 2019. "Mental Health Issues and Elderly Population." *Journal of Public Health* 5, no. 2: 99–115.

<sup>15</sup> Owen, D. 2001. "Isolation and Loneliness among the Elderly: An Urban Issue." *Journal of Social Science Research* 12, no. 2: 102–115.

<sup>16</sup> Philip, G. 2005. "Depression in the Elderly: Factors and Trends." *Journal of Geriatric Mental Health* 3, no. 4: 45–57.

<sup>17</sup> Sikander, S. 2020. "Mental Health Priorities in Pakistan: Issues and Challenges." *Journal of Mental Health Research* 7, no. 1: 66–78.

<sup>18</sup> Frampton, Kenneth. 1998. *Modern Architecture: A Critical History*. London: Thames & Hudson.

<sup>19</sup> Gangwar, R. 2016. *Transformations in Indian Residential Architecture*. New Delhi: Academic Press.

Understanding the effects of architectural space on the occupants and the impact of the living spaces on the physical and psychological wellbeing of the occupants must be taken into consideration in residential architecture. This has become an important subject of discourse focusing on occupant spatial experience [20]. These issues pertaining to elderly occupant perception in reference to their activities in open space for their healthy emotional and psychological wellbeing is very important to reduce the mental disease burden that affects the entire household and society in various settings.

The study investigates the impact of residential open enclosed space on the mental health of the elderly occupants in terms of their emotions and psychological wellbeing. The objective of this research is to explore how the elderly interact with their surroundings, specifically enclosed open space. Firstly, the study aims to understand the activity patterns of the elderly in such spaces. Secondly, it assesses the impact of open space in residential architecture on the mental health of the elderly. Finally, the research seeks to determine the elderly's design preferences about residential open space.

### Literature Review and Theoretical Framework:

The concept of residential open space has been an important topic of discussion in recent architectural discourse. The focus has been mainly on its importance regarding climatic performance, thermal comfort, aesthetic appeal and socio- cultural significance.

Enclosed open space/courtyards is a “spatial pattern” that is found in the architecture of various civilizations. According to Salingeros [21] a pattern is a solution to a problem and can be generically applied for various psychological, cultural and social purposes in different cultures. Enclosed open space/courtyard as an open spatial typology is the continuation of a specific pattern that can be applied to test its psychological and physiological effects on the elderly's perception of space.

Previous literature traces the history of enclosed open architectural space/courtyard, to ancient Mesopotamian civilization and its examples existed in Sumerian and Babylonian ancient buildings [22,23]. Paul Oliver in his book “Dwellings: The houses across the world” traces the history of enclosed open space/ courtyards from Kahun to Egypt dating 2000BC. This typology developed from nomadic tribal village settlements and all the four ancient civilizations namely Mesopotamia, Indus valley civilization, Egypt and China used it in their architecture [24,25].

Kazi Khaleeq Ashraf's work in "Reincarnation and Independence: The Modern Architecture of South Asia" [26] addresses the climatic concerns in the modernist debate and the emerging brave new world. He discusses climate as the first concern the modernists tried to deal with among its abstract notions. B.Vedhajanani and A. Lilly Rose [27] drew comparison between enclosed open space/courtyard houses of India postulating that traditional enclosed open space/courtyards provided ventilation, thermal comfort and light whereas modern open space serve as light wells only. Environmental aspects of enclosed open space/courtyard for sustainable architecture were studied by [28, 29, 30, 31]. Behavioural aspects of enclosed open space/courtyards contributing to their environmental, Bio-climatic and socio cultural benefits were studied by (Das, 2006) [32]. Ferwati, Mandour, Nabavi and Yahaya studied the aesthetic aspects of enclosed open space/courtyard typology in reference to proportions, size, geometry, solid and void ratio [33,34].

Nozari and Waxman studied open spaces as social and communal spaces of interaction. Residential open spaces are somehow crystallization of collective life, nature” [35]. “These spaces provide an opportunity for meeting and social interactions” [36]. Open space makes the foundation and the structure of space while establishing relations between various

<sup>20</sup> Hou et al., "Impacts of Corridor Design," 2.

<sup>21</sup> Salingeros, N. A. 2000. "The Role of Patterns in Urban Design: A Study of Open Spaces." *Architectural Theory Today* 15, no. 4: 112-129.

<sup>22</sup> Almamoori, "The Courtyard Is a Basic Pattern in Traditional Islamic Architecture As a Prototype."

<sup>23</sup> Abass, Ismail, and Solla, "A Review of Courtyard House: History Evolution Forms, and Functions."

<sup>24</sup> Oliver, Paul. *Dwellings: The Houses Across the World*. Austin: University of Texas Press, 1987.

<sup>25</sup> Schoenauer, N., and Seeman, W. 1962. *Origins of Architectural Design in Ancient Times*. New York: Harper & Row.

<sup>26</sup> Ashraf, Kazi Khaleeq. *Reincarnation and Independence: The Modern Architecture of South Asia*. 1998.

<sup>27</sup> Vedhajanani, B., and Lilly Rose, A. "Traditional Courtyard Houses of India: Ventilation and Comfort." *Indian Journal of Architecture* 10, no. 4: 45–58.

<sup>28</sup> Soflee, A., Erdim, A., and Takacs, E. 2016. "Sustainable Design of Courtyards in Urban Settings." *Sustainable Architecture Journal* 9, no. 2: 58–67.

<sup>29</sup> Ahmad, K. 2006. "Environmental Aspects of Courtyard Design for Sustainable Architecture." *Journal of Sustainable Architecture* 4, no. 2: 47–55.

<sup>30</sup> Enes, Y., and Vildar, K. 2014. "Thermal Comfort in Courtyard Design for Hot Climates." *International Journal of Environmental Research* 8, no. 3: 123–133.

<sup>31</sup> Tabesh, R., and Begum, M. 2015. "Bio-climatic Design and Courtyard Architecture." *Journal of Architecture and Sustainability* 5, no. 1: 34-44.

<sup>32</sup> Das, M. 2006. "Bio-climatic and Socio-Cultural Aspects of Courtyard Design." *Journal of Architectural Research* 2, no. 3: 112–120.

<sup>33</sup> Ferwati, M., and Mandour, A. 2008. "Courtyard Aesthetics: Proportions and Geometry." *Architecture and Environment* 10, no. 1: 65–74.

