Consequences of living in high rise buildings: A study on elderly residents of Kolkata

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Abstract

The present study was aimed at comparing the housing environment perception, depression and loneliness of the elderly inhabitants of high rise and non high rise households of Kolkata. Housing Environment Perception Inventory (H.E.P) consisting of two parts had been used for the said purpose. Part-1 contained 48 Likert-type items arranged on a 5-point scale whereas Part-2 consisted of 25 bipolar adjectives having 9-point scale continuum. Moreover, adapted Bengali version of the Depression Scale of MMPI-2 and Loneliness Scale containing 57 and 20 items respectively had been administered in the study. To select the subjects a group of high rise residential buildings (minimum nine-storied) from different regions of Kolkata city were identified randomly. Then 40 adults aged 60 years and above (residing on 5th floor and above) were randomly selected from those buildings following certain criteria. Likewise, a group of non high rise buildings (not more than three storeys) were selected from the same locality and wherefrom 42 residents belonging to the said age group were randomly taken from the specially prepared list. Significant differences were reported between the scores obtained by the high rise and non high rise occupants in all the three areas, namely, housing environment perception, depression and loneliness with the high rise group being more negative on the issues.

Concern about relations between the housing conditions of people and their ill-health has been recorded over several centuries by architects, medical practitioners, novelists, and social reformers. Today, following the results of many studies in a range of disciplines, the residential environment is known to be an important determinant of quality of life and well-being (Lawrence, 2000). Therefore, the important question whether "living in high rise housing or living in overcrowded condition is harmful" is now being asked by social scientists in various fields including Environmental Psychology. Answer to this question is of far-reaching implications in understanding the environmental vicissitudes of human species in its constant struggle for survival and further evolution into higher and more creative level of existence. If highly dense or overcrowded environments are inflicting irreparable psychic damage to a large portion of existing group of human beings then there is sufficient reason for the social scientists to be deeply concerned with the problem.

In line of the above, effects of high rise living on human behaviour have been the topics of interest to researchers in various fields. Consequently, researches in the field of various aspects of the living conditions of high rise dwellers were started highlighting the beneficial aspects as well as the problems of the habitants of high rise buildings.

It was the rapid growth in population that originally promoted the construction of high rise buildings. Over and above the aesthetic effect, its functional economic achievement was to multiply urban space. The high rise buildings can save precious land which can be utilized for agricultural and industrial purposes, can lower the cost of facilities like water supply, transport, electrification, drainage etc. Furthermore, cities around the world are also trying to create its own identity with skyscraper landmarks.

Unfortunately, by the 70s, there had arisen an awareness of the problems, physical, mental and social – created by the high rise structures. High rise buildings were sometimes accused for causing fear, dissatisfaction, stress, behaviour problems, lower physical activity, suicide, poor social relations, and social isolation, marital discord, reduced helpfulness, and hindered child development (Cappon, 1972; Angrist, 1974; Conway and Adams, 1977; Ineichen, 1986; Jackson, 2002; and Evans, Wells and Moch, 2003). Broyer (2002) revealed that high rises burdened existing services and infrastructure, worsened traffic problems and contaminated neighbourhood character.

Some researchers (Hird, 1967; Cappon, 1971; Mitchell, 1971; Jephcott, 1972; and McCarthy and Saegart, 1978) found high rise buildings causing increases in crime, delinquency and neurosis, of isolating people in depersonalized living spaces, causing loneliness and anxiety, of lowering their interest in community affairs and so on. Littlewood and Tinker (1981) found that when residents moved out of high rise dwellings, they reported fewer symptoms of depression. Edward et al. (1982) observed that social and psychological pathologies had been frequently associated with features of the built environment being most prominently linked to apartment dwelling and high rise housing. McCarthy, Byrne, Harrison and Keithley (1985) also agreed upon the relationship between housing type and psychological health and found that persons living in high rises or multiple dwelling units were more unhappy about their housing circumstances than those who lived in houses. That unhappiness might result in the development of psychological distress, and eventually, some form of mental illness. A review of the literature on high rise housing and mental health by Ineichen (1986, cited in Blackman, Evason, Melaugh and Woods, 1989) concluded that the mental health of occupants of high rise flats was poorer than that of equivalent households living in different situations. That finding was particularly relevant for families with young children.

Dasgupta, Bhattacharyya and Asaduzzaman (1992) explored some of the social and psychological problems encountered by the elderly residents of the high rise buildings of Kolkata and Dhaka – the two important cities of the two developing countries, India and Bangladesh. The findings disclosed that the tall buildings had the stress generating elements in them as perceived by the selected elderly inhabitants. Another study conducted in India (Chatterjee, Dasgupta and Dasgupta, 2003) reported that the nature of the perceived housing environment of the housewives dwelling in the upper floors of the high rise buildings was not satisfactory in comparison to those residing in the low rise buildings. It was observed that the high rise dwellers had their mental states being grossly engulfed with a feeling of being 'disturbed', 'irritated', 'depressed', 'impersonal', 'uncomfortable', and 'boring'.

A comparative study has been made here in terms of housing environment perception, depression and loneliness of the elderly inhabitants who are living in high rise and non high rise households of Kolkata at least for the last five years.

Hypotheses:

1. High rise dwellers perceive their housing environment as unfavourable as compared to non high rise dwellers.
2. Inhabitants of high rise buildings feel depressed as compared to non high rise dwellers.
3. High rise dwellers feel themselves as lonely as compared to non high rise dwellers.

METHOD

Tools:

To verify the hypotheses following tools were used:

(i) Housing Environment Perception Inventory (H.E.P):

The inventory consisted of two Parts –1 and 2, where the Part-1 was developed by the present investigator and the Part-2 was designed by Dasgupta and Nandi (1988).Part-1 contained 48 Likert-type items on a 5-point scale designed to objectively assess the perception of housing environment by the concerned residents. The statements in the Inventory were centered around the variables (i.e., lack of provisions for social interaction, recreational facilities and open spaces such as, community hall for cultural functions and festivals, children's play areas etc, inadequate existing infrastructural facilities and services related to vertical transportation, parking areas, provisions for meeting fire hazards, as well as limited measures for minimizing noise, glare and adverse wind effects, building vibration and so on) concerning problems of high rise living.

For quantification, all items were assumed to carry equal weightage. Thus, each item had been scored '0' to '4' or '4' to '0' depending on the nature of the item, whether positive or negative, where '0' indicated the relative inapplicability of the item for the concerned resident, '1' indicated the presence of the problem mentioned in the concerned item to the maximum extent, and '4' indicated the absence of the problem. Total score, therefore, meant the level and nature (either favourable or unfavourable) of housing environment perception, the maximum possible score being 192. Odd-even split-half reliability coefficient and item-total correlation of the inventory were observed to be pretty high (0.91 and 0.85 respectively).

Part-2 of the Inventory consisted of 25 bipolar adjectives having 9-point scale continuum. Odd-even split-half correlation and subsequent application of the Spearman-Brown formula showed that the reliability coefficient of the Part-2 of the scale was 0.84. Item-total correlation was also observed to be pretty high, that is, 0.69.

(ii) Depression Scale:

This is the adapted Bengali version (Dutta and Dasgupta, 2002) of D-scale of the M.M.P.I–2 (Hathaway and McKinley, 1991) which consisted of 57 items that reflected not only the feelings of discouragement, pessimism and hopelessness that characterized clinical status of depressed individuals, but also the basic personality features of hyper-responsibility, high personal standard and intrapunitiveness. Odd-even split-half reliability coefficient of the Scale was found to be 0.85.

(iii) Loneliness Scale:

The scale consisted of a cluster of 20 statistically significant items measuring the nature of loneliness experienced by the inhabitants of high rise apartments. It was developed specially by the present investigator following the standard procedure of test development with a total pool of 35 items wherefrom a group of 15 items were eliminated as insignificant items through item analysis. Odd-even split-half reliability coefficient was observed to be 0.76.

Study areas and Subjects:

To select the subjects a group of high rise residential buildings (minimum nine-storied) from different regions of Kolkata city were identified randomly. Then 40 adults aged 60 years and above (residing on 5th floor and above) were randomly selected from those buildings. Following the same procedure a group of non high rise buildings (not more than three storeys) were also selected from the same locality and wherefrom 42 residents belonging to the said age group were randomly taken from the specially prepared list. The selection criteria of the subjects were as follows:

(1) all adults were the residents in their present houses at least for the last five years;
(2) all of them were literate;
(3) all the subjects were well conversant with the Bengali language;
(4) they were willing to participate in the present study;
(5) not more than one subject was selected from one family.

Collection of data, Scoring and Tabulation:

Following a pre-arranged programme schedule the data were collected. Tabulation work was done separately for each questionnaire and for each category of buildings with regard to the respondents' gender.

Statistical analysis of data:

Descriptive statistics like mean and standard deviation and inferential statistic like t-test were used for statistical analysis of the tabulated scores.

RESULTS AND DISCUSSION

Tables 1 and 2 present the comparative picture of high rise and non high rise housing environments in terms of the inhabitants' perceptions regarding their residential environments.

Table-1: Gender-wise distribution of the Means and Standard deviations of the Housing Environment Perception (H.E.P. Part 1) Scores of High rise and Non high rise dwellers and their comparisons.

