Chapter - 3

High-rise Living - an Overview of Significant Studies
3.1. Emergence of High-rise Buildings – a Historical Perspective:

Brief historical perspective of high-rise buildings reveals that people did not begin to construct the tall structures until the late 1600s, apart from a few Roman apartment buildings of six or seven storeys and Europe’s Gothic Cathedrals. Seventeenth-century Paris had thousands of houses five to seven storeys tall (Laurens, 1954). Tall buildings with iron frameworks started to be erected in 1860s (Sundstorm, 1986) and again a ten-storey building was built in Chicago in 1885 (Yeung, 1977), followed by Sullivan’s Wainwright Building five years later. After that we witness a historical event accommodating millions in a series of high-rise buildings.

However, in the context of the age of our species, the emergence of tall buildings is almost a recent phenomenon. This tempts one to draw inference that high-rises are unnatural, it may thus be argued that an unnatural incident must be, in some way harmful. Obviously, the question arises – are high-rise buildings bad or good for people?

Over and above, from their beginning in the middle of the last century and right up to the present day, high-rise buildings have always been a dominant landmark in the townscape, visible from far and wide, like the towers of Antiquity and the Middle Ages. At the same time, this skyscraping construction method has always been an ideal means of displaying power and influence in the community. A prestige object for the builder, these edifices not only have an effect on their immediate neighbors, but also influence many areas of urban life in very different ways.
It was the rapid growth in population that originally promoted the construction of high-rise buildings. Since public space is generally located between structures and takes the form of streets, squares and recreation spaces, high-rise development has had a strong impact on space as a symbol of the modern city. Over and above this aesthetic effect, its functional economic achievement was to multiply urban space. Skyscrapers were built particularly in Chicago, Philadelphia, Pittsburgh and New York (Condit, 1968). Their ensemble shaped the cityscape and fostered urban identity (Aregger / