Quality Of Life: A Comparative Study Of People's Perception Towards Plotted And Flatted Residential Units

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Abstract

The twenty-first century is witnessing a diverse change in several areas of livelihood and housing. Progressively, the style and pattern of living have diversified over a period of time. This study attempts to explore the phenomenon of quality of life in residential neighborhoods in the city of Lucknow situated in Northern India. It further examines the satisfaction level of residents belonging to the middle-income group towards their respective neighborhoods. Moreover, it tries to search that, due to change in the lifestyle of people living in urban areas, whether plotted neighborhoods or low to mid-rise apartments, impart an enhanced quality of life. A qualitative study has been deployed in comparing data identified during a cross-sectional survey in the identified neighborhoods in Lucknow. Researchers deduce that in a contemporary context, peoples' acceptance towards vertical housing has been on the rise. Additionally, the residents of low to mid-rise apartments feel safer, comfortable, and connected in a community living and exhibit cohesion amongst their co-dwellers. This research study is limited to the city of Lucknow within identified parameters; hence learning may or may not be generalized.

Keywords: Quality of life, residential neighborhoods, low to mid-rise apartments, housing satisfaction, post-occupancy evaluation

Introduction

The movement towards urban centers or 'urbanization' has been a prevailing phenomenon across the globe as people are ambitious in the pursuit of higher living standards, employment opportunities, education, and better health facilities. Approximately more than half of humankind now lives in cities with an expected increase to 60% within the subsequent two decades. According to Council, (2013) the urban areas of the world will absorb all the population growth estimated over the next four decades while Asia in particular is expecting half of its population to be urban by 2020 (Nations, 2011).

The 'Housing for all' scheme has launched by the Government of India in June 2015, to construct 20 million houses for the urban poor by 2022. According to the 2011 census, there are 246.7 million households in India. Of these, 68% are rural households and 32% are urban households. Data suggest that a majority of households live in owned houses in both rural (95%) and urban areas (69%). Overall, 213.5 million, or around 86% of all households, are living in owned houses. This is an increase compared to the 2001 census figures (Kishore, 2016).

Lucknow, being the socio-economic, political, and cultural center of Uttar Pradesh is the major

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attraction to most of the migrants from eastern U.P. The rise in housing supply versus demand gap is due to the unmatched pace of urban self-growth populations' and migratory population. The continuous expansion of urban centers is exploiting the natural resources deficiently and creating an unjust focus of the officials only on these big cities. The urge to possess a separate residence instead of owning apartment invited public or private developers to develop peripheral low-density housing schemes that too lead to major problems like; uncontrolled expansion of city increased distances and waste of important suburban agricultural land. This is leading to a drastic hike in prices of urban land and construction costs in Lucknow and nearby urban-rural fringes. The Survey of residential land prices construction cost indicates that a modest dwelling unit of 750 sq.ft. with an average construction cost of Rs. 800-1000 per sq.ft. is approximately four times the income for only plot and six times for the complete unit. These values compared with other countries having well-performing real estate markets are too high (Lin, 2018).

Elites and privileged groups in India are thought to be responsible for acquiring state-owned land at nominal prices for the development of housing schemes that are controlled by the elites of politics or civil. These housing schemes transfer the areas to the next elites after developing the land to be put up for sale in the open market where the prices are too high for the purchasing power of middle-income households. Such schemes are encouraged by Government policies that do not fulfill housing requirements of low and middle-income families consequently leading to huge housing shortfall. One possible solution to the housing shortage for middle income, without creating urban sprawl is to build upwards. Urban consolidation and smart growth by concentrating on compact development are the solutions to control urban sprawl of the cities. This probably has been the reason for the introduction of multistory residential buildings, called apartments or vertical housing, where people only have to pay for the construction costs and a small portion of the land costs for living in a reasonably social and secure environment. However; it has not been managed seriously by the public or private sector in Uttar Pradesh.

Apartments especially provided for lower or middle-income groups often fail to provide a better quality of life compared to plotted communities. Unsatisfactory quality of designs compromised material specifications community facilities etc. are the areas failing to meet residents' expectations. Furthermore, the development of vertical/apartment housing in Lucknow is fairly popular in nearly all the newly developed or developing urban hubs where people have accepted this change. Conversely people in older areas of the city are still accustomed to low rise high density and independent plotted housing, and, are still resistant to the idea of vertical housing.

This study tries to chalk out a comparative analysis between the quality of life of the residents in plotted communities versus the quality of life of the residents in low to mid-rise apartments in the urban areas of Lucknow city in order to understand the phenomenon of preference of one over the other. The users identified are preferably the middle-income group. It also investigates the issues related to the acceptance of vertical housing for middle-income families in Lucknow.

Objectives:

- To comparative examine the satisfaction level of Middle Income Group residents living in plotted communities and low to mid-rise housings in Lucknow.
- To highlight various architectural attributes of quality of life and their influence on the perception of residents

to improve the quality of life of a neighborhood

Quality of Life: Meaning and Significance

Quality of life is a broad multidimensional concept defined in numerous ways. The Treasury Board of Canada points that 'there does not appear to be one generally accepted definition of quality of life in the extensive literature generated in this subject over the years'. The literature confirms that there is no universally agreed definition of quality of life. Further it is observed that 'providing a coherent and robust definition of the concept remains problematic.' However all definitions while attempting to define the quality of life, focus its attention on the wellbeing, satisfaction, and development of people.

Quality of life is synonymously referred to in the literature through terms like life satisfaction, general wellbeing, human welfare, and human development. It is normally taken to mean the general wellbeing of people and the quality of the environment in which they live. The phenomenon is defined as an interaction of social, health, economic, and environmental conditions that have an impact on the development of the individual and society where this is more related to objective values. On the other hand, when it is defined as the sense of well-being of the individual, satisfaction of the individual from his or her life; and the quality of life is emphasized as being related to individual perceptions and senses.

Thus Quality of life in a residential environment is more related to the satisfaction levels of a group of people who are sharing the common physical, social and environmental conditions.

Theoretical Framework for Identification of attributes affecting the quality of life:

Perception of residents of any type of housing depends on several non-building factors which include resident's personal and social characteristics and context of the neighborhood (location of the building within the urban fabric of the city, resident's economic status, housing choices available, population density, and resident's stage of life, gender, design of dwelling and culture of the area) (Sinnett et al., 1972; Gifford, 2007).

In a residential neighborhood, being the place associated with one's life and sentiments, the attributes of being a place imparting a good quality of life originate from their needs. As investigated by the researches throughout Maslow's theory of the hierarchy of needs, we find four most basic needs of the human being i.e. physiological needs, need for peace, love, and respect (Ventegodt, Andersen & Merrick, 2003). Rewatkars (2016) says that user responsive designs impart good quality of life and defines the design parameters as; open spaces, flexibility, physical comfort, mental comfort, and response to socio-economic background. Skevington, Lotfy & O'Connell (2004) state that the determinants of QOL can be understood in four major domains namely physical, psychological, social relationships, and environmental factors. Taormina & Gao (2004) refer to use the personality scales to develop the level of relevance for satisfying user's needs. They define the user needs like physiological needs, safety-security needs, belongingness needs, esteem needs, self-actualization needs and incorporates the role of one's traditional values. Shawket (2018) refers to the importance of physical elements, image and activities, landmarks, and physical settings as important factors in adding up to the identity and placemaking in a neighborhood and refers it as a distinctive parameter for defining quality of life. By referring significant literature, the identified attributes and their determinants, which impact residents directly and indirectly in any residential neighborhood, and form the basic framework for conducting the survey and

analysis of the research objectives, are as follows:

The attributes and their determinants are as follows:

- I. Psychological Attributes: The way a person can express his feelings about space is by recognizing it as a relatable space. The determinants of relatable space/environment are as follows:
 - a. Privacy-Privacy phenomenon as addressed in environmental psychology as a self/other boundary regulation process in which a person or a group of people sometimes want to be separated from others and sometimes want to be in contact with others (Davis & Palladino 1997). Social interaction and communication with neighbors are the necessity for a living but privacy is considered indispensable factor for mental emotional well-being (Gulati, 2020). In other words, is a two-way privacy progression, which intuits to be with others or to be away from others, but with one intuition governing the mental state at one time and other being resilient at another time. As a result, being unaccompanied too often or for a long period (isolation) and being with others much for too too long (crowding) are both conditions disagreeable (Namazian, Mehdipour 2013).
 - **b. Safety-** In a neighborhood, safety is an important conjecture for users' satisfaction. Fear of crime also has been found to

- significant negative have a influence on the residential quality and may harm residents' mental health compared to the crime itself (Baumer, 1985: Green et al., 2002; Kullberg et al., 2009). Fear of crime is often distinguished from perceived risk and defined as 'emotional response of dread or anxiety to crime or symbols that a person associates with crime' (Ferraro, 1995). Fear of crime affects activities, routine thereby encouraging avoidant behavior and influence people to remain in their homes as opposed to move out onto the paths (Cashmore, 2014).
- Territoriality-The term 'Territoriality' can be expressed as one of the most talked-about understandings of privacy and can be defined in simple terms as "the right to be let alone" (Warren and Brandeis 1890). This can be understood as the right of a person to regulate his wish that when and how other entities are allowed to participate his in or her personal/private territory. personal/private territory refers to a personal space of an individual which is bordered by specific edge (Konings, Schaub, Weber & Kargl 2010).

II. Perceptual Attributes:

a. Individual Identity- In a neighborhood, the sense of community and security is likely to be enhanced when access to the site by outsiders is

discouraged. Most residents appreciate an image that reflects local prevailing norms and includes some elements of uniqueness to create a sense of place and identity (Marcus, 1986). Housing type, style, and tenure are also found to be core in defining a neighborhood's social identity. At a point, one can say that housing and its specific locality is a reflection of its grade and class as well (Robertson, Smyth, McIntosh,2008) but at the same time, one should be enough considerate that low-income residents prefer housing schemes that do not stand out in the neighborhood (Marcus, 1986).

- b. Personal Values- A degree of homogeneity is necessary before residents can develop a feeling of community (Marcus, 1986). Being in a community brings a sense of cohesion amongst diverse user groups yet the opportunity of personalization and expression of personal values add on to the user satisfaction in neighborhoods.
- c. Visual Pleasure and Visual Comfort- The total visual milieu of housing development is an important component of residents' satisfaction (Marcus, 1986). Efficient landscape and site layout contribute highly to resident pleasure.

III. Physical Attributes:

a. Physical characteristics of building interiors and

exteriors-External built residential environment characteristics include aspects of building design such as types of green spaces, density of houses per unit area, skyline, walls. doors. windows. fenestrations, and waste disposal facilities whereas Internal environment characteristics size, include form, lavout. color, texture, thermal environment, air quality, etc.. that Neighborhoods are characterized by the poor quality of external and internal built environment can contribute to psychosocial stress and thus dissatisfaction.

- b. Physical characteristics public open spaces- Public open spaces such as parks and green spaces are key built environment elements within neighborhoods for encouraging a variety of physical activity behaviors. Different types of public open spaces facilitate physical diverse activity behaviors for different sociodemographic groups (Koohsari, 2015). Objective and perceived characteristics of the environment surrounding public open space may not only moderate the influence factors related to public open space on physical activity (Sugiyama et al., 2014), they may also have their distinct influences on public open space-related physical activity.
- c. The attractiveness of place-Characteristics of

