© Journal of the Indian Academy of Applied Psychology
October 2009, Vol. 35, Special Issue, 85-92.

Perception of Housing Environment among High Rise Dwellers

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The present study was aimed at comparing the housing environment perception of the adult inhabitants of high rise and non-high rise households of Kolkata. 256 adults residing on 5th floor and above were randomly selected. Following the same procedure a group of non-high rise buildings (not more than three storeys) from the same locality 256 residents were randomly taken. The General Information Questionnaire (G.I.Q) and Housing Environment Perception Inventory (H.E.P) were used. The findings indicated an unfavourable perception of the housing environment by the residents of high rise buildings irrespective of their genders. Furthermore, there were significant differences between the housing environment perception scores obtained by the male as well as the female residents of both types of buildings.

Keywords: Housing environment, Perception,

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. Such a high growth in population vis-à-vis the changes in the life styles of human beings have turned people to be city oriented and agriculture which was previously the main engagement of people has gradually given way to occupations in the fields of industry, trade and commerce. All these factors have made a large section of the populace rushing to the cities creating thereby tremendous and unmanageable space problems. Dwelling space getting scarcer, there is little possibility for horizontal expansion in the cities to facilitate accommodation of such perennial flow of people. As remedial measures, a two-fold planning has been contemplated and is being acted upon. 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. In the developed countries of the world like the United States, Canada, The United Kingdom, France, Germany, China , Japan and others construction of high rise buildings started from the early twentieth century while in a developing country like India it began in the later half of that century.

For this, researches in the field of various aspects of the living conditions of high rise dwellers were started in the developed countries much earlier which highlighted the beneficial aspects as well as the physical, psychological and social problems of the habitats of high rise buildings. Such endeavour is, however, comparatively new in India, particularly in the city of Kolkata where inconsequential progress has been made in this direction till date.

The residential environment is known to be an important determinant of quality of life and well-being (Lawrence, 2000). A large number of researches in different disciplines confirm that the multiple components of housing units and out door areas have the

potential to contribute effectively to physical health and social and mental well-being of the residents. Therefore, the question whether "living in high rise housing is harmful" is now being asked by social scientists in various fields including Environmental Psychology.

High rise buildings can be praised not only for providing accommodation to a large number of firms and families but also for saving precious land which can be utilized for agricultural and industrial purposes and for lowering the cost of facilities like water supply, transport, electrification, drainage etc but by the seventies some adverse opinions were being raised criticizing high rise living in many contexts. These buildings have often been accused for causing many unpleasant consequences, namely, fear, dissatisfaction, stress, behaviour problems, suicide, poor social relations, reduced helpfulness, and hindered child development (Cappon, 1972; Angrist, 1974; Conway and Adams, 1977). Some researchers (Hird, 1967; Cappon, 1971; Mitchell, 1971; Jephcott, 1972; McCarthy and Saegart, 1978) have found high rise buildings causing increases in crime, suicide and neurosis, of isolating people in depersonalized living spaces, causing loneliness and anxiety of lowering their interest in community affairs and so on. Some researchers (Young, 1976; Jackson, 2002; Vivathanadej, 2002; and Evans, Wells and Moch, 2003) have reported a higher incidence of physical problems including respiratory illness, high blood pressure, and lower physical activity among people living in or near high rise buildings than those living in other areas.

Williamson (1981) suggested that successful adjustment to high rises living was affected by such factors as the nature of the physical structure, social networks, and the adaptability of children. Dasgupta, Bhattacharyya and Asaduzzaman (1992) disclosed that the tall buildings had the stress generating elements in them as perceived by the selected elderly inhabitants of the high rise buildings of Kolkata and Dhaka. Another study conducted in India (Chatterjee, Dasgupta and Dasgupta, 2003) reported that high rise living in its common design and form, notably lacking open space or play area, was considered by the respondent housewives as detrimental for the physical and mental health of their young children. Furthermore, the housewives residing in the upper floors had their mental states being grossly engulfed with a feeling of being 'disturbed', 'irritated', 'depressed', 'impersonal', 'uncomfortable', and 'boring'.

The research work conducted by Bordas, Moch and Hermand (2003) focused on the perception of human density in apartment houses, looking at residents' satisfaction with their homes in terms of space and their perception of density both inside the building and outside of it in the surrounding neighborhood. The feeling of overcrowding was most often mentioned by those living in the tallest among the three chosen high rise buildings. They compared their building to "a real city", spoke of "huge, immense" areas and of "high concentrations of people". Neighbourly relations in the high rises were limited to polite exchanges, whereas in the thirteen-storey complex, mutual aid relationships between neighbors were more developed, especially between senior citizens.