<sup>34</sup> Nabavi, S., and Yahaya, A. 2014. "Proportional Design in Courtyards: Aesthetic Considerations." *International Journal of Architecture* 22, no. 1: 77–86.

<sup>35</sup> Nozari, S. 2004. *Open Spaces as Social and Communal Interaction Sites*. Tehran: Iranian Architecture Press.

<sup>36</sup> Waxman, L. 2004. *The Social Benefits of Open Spaces: Interaction and Community Building*. Cambridge: Cambridge University Press.



activities. According to Sadeghifam and Estekanchi open space establishes relations between different activities by acting as foundational structure [37].

Masood Khan explored the shift in the open space dynamics resulting from Colonial influence. The new architectural form that emerged during the Colonial period defines the open space as the void packed within form with the main house set in the pavilion and the open space moved to the back court or the rear space. William Glover [38] discussed the established spatial organization of open space instrumental to social interaction and categorized traditional architecture of pre partition houses of the walled city of Lahore as row houses of single storey building or two or three storey building having open space such as the enclosed open space/courtyard. Ashraf Salama traced the typological and pragmatic cultural shifts in traditional houses in Cairo based upon socio cultural and political processes during different eras in Egypt's historical evolution [39].

Lately, experimental approaches using immersive experiences and virtual reality (VR) technology were employed to assess the emotional response of occupants towards different spatial typologies. Fu et al. [40] employed a virtual experiment using electro-dermal sensors exposing people of different age groups to virtual scenarios showing open space such as enclosed open space/courtyards in residences to gauge their emotional response. He employed an experimental quantitative approach employing two immersive virtual reality scenarios: a) open space with green vegetation and b) open space with sports facilities. The findings indicated that occupant response towards green open space correlated with emotional happiness.

Marian et al [41] examined the patterns of living forms in spaces like lobbies, receptions that played an important role in engaging and facilitating the elderly. Similarly Hou et al [42] used VR technology constructed a 3D virtual corridor space to analyse occupant emotional perception for corridor design in elderly living facilities in China additionally, Koobsari et al [43] conducted research to study the relationship between street layout and cognitive function suggesting that spatial typologies impact upon the mental wellbeing of users. S. Khan [44], discussed age and gender specific enclosed open space/courtyard activities of family members in Bangladesh and the change in activity patterns due to change in the spatial design and transformations.

While the existing literature has discussed the concept of open space in residential architecture from various perspectives, however, the investigation into the significance of Lahore's residential open space from the elderly population's occupant perception contributing towards their psychological and physiological wellbeing shows a notable research and knowledge gap. Understanding the impact of architectural space on elderly occupants that promotes physical and psychological wellbeing is crucial for a healthy living free of mental illness burden that is carried by the entire society. The literature review indicates a research gap in reference to the elderly occupant perception in relevance to their psychological and physiological wellbeing.

### 3: Methodology:

There are two variables in this investigation; the elderly and middle income group. The rise in the elderly population due to innovations in healthcare underscores the significance of understanding their spatial needs and experiences. As demographic shifts occur, particularly in countries like Pakistan where the elderly population is expected to increase significantly, addressing the empowerment and care of this demographic becomes imperative. Due to advancements in healthcare there has been a rise in elderly population and this population is projected to rise significantly especially in countries like Pakistan. The middle class defined by World Bank standards is characterized by a stable earning amounting to rupees sixty five thousand to rupees two hundred and sixty six thousand. However, various socio economic factors play a significant role in defining the middle class.

A qualitative research approach is employed; primary data was collected through interviews and questionnaire survey method. Thirty respondents (male and female) sixty five and above years of age were selected based on random sampling method. A questionnaire survey was conducted and it was clear in that questionnaire that their identities will be kept anonymous. All the respondents have led a very active life. Most of them held jobs and are now retired. These participants now live with their families leading lives that are more socially oriented. The responses were gauged on positive and negative impact based on values ranging from -3 to +3.

To study activities of the elderly in the enclosed open spaces the timeline of residential architecture was divided into categories ranging from Pre-partition to contemporary.

<sup>37</sup> Sadeghifam, O. N., and Estekanchi, N. G. 2020. "The Study of Residential Open Space Effect in Spatial Form Reorganization." *Journal of Urban Management Energy Sustainability* 2, no. 2: 42–54. <https://doi.org/10.22034/JUMES.2020.242511>.

<sup>38</sup> Glover, William. 2007. *Making Lahore Modern: Constructing and Imagining a Colonial City*. Minneapolis: University of Minnesota Press.

<sup>39</sup> Salama, "A Typological Perspective . the Impact of Cultural Paradigmatic."

<sup>40</sup> Fu, E., Zhou, J., Ren, Y., Deng, X., Li, L., Li, X., and Li, X. 2022. "Exploring the Influence of Residential Courtyard Space Landscape Elements on People's Emotional Health in an Immersive Virtual Environment." *Frontiers in Public Health* 10, no. 1. <https://doi.org/10.3389/fpubh.2022.1017993>.

<sup>41</sup> Marian, L., Brown, J. E., and Clark, H. 2017. "Elderly Living Spaces and Patterns of Occupation." *Journal of Elderly Housing* 13, no. 4: 88–105.

<sup>42</sup> Hou et al., "Impacts of Corridor Design

<sup>43</sup> Koobsari, H., Moghtader, M., and Farsani, N. T. 2019. "Street Layout and Cognitive Function: A Study on Spatial Typologies." *Journal of Cognitive Urban Studies* 8, no. 3: 78–95.

<sup>44</sup> Khan, Saima. 2023. "Urban Domestic Courtyards in the Twenty-First Century: A Study of Changing Spatial Design and Activities." *Heritage and Society* 1–28. <https://doi.org/10.1080/2159032X.2023.2288375>.

Enclosed open space is found in the form of enclosed open space/courtyard in the houses of the walled city but is not present in contemporary residential architecture. The area of study was divided era wise into three basic categories.







No	Indicators/variable	Pre-Partition House		Pre-colonial House		House 18.5 <sup>th</sup> 19 <sup>th</sup> -century house		Post-colonial 19 <sup>th</sup> century (post-partition)		House from (1980-2000)		House from (2000-2020)	
		Details	Illustration (drawings screenshots)	Details	Illustration	Details	Illustration	Details	Illustration	Details	Illustration	Details	Illustration
	Open spaces /semi-open or enclosed from one side like courtyard, balcony, verandah	Central Courtyards											
			4 Sided Lawn, Veranda Inside		3 Sided Lawn, No inner Courtyard		lawn front and back, No inner Courtyard		Front Lawn and rear, No Courtyard		4 Side clear space, front lawn		

Table 2: Open Space in houses from Pre-Partition to Contemporary [ 45].