- neighborhoods is important in the decisions of people to move. characteristics. Such collapsed into a small number of components, enable measures of neighborhood attractiveness to be derived. There are three predominant factors neighborhood attractiveness aesthetic, amenity, and social interaction which are identified to play a vital role in imparting the quality of life in residential neighborhoods (Chhetri, 2006).
- d. Climatic comfort-Climatic comfort is a substantial factor in the smooth functioning of any building. The outdoor and indoor comfort conditions are is constituted by the interaction of different factors of the climatic conditions and the building's physical and spatial characteristics. The users can well deliver an assessment of the outdoor as well as indoor climatic comfort conditions in the form of feedback based on their experience with the spaces.
- e. Conveniences- The availability and approachability of neighborhood conveniences is a matter of great concern while selecting a house in any neighborhood. The people who may be most sensitive to the availability of nearby conveniences are those with comparatively lower income levels and elderlies.

IV. Social Attributes:

a. Links with the social environment-

- environment comprises activities such as informal conversations, impromptu meetings, and getting in the arrangement of organizational activities or events that institute trust and mutuality residents. Physical environment factors impart a major role play in the construct of such a social environment which is relatable by its users (Hee-Jung Jun, 2015).
- b. Mutual interactions- Mutual or Social interactions are the social actions that neighbors involve in, such as visiting each other, taking care, and giving or asking for help if required. It can be acknowledged by the approach and vicinity of the neighboring dwelling unit or the block (Majd Al-Homoud, 2004). Quality of social environment may play the role of an accelerator in developing better mutual interactions.
- Accessibility and Approaches-The position setting of a spatial commodity and travel distance to it are the two important elements that determine the efficiency of accessibility and routes approach in neighborhood. Thoughtful layouts of approach routes result in a better social environment and enhanced interactions while passing through the community facilities like neighborhood parks, elementary schools, grocery stores, etc. and thus relied for better community cohesion (Albert Tsai, 2014).

V. Functional Attributes:

a. Functional diversity-The diversity of behaviors a neighborhood performs important community functions contributes to its functional diversity. A neighborhood may be important in performing one role and insignificant in terms of other neighborhoods whereas other neighborhoods may be functionally pluralistic too.

VI. Environmental health and access to goods:

- Presence of health and social services-The stress-free accessibility of health services and other goods improves the causality to better satisfaction and thus contributes the overall quality of neighborhood environmental satisfaction.
- b. Level of air quality-The improved air quality in any neighborhood is indirectly proportional to the pollution by various generated polluting agents and mediums, and directly proportional to the efficiency of the landscape inside the neighborhood premises. The opportunity of filtration of stale air through the efficiently planned landscape and building components is reflected in the overall health factor of the residents.
- Access to resources available to community members Geographic access is indirectly connected to health and

satisfaction levels through difficulties accessing public resources by the residents of the neighborhood.

VII. Economic Condition:

The economic condition of the users influence the quality of life neighborhood the reconciles majorly in mixedincome neighborhoods in such a way that households of lower and higher income levels live near each other, but such propinguity may or may not lead to little social or otherwise meaningful integration across lines of income. Researches since the late 1990s have found that interactions among residents across income groups have been limited at best. Most research on this topic focuses on mixedincome developments, research on income-diverse neighborhoods has drawn a similar conclusion. Most interaction occurs among neighbors of similar income levels (Levy, 2013).

Material and Method:

Through the phenomenological approach of research, this study is done to ascertain the features of the neighborhood and its surroundings that are the most important attributes for residential satisfaction. A pilot survey is carried out on a group of approximately 200 randomly selected subjects in four identified neighborhoods in Lucknow.

<u>Subject:</u> The research subjects chosen are people living in urban Lucknow who have experienced either plotted neighborhoods or low to mid-rise

residential apartments practically and belong to the middle-income group of the city.

The subject for the research study must fall in the age group of 20 to 60 years having Monthly household Income between Rs. 50,000 to Rs.1, 20,000 and must be the resident in the targeted area for at least two years.

Method: A two-step sampling technique is adopted: Selection of target areas and sampling within the target areas by random walk survey. The recorded data from the surveyed group is tabulated and analyzed through Descriptive analysis using percentage method.