Besides, several other studies reported overall satisfaction with high rise apartments. Jephcott (1971) observed that as large as 90% of the Glasgow residents in her study of tall buildings exhibited satisfaction; similarly 75% of Singapore high rise residents were satisfied (Yeh and Tan, 1975). Lim (1994) conducted a study in Singapore and found that the percentage of residents willing to live on the 10th floor and above had gradually increased from 27.9% in 1973 to 35.7% in 1977 and to 47.3% in 1981. Three studies were conducted in Israel where the first one noted satisfaction for two-thirds of high rise residents (Ginsberg and Churchman, 1984), the second one found 85% of the women interviewed were satisfied

with the building (Landau, 1999) and the third study recorded satisfaction for majority of the residents (Broyer, 2002) with a significant finding that willingness to prefer t all apartments increased with floor levels. Hattori (2001) in a study conducted in Osaka, Japan discovered that people, especially the old ones who lived in high rise apartment housing were fairly content with living in a high rise apartment. A recent survey by Wang Xu and Lau Siu Yu (2002) revealed that 84% of the high rise residents surveyed perceived that view was a main advantage or benefit of living in a high rise building. Apart from view enjoyed from the high residences, the next perceived advantage of high rise living was the enjoyment of quietness (47%), and fresh air (44%). The present investigation aims at studying the nature of housing environment perception among the high rise inhabitants of Kolkata city.

Hypothesis:

High rise dwellers perceive their housing environment as unfavourable while comparing with non high rise dwellers.

Method

Sample:

In order to select the subjects a group of high rise residential buildings from different regions of the Kolkata city (south, central, north and east) were identified randomly . The buildings which were minimally nine storied were considered as the high rise buildings in the present investigation. Then 256 adult s were selected from those buildings (only the residents of 5th floor and above were considered). Similarly, following the same procedure a group of low rise buildings (not more than three storeys) were also selected from the same locality and wherefrom 256 adults were randomly taken. The selection criteria of the subjects were as follows: 1. all adults were the residen ts in their present houses at least for the last five years; 2. all the adults were literate; 3. they were willing to participate in the present study . 4. All the subjects were well conversant with the Bengali language.

Tools:

General Information Questionnaire (GIQ): It was used to gather information about socioeconomic and demographic background of the p articipants. The questionnaire also contained items concerning no. of rooms, floo no, no. of years the respondent had been living in the present dwelling unit, and satisfaction or dissatisfaction with the present residence and the reason thereof. All items of the G.I.Q along with the necessary instructions to the subject were presented to a group of three experts who adjudged the suitability of the items in the present investigation. Some modifications were made according to the suggestions given by the experts.

Housing Environment Perception Inventory (HEP): It was developed by Dasgupta and Nandi (1988) consisted of 25 bipolar adjectives having 9-point scale continuum. In order to develop the scale, Kasmer's Lexicon of Environment al Descriptors (Kasmer, 1970) and Se mantic Differential Scales (Dasgupt a and Banerjee, 1985) were consulted mainly and altogether 32 items (face validity being checked by a group of three experts), in Bengali language, were prepared for a try-out study on a group of 120 randomly selected subject s (from different types of dwelling unit s, namely, slums, single-room flat s and high rise buildings). The result of item analysis by applying t-test, provided 25 st atistically significant items ($p<0.01$).Those items, in the final form, were arranged in order of the magnitudes of such t values. Odd-even split-half correlation and subsequent application of the Spearman-Brown formula showed that the reliability coefficient of the Prat-2 of the scale was 0.84. Item-tot al correlation was also observed to be pretty high, that is, 0.69. No item was intended to be taken as a separate variable since the objective was to consider

the total score on 25 items to assess the environmental perception of the respondents.

Procedure:

Following a prearranged programme schedule each selected household of the different housing units (both high rise and low rise buildings) was visited by the present investigator to collect data from the subjects concerned.

Results and Discussion

The general information characteristic data regarding the selected high rise and non high rise housing units depicted the typical characteristic features of the high rise and non high rise households of Kolkata city (Nandi, 1988; Dasgupta & Sarkar, 1983**).** Hence the selected neighbourhoods, in case of both high rise and non high rise housing units, might be assumed to bear certain significant background characteristic potentials for representing adequately the typical households concerned. It was again a matter of much interest that in majority of those background characteristics the high rise and non high rise households differed significantly, revealing largely their density-laden probable unique features, viz., family size, education, occupation, income and even in per capita living space and density.