To study the activities of the elderly in this enclosed open space/courtyard one plan from the three main categories below was selected however, as the walled City of Lahore and Model Town belong to pre-Partition yet they have very different open space typologies. Therefore two plans one from Model Town and one from the Walled City were included as Pre-partition specimen study.

i: Pre Partition	ii: Post Partition	iii: Contemporary
1 The Walled City of Lahore (early 19 <sup>th</sup> century)	1 Shadman 1970's	DHA (1980's)
2 Colonial Residential Architecture (late 19 <sup>th</sup> century)	2 Gulberg (1950's)	2 Cavalry Extension (early 21 century)
3 Model Town (1930's)	3 Samnabad (1960's)	3 Sui Gas Colony (early 21 century)

Table 3: Era wise selection of areas

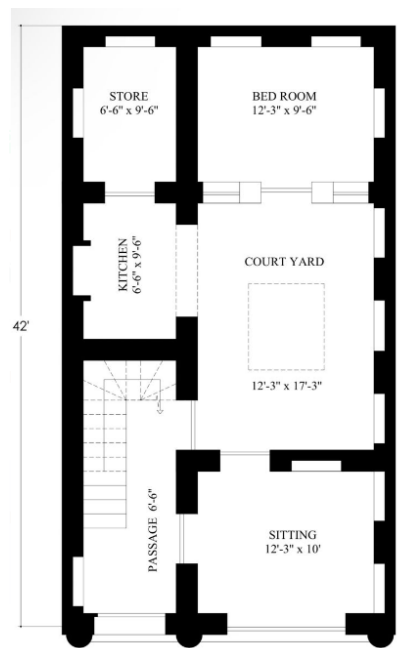
To study activities the elderly engaged in these open spaces, four common plans from three eras were selected. Division of the timeline and the selected plans which were representative of each era helped in understanding the relevance of the enclosed open space in the context of the activities and behaviour of the elderly in these spaces.

Lahore was most affected by partition and received a large number of refugees who had settled in the houses vacated by the people who had left for India. The enclosed open space/ courtyard were very important in these pre-partition houses. The age bracket of the elderly respondents ensured that most of them had lived experience of the enclosed open space typology in one way or the other and now they are living in modern houses. The pre partition houses of the Walled City of Lahore, the Colonial houses and Model town all had enclosed open space in some form.

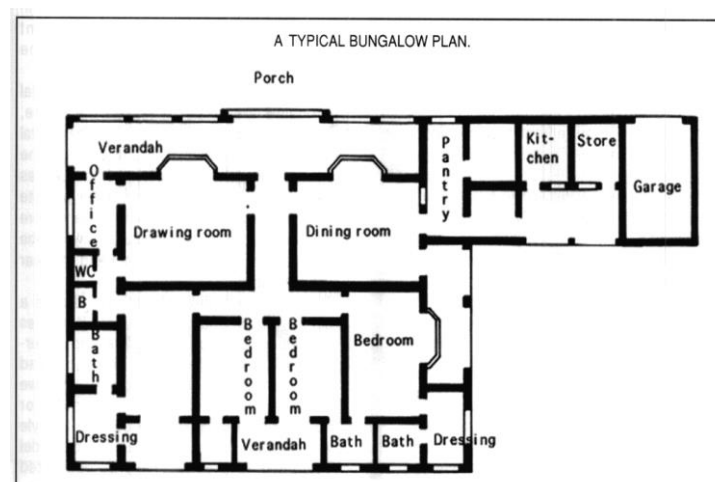
### 3.1: Criteria of selection: (Pre Partition)

The Walled City of Lahore was selected as representative of Pre Partition era because it is one of the oldest, still comparatively complete and is a living city with considerable number of surviving examples of smaller houses and larger havelis, which were planned around open space.

<sup>45</sup> Malik, "A Study of Thermal Optimization of a House Through Geometrical."



**Fig 4:** Plan of an Old walled city house with a central courtyard (Joshi, K. C. (1937). *Joshi's Modern Designs*). Redrafted by Author



**Fig 5:** A large Model Town Bungalow plan <sup>[46]</sup> (Lahore Municipal Corporation) (Glover, 2007) Redrafted by Author

Model Town society though established in 1920's on the garden city concept was the first cooperative society built for the upper middle class <sup>[47]</sup>. Most of the residences retained the pavilion quality of a colonial bungalow in the front with deep verandas but the rear open space was an enclosed space flanked by kitchen and other buildings, or a wall retaining the character of a traditional enclosed open space/courtyard <sup>[48]</sup>.

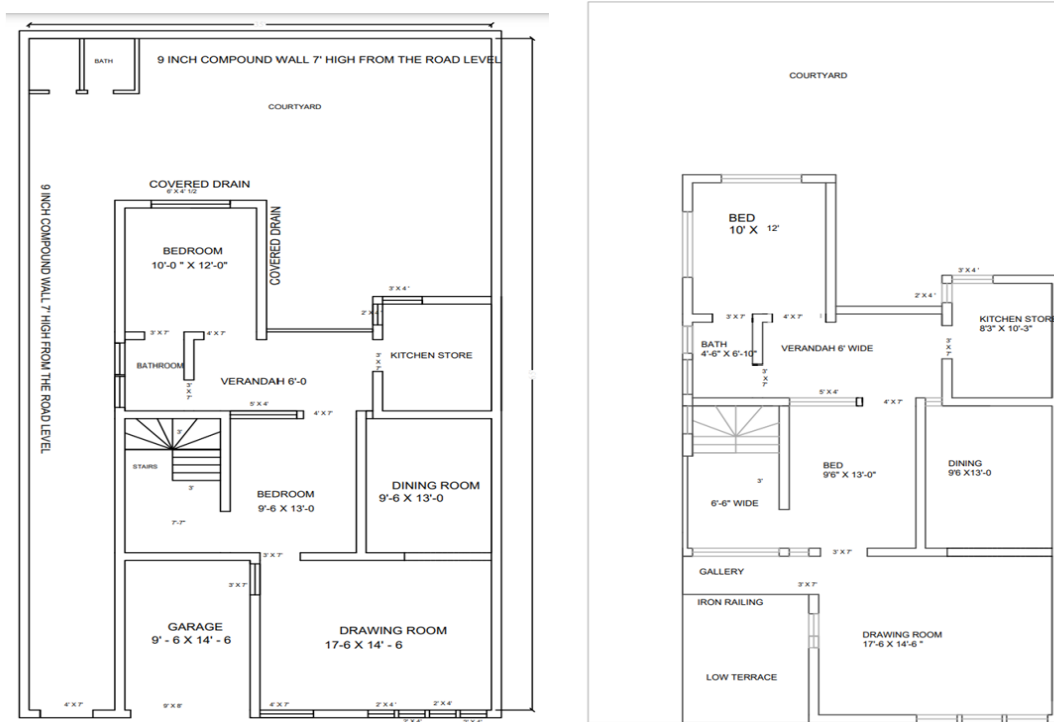
#### Shadman Phase 1: (Post Partition)