<u>Area of study:</u> Middle-income group localities are selected based on the Master Plan of the city Lucknow.

Four Middle Income Group localities of Lucknow city, namely Sahara States, Eldeco Greens, Indira Nagar Sector-19 and Indira Nagar Sector-21, are selected based on the following parameters:

Plotted and mid-rise neighborhoods: The sample cases come either in the category of resident of a Plotted community or low to midrise apartment.

Plotted neighborhood can be defined as a gated community or residential area equipped with basic infrastructure such as roads, parks, electricity, drainage and sanitation system etc. where people can buy individual house plots.

As defined by National Building Code: Part-4, "A building above 4 stories, and/or a building exceeding 15 meters or more in height (without stilt) and 17.5M (including stilt) is a high rise building". Thus in reference to this, any building less than the height of 15M (Excluding stilts) or 17.5M (including stilt) can be considered as mid-rise building.

Residents of similar income strata i.e. Middle Income Group: The subjects chosen belong to the similar income strata i.e. Middle Income Group.

As per the guidelines of Pradhan Mantri Awas Yojna-Urban (PMAY-U), a household having an annual income of Rs. 12-18 Lakhs is considered under the category of Middle Income Group (U).

Location and accessibility of neighborhood:

The neighborhoods are located in urban area of Lucknow city and easily accessible by means of public transportation system.

Gated communities: Both the categories of neighborhood are gated in nature.

Survey Questionnaire:

A total of 200 respondents have contacted, while 178 returned useable questionnaires.

The survey questionnaire is formed based upon the attributes affecting ones Quality of Life as per the literature.

It consists of four sections covering questions about the perception of residents of the community towards various attributes of Quality of Life.

Section-1 of the questionnaire is about Psychological attributes (privacy, safety, and territoriality) of the respondent.

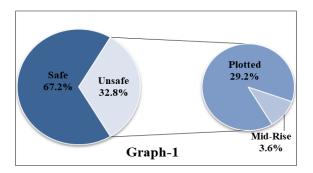
Section-2 is to understand the Perceptual attributes (Individual identity, visual pleasure, and comfort) of the respondents. A variety of indicators have identified and respondents of different localities have asked to understand that how important different features are, in the choice of an apartment vs. gated premise. Some close-ended questions have formulated to collect information about the respondent's preferences regarding location, tenure, approach routes, maintenance, safety, and other preferences.

Section- 3 is to investigate the Physical comfort and Functional Diversity (Climatic Comfort, Conveniences, and Diversity) of the sample group in both of the category of housings.

Section-4 is to comprehend the Social needs and access to goods (interactions, approaches, accessibility to goods and services) of the respondents in both the categories. Different determinants or 'Push Factors' have identified because of which people prefer to live in low to mid-rise apartments rather in gated individual houses.

Results & Analysis:

Under **Section-1** of the questionnaire, i.e. Psychological needs (privacy, safety, and territoriality); it has found through a survey that during night time, 32.8% of respondents haven't



Under **Section-2** of the questionnaire, i.e. Perceptual needs (individual identity, visual pleasure, and comfort), 47.5% of respondents have said that they are not aware of whether they are permitted to make alterations within their premises.

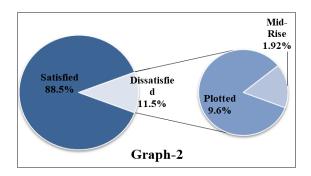
19.7% of respondents haven't got pleasant views through their house windows and common areas, out of which, 13.9% of respondents have belonged to plotted and gated neighborhoods whereas 5.8% of respondents have belonged to mid-rise gated communities (Graph-3).

21.3% of respondents have dissatisfied with the location of their house, traffic, and noise pollution. In the above-mentioned percentage,

felt safe while walking in their localities. In the above-mentioned percentage, 29.2% of respondents have belonged to plotted and gated neighborhoods whereas only 3.6% of respondents have belonged to mid-rise gated communities (Graph-1).