The adult subjects who participated in the present investigation have had an average age of approaching 50years with such educational background and occupational status that they seem to get sufficient exposures to enrich their cognitive frame of references. In addition, the participants concerned have had adequate experiences of staying in their respective housing units (the high rise dwellers are living for 10.5 years and the non high rise dwellers for 15.4 years in their present residences), and they have certainly encountered several pros and cons of such living. Obviously the said groups of subjects seemed to have wider housing environment perception to opine about the social and psychological problems that they had felt, so far, in relation to their respective residences.

Table-1 presents an age wise distribution of mean and standard deviation values of both groups of male residents, namely, high rise and non high rise in the Housing Environment perception Inventory. The average scores reflect an increasingly negative trend in housing environment perception with the increase in age of the residents irrespective of the type of their dwellings. Moreover, taking into consideration all the four age groups, it is found that the non high rise males have more favourable perceptions of their housing environments compared to their high rise counterparts.

Table-1: Mean and SD of the Housing Environment Perception (H.E.P.-2) scores of high rise and non high rise dwellers (Male Group) and their comparisons

Age Group	High rise dwellers (H.E.P. Scores)			Non-high rise dwellers (H.E.P. Scores)			
	N	M	SD	N	M	SD	t-value
Below 35	25	150.27	12.04	27	148.15	11.74	0.70*
35 – 50	36	168.66	13.61	28	161.39	12.41	2.23**
51 – 60	38	169.58	12.72	40	163.15	12.56	2.25**
Above 60	18	176.33	10.48	18	168.22	10.58	2.31**
Total	117	169.87	12.47	113	163.17	12.40	2.49**

** $p<0.05$ Note: Low scores indicate favourable housing environment perception.

The table-1 further points out that the males of below 35 years residing in two types of buildings do not differ significantly in terms of their housing environment perception whereas in case of the high rise and non high rise male members belonging to the remaining three age groups significant differences in their perceptions are noted.

Table-2 presents the mean and standard deviation values of the housing environment perception scores obtained by the high rise and non high rise female residents belonging to all the four age groups mentioned earlier. Similar trend in mean values as indicated in Table-2 is found here also showing that the unfavourable perceptions regarding the housing environments of the high rise and non high rise female residents coming under all the four age groups increase with the corresponding increase in their ages. Furthermore, it is evident from the table that the non high rise females have a better attitude towards their housing environments as compared to their high rise counterparts irrespective of their age groups.

Table-2: Mean and SD of the Housing Environment Perception (H.E.P.-2) scores of high rise and non high rise dwellers (Female Group) and their comparisons

Age Group	High rise dwellers (H.E.P. Scores)			Non-high rise dwellers (H.E.P. Scores)			
	N	M	SD	N	M	SD	t-value
Below 35	35	145.40	13.14	40	142.77	12.58	0.91*
35 – 50	40	154.73	12.56	42	146.54	11.78	3.04***
51 – 60	52	157.35	12.75	51	148.29	12.45	3.65***
Above 60	12	163.48	10.09	10	152.37	10.81	2.47**
Total	139	156.40	12.09	143	147.26	12.17	6.30***

** $p<0.05$; *** $p<0.01$

Note: Low scores indicate favourable housing environment perception.

Table-2 also reflects the existence of substantially significant differences between the housing environment perception scores of high rise and non high rise female occupants coming under two different age groups, namely, 35 – 50 years and 51 – 60 years. The difference between the scores obtained by the residents aged above 60 years is comparatively less significant. However, those below 35 years of age do not differ significantly with respect to their housing environment perceptions.

All the facts are thus contributing significant data towards accepting the hypothesis that postulates “high rise dwellers perceive their housing environment as unfavourable while comparing with non high rise dwellers”.

Nevertheless, the total score of the high rise dwellers (both male and female) in the Housing Environment Perception Inventory by and large paints a “gestalt view”, but it cannot be considered as sufficient to enrich the micro level understanding of their housing environment perception. Such understanding may, however, be augmented by the nature of item-wise mean scores presented in Table-3.