Shadman was initiated in the 1960's and early 1970's as part of scheme that started with Punjab Town Improvement Act (1922). Later such schemes came under the purview of LIT (Lahore Improvement Trust) and LDA (Lahore Development Authority). It comprises of 10 Marla and 1 kanal detached houses with amenities like People's Market, Neighbourhood Mosque, Government Primary School, Government Dispensary, Community centre, Planned Open Playground and pocket parks. The main concept behind its development was to create a model community based on socialist principles. It has houses based on open space as integral part of planning. Instead of central enclosed open space/courtyard houses have a backyard as shown in fig 8 plans.

<sup>46</sup> Khan, "Cultural Transfers: The Re-Possession of Architectural Form."

<sup>47</sup> Rudduck, G. *Towns and Villages of Pakistan, A Study*. Karachi: Government of Pakistan Planning Commission, 1961, 118.

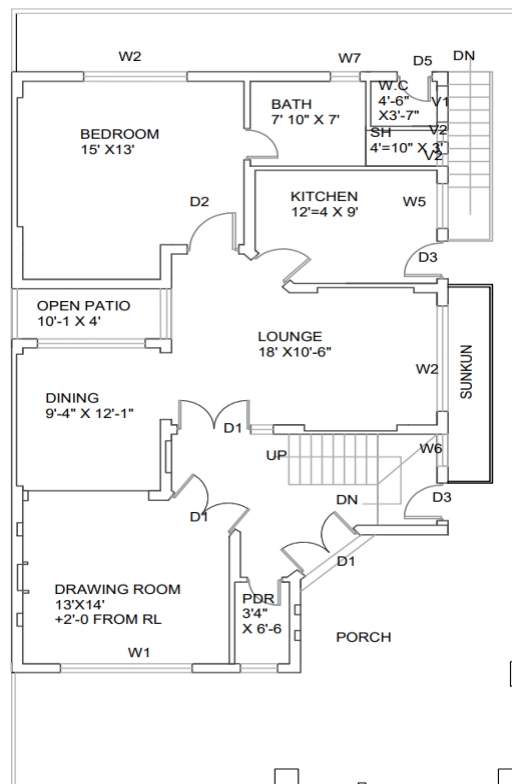
<sup>48</sup> Khan, "Cultural Transfers: The Re-Possession of Architectural Form."



**Fig 6: Shadman house plan Ground and first floor (Source Author)**

#### Defence Housing Society (DHA) (Contemporary):

Civil and Defence Housing Society Lahore was founded and established in 1973. Initially in March 1975, it was registered with Punjab Government as Lahore Cantonment Co-Operative Housing Society (LCCHS). Later it came under the federal jurisdiction in 2002 by Parliament validation in 2004. DHA official website claims that it has introduced modern designs, infrastructure and amenities for a modern, friendly and green future.



**Fig 7: Plan of a contemporary house re- drafted by Author**

#### 4 Findings:

As explained in methodology, a questionnaire was developed and a survey was conducted with interviews. A comparison was drawn between the activities of the past, present and expected activities of the future in this space. The main focus was

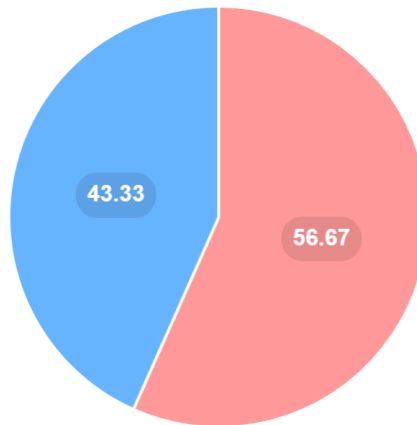


to gauge how this enclosed open space was used previously and what kind of enclosed open space will comfort them based upon the findings.

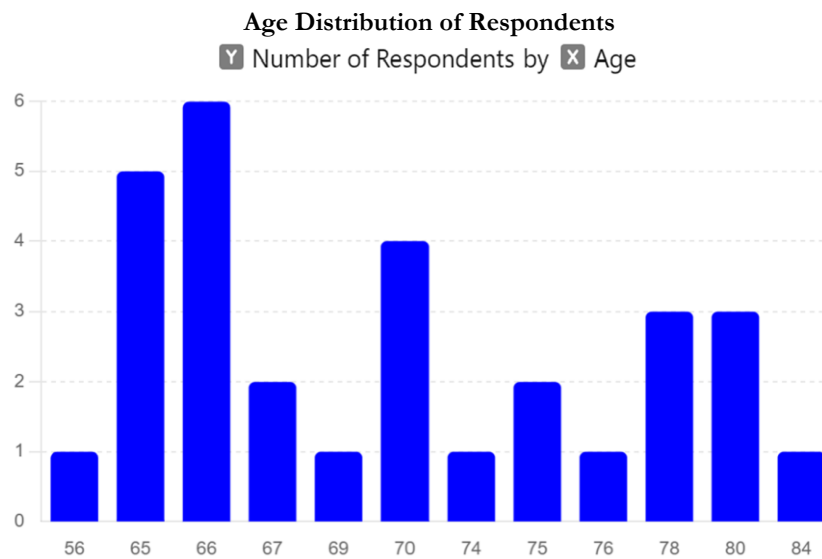
Thirty respondents, sixty five and above years of age from both genders were part of the questionnaire survey. Most of the respondents had an earlier lived experience of enclosed open space typology. The questionnaire survey was conducted and the respondents were very enthusiastic to share their experiences of these spaces. They reminisced about the places they had lived and also drew comparisons of past and present. Their responses to the questions were more elaborate that provided additional understanding about the enclosed open space.