The psychological dissatisfaction level has found 11.5% in the survey, out of which 9.6% of respondents have belonged to plotted and gated neighborhoods whereas only 1.9% of respondents have belonged to mid-rise gated communities (Graph-2).

Results indicate that the psychological needs of the surveyed groups have satisfied more in midrise gated communities than compared to plotted and gated neighborhoods.

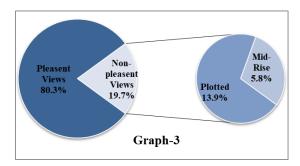


17.3% of respondents have belonged to plotted and gated neighborhoods whereas only 4.0% of respondents have belonged to mid-rise gated communities (Graph-4).

Results indicate that most of the people in both plotted and mid-rise gated neighborhoods are not aware of their premise rights.

Respondents from mid-rise gated communities have got better views from their house windows and community areas than compared to plotted and gated neighborhoods.

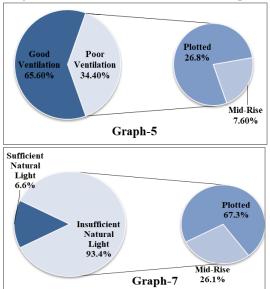
The location of the house, traffic, and noise pollution issues are prevailing more in the plotted and gated neighborhoods than compared to mid-rise gated communities.

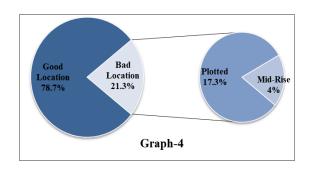


Under **Section-3** of the questionnaire, i.e. Physical comfort and Functional Diversity (Climatic Comfort, Conveniences, and Diversity), 34.4% of respondents need to open windows for ventilation during daytime, out of which 26.8% respondents have belonged to plotted and gated neighborhoods and 7.6% respondents have belonged to mid-rise gated communities (Graph-5).

72.2% of respondents have said that they need to switch on electric lighting during daytime, out of which 57.1% of respondents were from plotted and gated neighborhoods and 15.1% of respondents were from mid-rise gated communities (Graph-6).

93.4% of respondents said that they need to open window curtains for lighting during daytime. In the above-mentioned percentage, 67.3% of respondents have belonged to plotted and gated neighborhoods whereas 26.1% of respondents



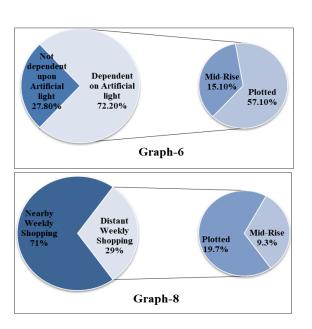


have belonged to mid-rise gated communities (Graph-7).

29.5% of respondents said that they haven't got enough opportunities for doing their weekly shopping in the neighborhood center. In the above-mentioned percentage, 19.9% of respondents have belonged to plotted and gated neighborhoods whereas 9.6% of respondents have belonged to mid-rise gated communities (Graph-8).

Results indicate that; lighting and ventilation conditions are found better in mid-rise gated neighborhoods than compared to plotted and gated neighborhoods.

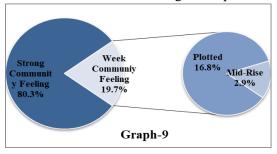
Provisions for weekly shopping too are better in mid-rise gated communities than compared to plotted and gated neighborhoods.

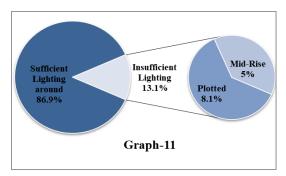


Under **Section-4** of the questionnaire, i.e. Social needs and access to goods (interactions, approaches, accessibility to goods and services), 19.7% of respondents have denied for a strong community feeling in their neighborhood. In the above-mentioned percentage, 16.8% of respondents have belonged to plotted and gated neighborhoods whereas 2.9% of respondents have belonged to mid-rise gated communities (Graph-9).