Table-3: Item-wise Means and SD of the Housing Environment Perception (H.E.P.-2) scores of high rise and non high rise dwellers

Items		High rise dwellers		Non-high rise dwellers	
		M	SD	M	SD
1. Adequate size -	Inadequate size	6.99	2.31	5.42	2.09
2. Attractive -	Unattractive	7	2.15	7.92	2.35
3. Clean -	Dirty	5.74	2.48	4.56	1.98
4. Beautiful -	Ugly	5.06	2.19	6.95	2.02
5. Comfortable -	Uncomfortable	7.73	2.41	5.32	2.25
6. Convenient -	Inconvenient	6.54	2.1	4.94	1.85
7. Quiet -	Noisy	5.16	2.31	6.25	2.22
8. Adequately airy -	Inadequately airy	5.02	1.98	6.82	2.44
9. large -	Small	5.66	2.1	7.15	2.38
10. Well lighted -	Poorly lighted	5.12	1.77	6.44	1.98
11. Tidy -	Untidy	6.05	2.25	6	2.05
12. Desolate -	Crowded	5.12	2.31	6.82	2.54
13. Appropriate for study -	Inappropriate for study	5.35	2.42	6.01	2.35
14. Hygienic -	Unhygienic	6.29	2.31	5.79	1.99
15. Comfortably warm -	Uncomfortably warm	7.56	2.33	6.35	2.11
16. Delightful -	Irritating	7.25	2.45	5.85	1.95
17. Safe -	Unsafe	8.02	2.3	5.25	2.41
18. Disciplined -	Indisciplined	5.35	1.92	6.3	2.43
19. well planned -	Unplanned	6.82	2.44	7.32	2.44
20. Lucky -	Unlucky	7.31	2.13	5.35	2.33
21. Full of good neighbours -	Full of bad neighbours	8.02	2.35	6	2.95
22. At clean area -	At dirty area	7.43	2.45	5.35	2
23. At densely populated place -	At sparsely populated place	7.56	2.12	6.05	1.94
24. In an open area suffocated area -	In a closed /	7.44	2.35	6.31	2.45
25. Appropriate place for living -	Inappropriate place for living	7.62	2.32	5.84	2.13

A comparative analysis of the responses given by the high rise and non high rise inhabitants irrespective of their age groups and genders, to the 25 items of the Inventory reveals that the high rise occupants have perceived their housing environments to be unhygienic, substantially warm and uncomfortable, sometimes quite suffocating and thereby making somewhat an inappropriate place for living. In so far as attractiveness and planning of the residences are concerned the high rise dwellers have expressed their dissatisfactions but such feelings of the non high rise dwellers are somewhat more on these counts. Regarding the cleanliness of their dwellings the high rise group is found to be somewhat negative in their perceptions while their non high rise counterparts have considered their places to be neither too dirty nor too clean. Furthermore, the high rise dwellers have opined that their residences have seemed to them as more inconvenient than their counterparts. The former group of dwellers has substantial grievances about the comfort levels and the security arrangements of their buildings. They are not satisfied with the size of their buildings, cleanliness of the location as well as suitability of their living places. The findings corroborate with those reported by Chatterjee, Dasgupta

and Dasgupta (2003) in their study.

However, in some domains the high rise residents have ventilated their reactions, neither positive nor negative but the perceptions of the non high rise residents are negative to distinctly negative. The non high rise group has found their residences to be somewhat noisy with poor level of incoming light and a little too indisciplined making them not quite congenial for studies. Their perceptions are negative for their residences being quite ugly looking, somewhat less airy and situated in crowded locations. The enjoyment of quietness and fresh air were also mentioned by the high rise dwellers as the factors contributing toward satisfaction with the residences in the survey conducted by Wang Xu and Lau SiuYu (2002) in Hong Kong.

The more and more negative perceptions of the male and female inmates towards their housing environments as they grow older may be due to the reasons like decreased physical strength causing deterioration in vigour and endurance level, inability to face situations, increased sense of alienation from the mainstream, increased irritability, anxiety and apprehension etc.

Conclusion

The findings of the present study reflect that high rise and non high rise dwellers have differed significantly with regard to majority of the general information characteristics like education, occupation, monthly family income, number of living rooms, per capita living space etc. In so far as the perception of housing environments is concerned the two groups of residents belonging to the age groups of 35-50 years, 51-60 years and above 60 years, irrespective of their genders have differed substantially. No such difference is, however, detected in the perceptions of high rise and non high rise dwellers of below 35 years of age.

Finally, it is to be mentioned that the study is but a probe to highlight those spheres which need further exploration and more in depth analyses on a broader perspective. Admittedly, vertical expansion of the cities is the only remedy to the problem of scarcity of land space resulting from population explosion and erection of high rise buildings is inevitable. The responsibilities of the promoters and builders should not be restricted only in providing accommodation to people in high rise apartments but at the same time they must ensure proper environmental facilities to the dwellers so that they may live comfortably and peacefully without anxieties and apprehensions.

References

Angrist, S. S. (1974). Dimensions of well-being in public housing families. *Environment and Behavior*, *6*, 495-516.