Percentage Distribution of Male and Female Respondents

For ■ Female and ■ Male

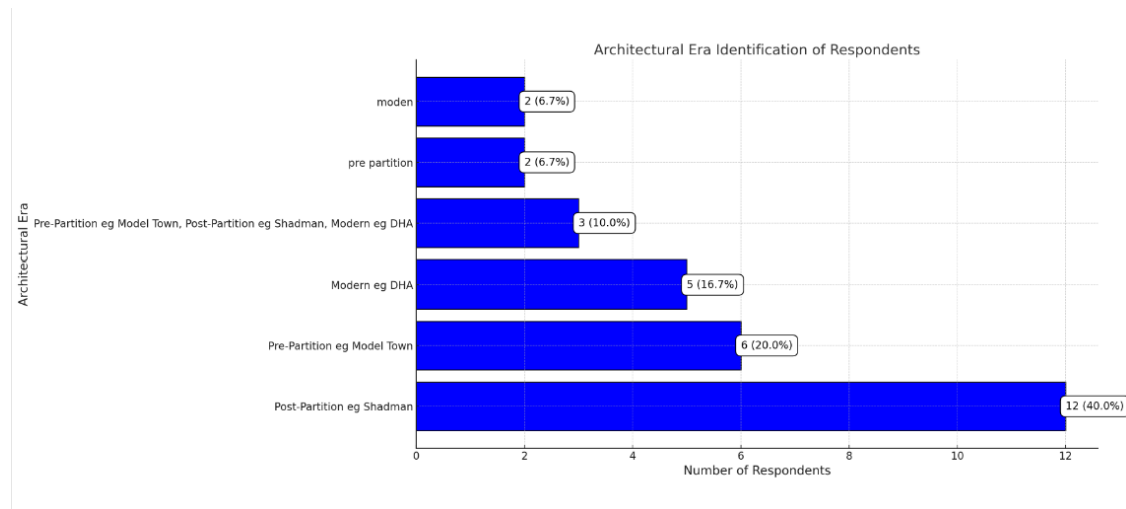


**Fig 8: Sample size 30 Respondents (17 Female and 13 Male)**



**Fig 9: Ages of Respondents**

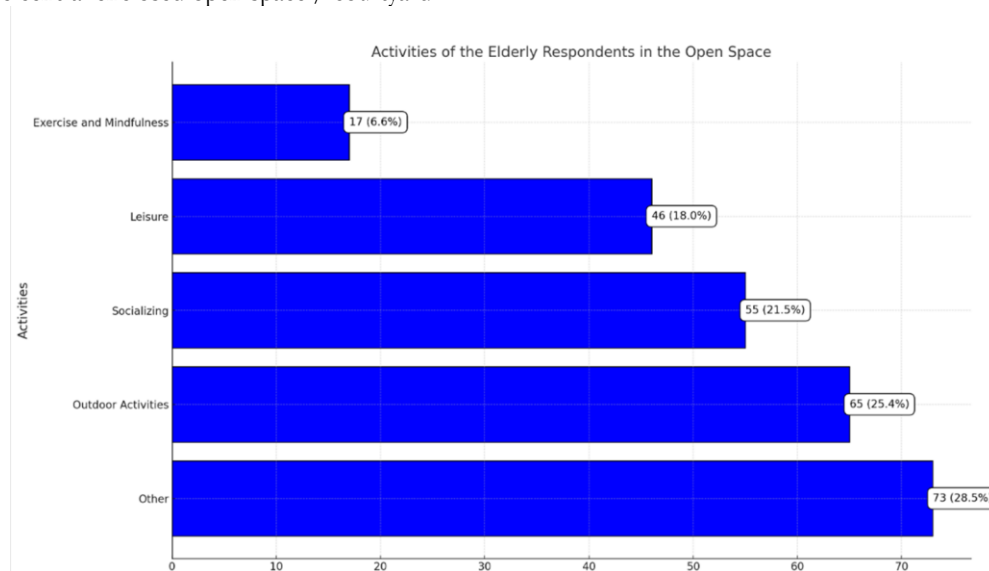
7% respondents identified with Pre-Partition architecture, 52 % of the respondents identified with Post partition architecture while the remaining 7% identified with contemporary architecture. 20% respondents preferred central enclosed open space/courtyards their favoured space, 14% preferred Backyards and the remaining 10% liked the Patio. A few identified with the open spaces of Model town. They indicated that they liked their front lawns and verandas and had informal neighbours and friends meeting there over a cup of tea. At their age they preferred a number of activities in which the most popular one was spending time with their family (21%). Two activities, one enjoying meals with the family or picnics and the other enjoying nature were popular among 77%. The other activities they preferred were socializing with neighbours 56%, hosting gatherings or parties 68%, 32% around 65 years of age liked playing outdoor games (e.g., cricket, badminton) though in a very sedentary way with grandchildren. 59% opted for barbecuing or cooking outdoors, 9% liked watching outdoor movies or performances, 27% listened to music or podcasts, 50% read books or relaxed, 36% engaged in hobbies or creative activities (e.g., painting, drawing), 31% exercised. Meditating or practicing mindfulness 36%, sunbathing or enjoying the sunshine 54%, stargazing or astronomy observation 32%, walking or jogging 46%, playing with pets 23%. These were the activities they performed and associated with the open space especially the central enclosed open space/courtyard or backyard.



**Fig 10: Architectural era identification of the respondents**

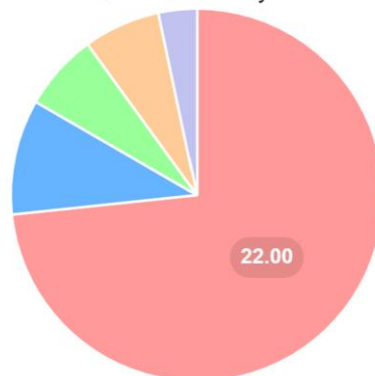
Their emotional Responses indicated that 100% experienced happiness during the time spent in the open space. Other emotions were also positive but 5% indicated feeling loneliness and frustration. They were comforted by their preferred open space because it provided them with a sense of relaxation, peace, established their connection with nature and most importantly inspired them to take care of their physical and mental wellbeing by exercising, and meditation.