11.5% of respondents have said that they don't find their neighborhood easy to walk around, out of which 9.8% of respondents have belonged to plotted and gated neighborhoods whereas only 1.7% of respondents have belonged to mid-rise gated communities (Graph-10).

13.1% of respondents have disagreed to have enough lit area around their house at night, out of which 8.1% have belonged to plotted and





Pilot Survey Illustration

Conclusion:

Results in the study have indicated clearly that the psychological needs of the surveyed groups have more satisfied in mid-rise gated communities than compared to plotted and gated gated neighborhoods whereas 5% of respondents have belonged to mid-rise gated communities (Graph-11).

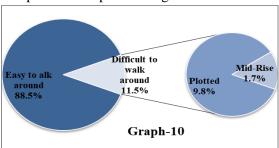
18% of respondents disagreed to have a neighborhood that is enough lit at night. In the above-mentioned percentage, 15.3% of respondents belonged to plotted and gated neighborhoods whereas 2.7% of respondents belonged to mid-rise gated communities (Graph-12).

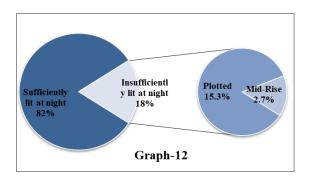
Results indicate that:

People are lacking the community feeling more in plotted and gated neighborhoods than compared to mid-rise neighborhoods.

People find it more difficult to walk around the plotted and gated neighborhoods than compared to mid-rise neighborhoods.

Mid-rise neighborhoods are better lit than compared to the plotted neighborhoods.





neighborhoods. Respondents from the mid-rise gated neighborhoods have got better views, natural light, and ventilation. They have lesser affect from traffic and noise pollutions in their neighborhood and have got a better approach for their day to day and weekly shopping.

The target population is much in favor of bigger apartment sizes.

Low to mid-rise gated neighborhood dwellers have felt safe and able to get better opportunities to walk around their premises not only in the day time but in the night time as well and having a good sense of being in a community than compared to the respondents of plotted and gated neighborhoods.

Thus the study has revealed an increasingly positive trend in the likeliness of people towards low to mid-rise gated housings.

While conducting the study, amongst the examined attributes, Safety and Security, Privacy and Proper Day Light have emerged as the most important features, trailed by quality and accessibility to Green Areas and Children Play Areas. This deducts to the learning that people give most priority to the Psychological attributes followed by Physical attributes of any neighborhood. Existences of Perceptual, Social, and other attributes have added-on the sensitivity of a satisfied neighborhood.

Recommendations:

- 1. Planners, Developers, and Policymakers consider and ensure the incorporation of buyers' preferences such as privacy, safety, and security, open and green spaces, proper daylight, secure parking areas, design and layout that is spacious and practical for families with young children, etc. in designs of their dwellings to attract more households toward low to mid-rise housings along with complementary facilities and services such as green space in the neighborhood, children play areas, day to day shops and accessibility to public transport.
- 2. A Neighborhood that is designed consciously, whether plotted or

- elevated, should be compact, pedestrianfriendly and mixed-use. The provision to access adequate services and facilities to fulfill residents' requirements must be incorporated. Provisions must ensure access to adequate eco-buildings and housings that fulfill people's needs and National Building Codes.
- 3. Well-defined streets and open spaces by a well-structured building layout should become a priority for the designer and developer for providing a hierarchy of complete street networks based on pedestrian and vehicle load.
- 4. The designer and developer must ensure to take into account the planned projected management, maintenance, and repair policies to ensure the sustainability of the neighborhood.
- 5. Indeed, vertical expansion seems to be one of the acceptable solutions as per opinion of the surveyed group without compromising their Quality of Life in their housings to the growing population of Lucknow by keeping control on the parameters defining individuals' Quality of Life in such neighborhoods of the city and thus to attain increased acceptability of elevated above the ground-dwelling units by all age groups and genders in contemporary development.

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