Bordas-Astudillo, F., Moch, A., & Hermand, D. (2003). The predictors of the feeling of crowding and crampedness in large residential buildings. In Moser, G., Pol, E., Bernard, Y., Bonnes, M., and Corraliza, J.A., et al. (Eds.), *People, places, and sustainability* (pp.220-228). Ashland, OH: Hogrefe and Huber.

Broyer, G. (2002). The appropriateness of buildings over 20 storeys high for middle-class residents. Research thesis, Technion, the Israeli Institute of Technology.

Cappon, D. (1971). Mental Health in the High rise. *Canadian Journal of Public Health, 62*,

Cappon, D. (1972). Mental health in the hi-rise. *Ekistics*, *33*, 192-196.

Chatterjee, M., Dasgupta, S. & Dasgupta, S.K. (2003). Impact of high rise living on housewives. *Journal of Applied Psychological Issues*, *9,* 23-28.

Conway, J., & Adams, B. (1977). The social effects of living off the ground. *Habitat International, 2*, 595-614.

Dasgupta, S.K. & Banerjee,T. (1985). Social and Psychological problems of living in High rise buildings. Proceedings, 23rd Annual Conference of Indian Academy of Applied Psychology, March 1-3, Calcutta.

Dasgupta, S. K., Bhattacharyya, S., and Asaduzzaman, M. (1992). The impact of tall buildings on elderly residents. *Bangladesh Journal of Psychology*, *13*, 7-15.

Dasgupta, S.K. & Nandi, S. (1988). Social and psychological problems of living in high density areas. Unpublished Ph.D. dissert ation in Applied Psychology, Calcutta University.

Dasgupta, S.K. & Sarkar, J.D. (1983). A Preliminary Survey on Housing of Calcutta. Department of Architecture, Town and Regional Planning, B.E. College, Howrah.

Evans, G. W., Wells, N. M., & Moch, A. (2003) Housing and Mental Health: A review of the evidence and a methodological and conceptual critique, *Journal of Social Issues*, *59*(3), 475-500.

Ginsberg, Y., & Churchman, A. (1984). Housing satisfaction and intention to move: Their explanatory variables. *Socio-economic Planning Sciences*, *18*, 425-431.

Hattori, K. (2001). The S tudy of Ideal Living Environment of People Living in High Rise apartment Housing in Osaka, Japan. *Edra-32 (2001) Coference*.

Hird, J.B. (1967). Vertical Living – Health Aspects, *Royal society of health*, *87*, May – June.

Jackson, L. E. (2002).The relationship of urban design to human health and condition, *Landscapes and Urban Planning*, *993*, 1-10.

Jephcott, P. (1971). *Homes in high flats: Some of the human problems involved in multi-storey housing*. Edinburgh: Oliver and Boyd.

Jephcott, P. (1972). High Density Living. *Housing Review*, Sept-Oct.

Kasmer, J.V. (1970). The development of usable lexicon of Environment al description. *Environment and Behaviour*, September, 153-169.

Landau, G. (1999). Living p atterns in high rise buildings in Israel. Unpublished research thesis, Technion, Israeli Institute ofTechnology.

Lawrence, R. (2000). Urban health: A new research agenda? *Reviews on environmental health*, *15,* 1-11.

Lim, B. B. P . (1994). *Environmental D esign Criteria of T all Buildings*. Bethlehem, PA: Lehigh University.

McCarthy, D. & Saegart, S. (1978). Residential density, social overload, and social withdrawal. *Human Ecology*, *6*, 253-272.

Mitchell, R. E. (1971). Some social implications of high density housing. *American Sociological Review*, *36*, 18-29.

Nandi, S. (1988). Social and psychological problems of living in high density areas. Unpublished Ph.D dissertation in Applied Psychology, University of Calcutta.

Vivathanadej, P. (2002). Deutsche Presse-Agentur (dpa).

Wang Xu & Lau Siu Yu. (2002). Pursuing New Urban Living Environment in the New Millennium: projecting the Future of High rise And High Density Living in Hong Kong. Department of Architecture, University of Hong Kong, Hong Kong SAR, China.

Williamson, R. C. (1981). Adjustment to the high rise: V ariables in a German sample. *Environment and Behavior*, *13*, 289-310.

Yeh, S. H. K., & Tan, S. L. (1975). Satisfaction with living conditions. In S. H. K. Yeh (Ed.), *Public housing in Singapore: A multi-disciplinary study* (pp. 214-239). Singapore: Singapore University Press.

Young, S. (1976). Social and Psychological Effects of Living in High rise Buildings, Sydney : Ian Buchan Fell Research Project on Housing, University of Sydney.

Received: 19 May, 2009
Revision Received: 19 July, 2009
Accepted: 29 September, 2009

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