All the findings indicated that the most popular enclosed open space that they wanted to have in their residence given the choice was the central enclosed open space / courtyard.



**Fig 11: Activities of the Elderly respondents in the Enclosed Open Space**

For Central courtyard - 73.3%, Central courtyard, Patio - 10.0%, back yard - 6.7%, Central courtyard, Backyard - 6.7%, and Backyard - 3.3%



**Fig 12: Enclosed open space preferences of respondents**

## 5. Discussion:

In Pakistani society, especially in the case of Lahore, despite that it is shifting towards a nuclear family, tradition and respect for their elders is still held important. The respondents due to their age bracket had lived in a multi generation setup one way or the other and they referred to their parents and grandparents experiences during their interview. The elderly respondents reminisced about the houses with enclosed open space in which they had previously lived. The information gleaned from the interviews indicated that the central enclosed open space /courtyard was used for all sorts of household activities starting from the Morning Prayers till their sleeping time. According to Mr Alvi, in the pre-partition houses people used to sleep in the open enclosed open space/courtyard and before sleep stories were told and on a clear night his father would point out the stars and their names to him and his siblings.

Following are the activity tables that indicate hoe enclosed open space was used by the elderly in Pre and Post partition Lahore:

Morning and evening prayers	Watching kids play
Sleeping	Nature watch
Having meals	Reciting the Holy Quran
Cooking of meals on the open stove in the evenings and preparing vegetables	Women socializing with neighborhood women
Spending time with family	Smoking Hookah
Sunbathing	

**Table 4: Activities of the elderly: Pre-partition (Walled City of Lahore)**

Informal meeting with neighbors and friends	Watching kids play
Taking tea	Enjoying nature/ flowers and fauna
Barbecue	Gardening
Formal get together	Walking
Mild exercising	Reading

**Table 5: Activities of the elderly: Pre-partition (Model Town Lahore)**

Houses in Shadman have open enclosed space in the form of a backyard which is very secure and private. The backyard is connected to the main house with a semi open space, the veranda. The plans indicate that the main room in the front used to be the drawing room for formal guests and the backyard and the veranda is space for daily life routines.

Spending time with family	Oiling or dying hair
Watching chores being performed like washing and cleaning	Food preparation before cooking
Interacting with grandchildren and watch them at play	Eating meals
Keeping pets	Gardening
Feeding birds and cats	Reading newspaper or Quran
Sun bathing	Barbecue and small family gatherings

**Table 6: Activities of the elderly: Post-Partition (Shadman)**

A 10 Marla House plan of DHA shows that there is hardly an enclosed open space except for a small strip like lawn in the front, a car porch and mandatory 5 foot side and back alley are left open as per bylaws. Some house plans do leave a very small light well mostly on the side of the lounge for light and ventilation. The open Space in these houses has no other use besides washing clothes and drying line. Lounge is the replacement of the enclosed open space or the central enclosed open space / courtyard.

lounging	Reading, reciting
Watching TV, mobile	Spending time with family
Eating	Talking on the phone

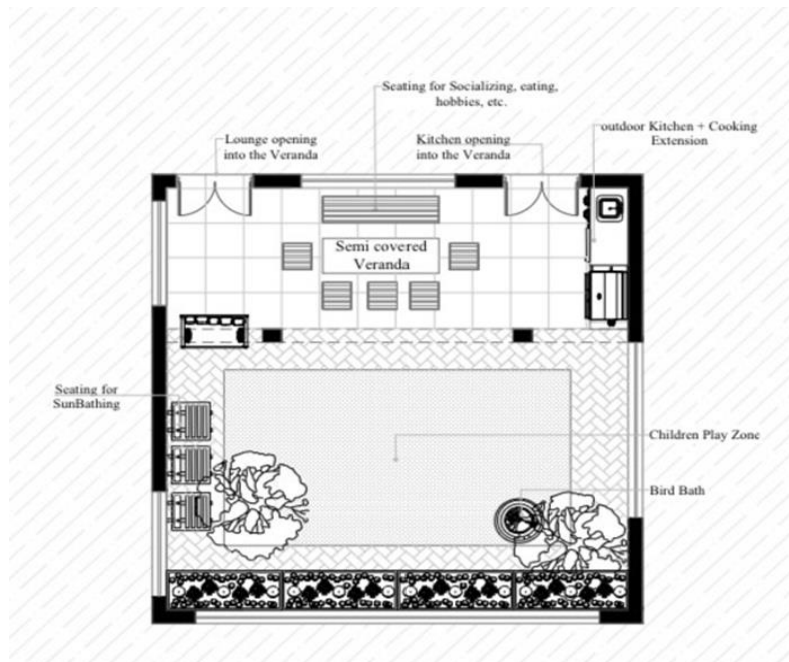
**Table 7: Activities of the elderly: Contemporary (DHA)**

Comparing activities between the three types of plans, it becomes quite evident that activities of the elderly are low key and sedentary such as relaxing, enjoying the weather, taking tea, reading, reciting Quran, telling stories to grandchildren, observing, and at times supervising the household activities. The number of activities for the elderly is very limited in the

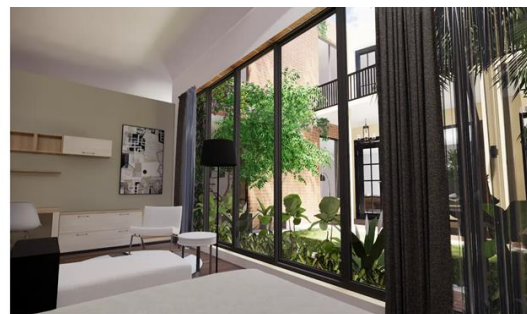
contemporary residential design with no enclosed open space/courtyard as compared to the pre-partition and post-partition houses with enclosed open space / courtyards or backyards. The contemporary residential architecture with its space constraints and lack of enclosed open space leaves the elderly with limited options and a sedentary lifestyle leads to the onset of boredom, depression and negative emotions. Architects must focus on designing residential architecture keeping in mind the psychological and physiological wellbeing of the elderly residents because this impacts the entire household which carries this mental disease burden.