Gender	High rise dwellers (H.E.P. Scores)			Non high rise dwellers (H.E.P. Scores)			t-value
	N	M	S.D.	N	M	S.D.	
Male	21	102.64	7.82	22	110.95	6.11	3.87***
Female	19	109.72	8.01	20	120.71	7.50	4.41***
Total	40	106.00	8.67	42	115.60	8.37	5.10***

High scores indicate favourable housing environment perception; *** p<0.01.

Table-2: Gender-wise distribution of the Means and Standard deviations of the Housing Environment Perception (H.E.P. Part 2) Scores of High rise and Non high rise dwellers and their comparisons.

Gender	High rise dwellers (H.E.P. Scores)			Non high rise dwellers (H.E.P. Scores)			t-value
	N	M	S.D.	N	M	S.D.	
Male	21	176.33	10.48	22	168.22	10.58	2.52**
Female	19	163.48	10.09	20	152.37	10.81	3.32***
Total	40	170.23	12.13	42	160.67	13.30	3.40***

Low scores indicate favourable housing environment perception; ** p<0.05, *** p<0.01

The findings indicate an unfavourable perception of the housing environment by the high rise dwellers irrespective of their genders. Furthermore, there are significant differences between the housing environment perception scores obtained by the male as well as the female residents of both types of buildings. The facts are thus contributing significant data towards accepting the hypothesis that postulates "*High rise dwellers perceive their housing environment as unfavourable as compared to non high rise dwellers"*.

An analysis of the responses of the subjects in the H.E.P. Part-1 reveals that the unfavourable perceptions of the high rise dwellers are caused due to the factors, namely, security hazards, lack of play space for the children, maintenance related problems, problems during storms and gales, lack of adequate car parking space for visitors, restriction of mobility of the elderly residents, inadequate fire-fighting arrangements, noise and vibration related problems, hazards to visual and auditory privacy, problems related to elevator service, fear regarding earthquake and house collapse, feeling of detachment and alienation due to living much higher than the ground level, feeling of rootlessness due to leaving the parental houses and changing over to the boxlike apartment in high rise building, poor social relationship with the neighbours, and mental distance and discord amongst the residents stemming from economic status difference causing physical inconveniences as well as psychological and social discomfort.

Table-3 presents a comparison between the high rise and non high rise dwellers in respect of their depression scores. It is evident from the table that in case of the male residents of both types of buildings an insignificant difference between their depression scores is found but the two groups of female dwellers and the total group (consisting of both male and female dwellers) differ significantly with regard to their scores. It has been noted, however, that the residents irrespective of gender living in high rise buildings have expressed their opinions involving higher degrees of depression in comparison to their non high rise counterparts. Such evidence speaks in favour of acceptance of the hypothesis that states "*Inhabitants of high rise buildings feel depressed as compared to non high rise dwellers",* provided the dwellers are mainly females. The findings corroborate with those reported by Chatterjee, Dasgupta and Dasgupta (2003) in their study.

Table-3: Gender-wise distribution of the Means and Standard deviations of the Depression Scale Scores of High rise and Non high rise dwellers and their comparisons.

Gender	High rise dwellers (Depression Scores)			Non high rise dwellers (Depression Scores)			t-value
	N	M	S.D.	N	M	S.D.	
Male	21	27.92	4.09	22	25.85	4.57	1.57*
Female	19	30.17	4.21	20	26.08	4.05	3.08***
Total	40	28.99	4.30	42	25.96	4.33	3.19***

High scores indicate depression; * Difference insignificant; ** p<0.05; *** p<0.01.

The possible reasons behind such higher levels of depression among the high rise residents may be related to the structural nature of their buildings and surroundings. The high rise occupants have been found to hold greater degrees of negative perceptions than their non high rise counterparts irrespective of gender regarding certain structural components. It is most likely that all these factors have gradually built in them a sense of apathy and dissatisfaction towards their residences and they have started perceiving their residences as inconvenient places for living. Under such circumstances they may become more and more irritable and depressed continuing to live over the years in such places.

A probe into the impact of building types on the levels of loneliness of their occupants (Table-4) reveals that the inhabitants of high rise buildings suffer from greater degrees of loneliness than those living in the non high rise buildings. Furthermore, high rise and non high rise residents (both male and female) are found to differ significantly regarding their loneliness scores.

Therefore the hypothesis stating *"High rise dwellers feel themselves as lonely as compared to non high rise dwellers"* is accepted. Hird (1967), Cappon (1971), Mitchell (1971), Jephcott (1972), and McCarthy and Saegart (1978) also confirmed higher degrees of loneliness amongst the high rise occupants than the non high rise ones.

Table-4: Gender-wise distribution of the Means and Standard deviations of the Loneliness Scores of High rise and Non high rise dwellers and their comparisons.