#### Outcome:

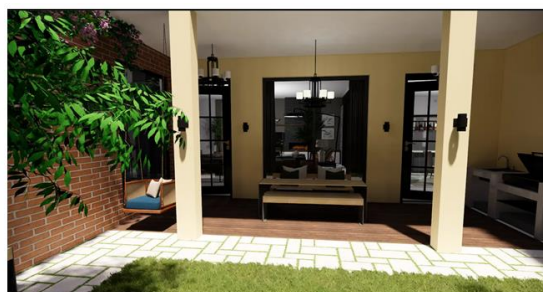
2D Plans and 3D Images of these plans were developed based on the findings.



*Fig 13: Central Courtyard (2d Plan) generated from the findings*

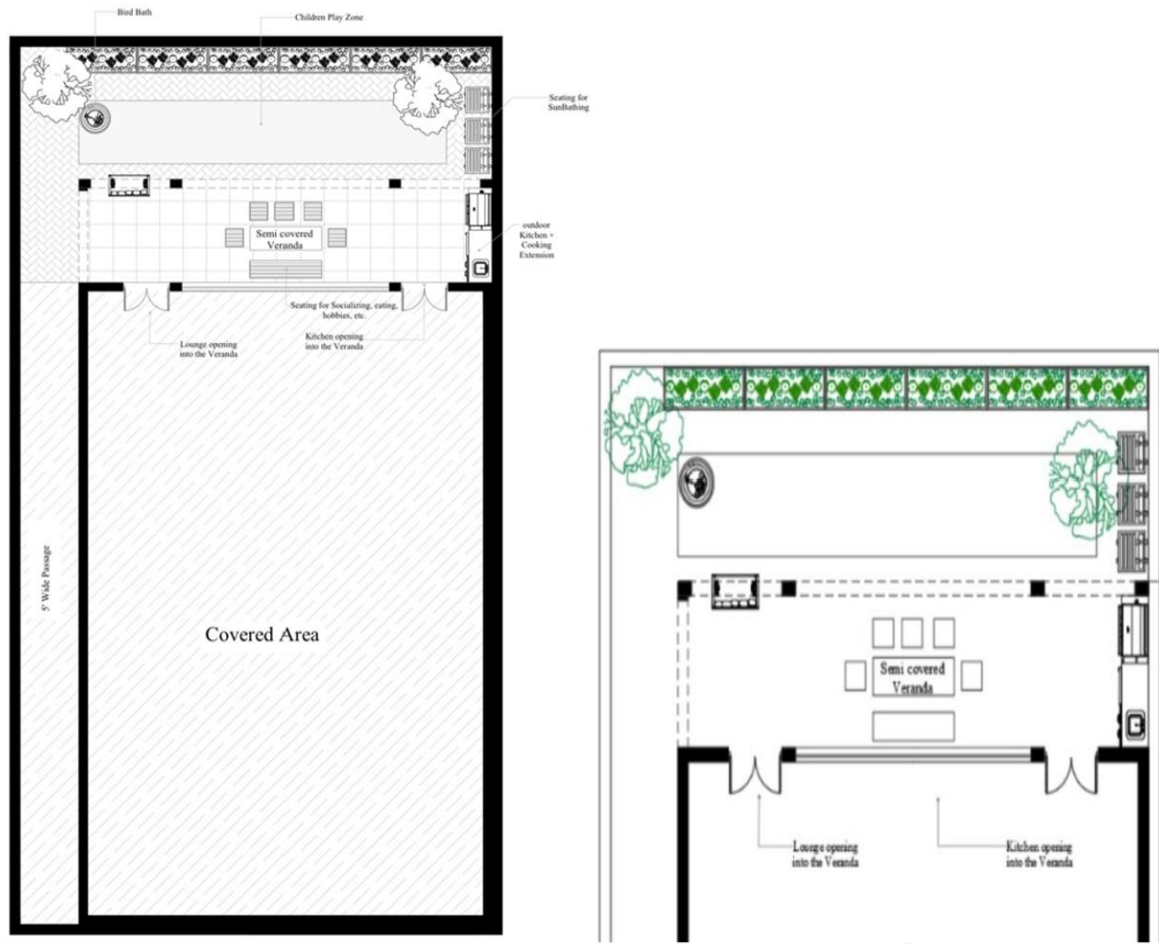


*Figs. 14& 15: Central Courtyard 3 Ds generated from the findings (source; Author)*

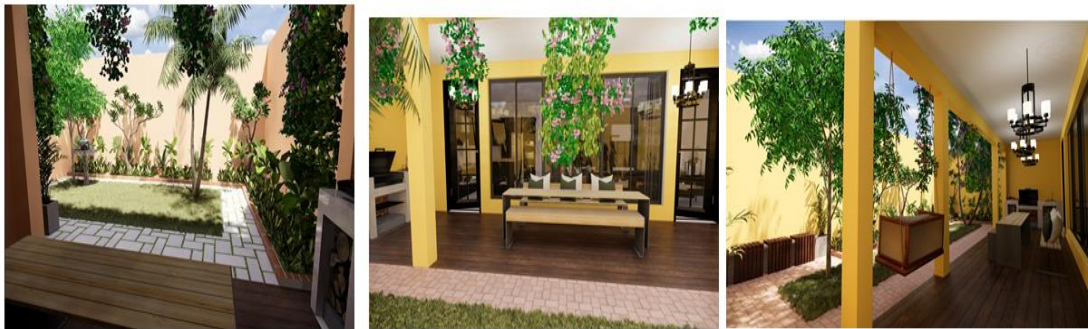


*Figs. 16& 17: Central Courtyard 3D view through the Kitchen window and veranda Backyard Plans and 3Ds*