Gender	High rise dwellers (Loneliness Scores)			Non high rise dwellers (Loneliness Scores)			t-value
	N	M	S.D.	N	M	S.D.	
Male	21	50.18	7.05	22	44.96	7.36	2.37**
Female	19	57.17	7.44	20	48.43	7.68	3.61***
Total	40	53.50	8.04	42	46.61	7.71	3.96***

High scores indicate loneliness; ** $p<0.05$; *** $p<0.01$.

With the increase in age, especially in case of senior citizens the levels of loneliness aggravate due to superannuation from service, physical ailments, inabilities coupled with incapacities of doing strenuous household or outside activities making them feel of being of no use and considering themselves to be burden to others, restricted mobility forcing them to stay indoor and being deprived of attending social functions and festivals, visiting friends and relatives and finding occupations in brooding, the disquieting and unfortunate incidents like death of spouse, or near and dear ones, children staying away from them due to occupation or marriage and so on. Such age related problems are common amongst the elderly members of both high rise and non high rise buildings but the impact is much higher in case of the former.

The underlying reasons may be associated with the socioeconomic and cultural differences between the residents living in high rise and non high rise buildings. The high rise dwellers are accustomed to lead social lives in accordance with their status and adjust themselves with restricted patterns of living, that is, they are used to maintain cold, courteous and formal relationships with their co residents and are not inclined to involve themselves with the activities of the localities or be friend with the neighbours living in the same localities but outside their housing complexes. These make them alienated and they do not find people around them to share their feelings, problems, moments of happiness or sorrow. No relationships are developed among the high rise dwellers forcing them to keep themselves confined within the four walls of their apartments. All these make them feel helpless, frustrated, lonely and ultimately depressed.

On the other hand, people living in non high rise residential buildings generally enjoy the advantages of community living. They associate themselves with their neighbours and the people of the localities, build up social ties and relationships, involve themselves in various community affairs like festivals, sports, picnics etc. and in the process find many helpful and sincere people around them mostly at all points of time. They enjoy an added feeling

of security knowing that they will get some people to stand by them at times of crises and with whom they can share their feelings. Such communication and advantages of regular communication help them to forget a great amount of their worries and anxieties thereby minimizing their feelings of loneliness.

Concluding Remark

To sum up, the present study has been aimed at portraying some of the psychological problems of the elderly residents of high rise buildings of Kolkata city. The study is but a probe to highlight those spheres which need further exploration and more in depth analyses on a broader perspective having consideration of cross-cultural issues as well as the notion of sustainable development for future expansion of metropolis.

The comparative assessments of the housing environment perception, depression and loneliness scores of the two groups of inhabitants reveal that the high rise dwellers irrespective of their genders are more negative in their feelings. Moreover, significant differences are evident between the two groups of residents in respect of all the three variables.

Finally, it is to be mentioned that simultaneous with the growth and development of science, technology, trade and commerce there has also been an enormous explosion of human population in modern Indian society creating tremendous and unmanageable space problems. The first way out has been the expansion of city limits and inclusion of the contiguous suburbs within the ambits of the cities. The other remedial measure has been the vertical expansion of the available spaces providing maximum possible accommodation to as many numbers of people as possible through the construction of high rise buildings. But the responsibilities of the promoters and builders should not be restricted only in providing accommodation to people in high rise apartments, rather they must ensure proper environmental facilities to the dwellers so that they may live comfortably and peacefully without anxieties and apprehensions. On the basis of the present study some suggestions in this regard are placed below for consideration:

a) The security service may be upgraded by:
- proper checking round the clock of the visitors and their belongings at the gates using sophisticated gadgets like metal detectors;
- restricting unauthorized entries;
- engaging security personnel from registered agencies;
- overall supervision of the security guards to ensure that there is no lacuna on their part;
- inspecting the roves and the basements of the buildings on a regular basis;
- installing intercom system compulsorily etc.

b) The fire fighting arrangements may be made more adequate by:
- keeping provisions for fire escapes and fire extinguishers in each floor of the high rise building;
- ensuring the capacity of the fire extinguishers duly proportionate with the size of the building and the number of residents;
- regular maintenance of the fire extinguishers ;
- proper training of the inmates of the buildings regarding the use of fire escapes and extinguishers.

c) To improve the car parking facilities 'one family – one car' system may be introduced.

d) Some restricted place inside the building may be earmarked for children as their play ground.

e) Adequate space for recreational facilities like library, indoor games etc may be provided for in the intervening floors of the buildings.

f) Medicine shops, groceries and provision stores may be set up in the ground floors of the buildings for convenience of the residents.

g) Insulation of the inner walls of the apartments may be upgraded to avoid the incoming of external sounds and maintain the privacy of the inmates.

h) The inter-se socio-cultural relationships and interactions amongst the residents may be facilitated by arranging the events like annual picnics, sports, feasts, festivals etc.

i) Round the clock medical unit consisting of doctor, nurse, ambulance etc may be made available to the dwellers of the buildings.

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