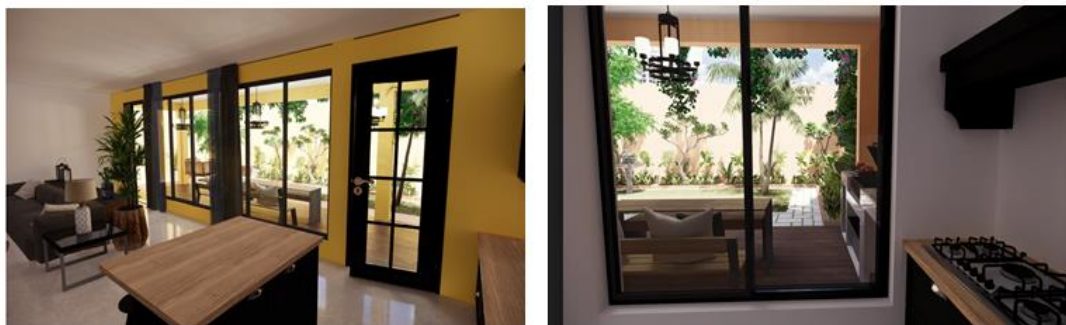




**Fig 18: Backyard (2d Plan) generated from the findings**

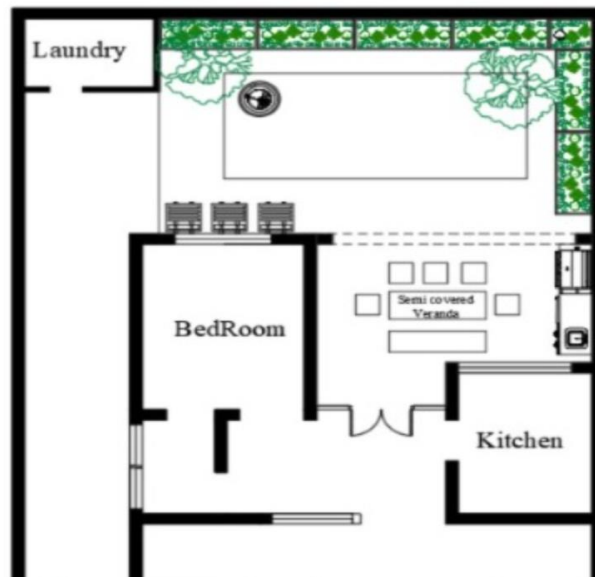


**Figs. 19, 20 and 21: Backyard 3D Veranda View (generated from the findings, source Author)**



**Figs. 22 and 23: Backyard 3D Veranda View and view from interior spaces (generated from the findings, source Author)**





**Fig 24:** Backyard (2d Plan) of already existing 10 Marla houses in Shadman.

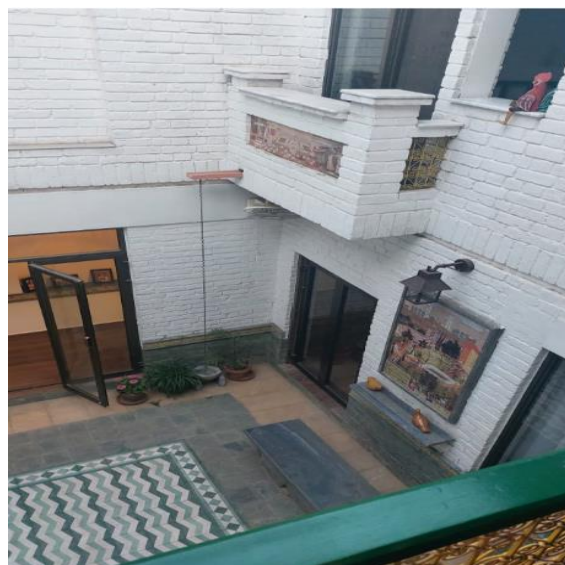
Figure 12 shows the already present backyard spatial typology of Shadman Phase one houses. This outcome was derived by interviews of the elderly residents of Shadman Phase 1, and their design feature preferences in the same space that they lived in. Eating and multi-tasking area was included in the veranda with cooking option for outdoor eating and socialising. Trees and natural green foliage was added for relaxation and interaction with nature and also to provide a gardening space for gardening enthusiasts. Laundry and drying was also included in the design. According to them these changes with multiple activities space design, will make this space more interactive for the family members.

## 6: Conclusion

The study investigated the impact of residential open enclosed space, mainly the central enclosed open space/courtyard on the perception of elderly occupants by focusing on their activities in the open space in reference to their mental, emotional health and wellbeing.

The methodology employed a questionnaire survey and interview approach and comparative analysis of the activities in the enclosed open space/courtyard during three timelines. Findings reveal that the elderly engage in various sedentary activities within this space that results in their happiness and mental wellbeing reducing stress and frustration due to their declining health. Visual permeability from covered to semi covered to enclosed open space also plays a significant role in the psychological well-being of elderly with restricted mobility leading a sedentary lifestyle.

Comparison of three samples from three different eras based on the questionnaire survey indicated that past and present activities in this space pointed towards the evolving character of the enclosed open space/courtyard and its impact on the mental wellbeing of the elderly.



**Fig 25:** Enclosed Open Space/ Courtyard designed by Sajjad Kausar (Source Author)

Contemporary architecture with its space constraints provides lesser opportunities to the elderly to engage in outdoor healthy activities for their physical and emotional wellbeing. Activities in the enclosed indoor environments are limited to reading, talking on the phone and watching television, while younger generation is deeply engaged with their gadgets. This led the elderly to feelings of unwantedness and frustration thus increasing the mental disease burden. On the other hand activities in the old walled city and model town houses involved social interaction and the idea of connectivity was more strongly implemented in the walled city enclosed open space/courtyard houses. Activities of the entire household including the elderly converged to this central space. The elderly held a hierarchal role of supervising which is missing in the contemporary residential planning. Activities in Post-partition houses of Shadman phase 1 with their back yards still revolve around family interactions, however; the enclosed open space/courtyard in contemporary 10 Marls house has disappeared leading to a lack of social engagement of the elderly. South Asian architecture in the second half of 20<sup>th</sup> century followed the modernist trends. However, architects like Blkrishna Doshi, Charles Correa, and Joseph Allen Stein valued traditional trends and open spaces. These architects including Mazhural Islam and Minnette de Silva addressed climate as an important consideration in modern architecture. Correa's famous saying, "form follows climate" is his way of celebrating open spaces. Egyptian architect Hassan Fathay and few Pakistani contemporary architects like Kamil Khan Mumtaz, Ayesha Noorani, and Sajjad Kausar have revived the concept of open space in their residential architecture. However, this revival is limited to the residences of upper and upper middle strata of the society.

It is the need of the time that designers and architects must prioritize providing thoughtful design solutions creating healthy environments specific to the needs of the elderly by including open space that promotes connection with nature and provides opportunities to the elderly for physical and mental wellbeing. These factors must be addressed for inclusive living environments for all members of the society.

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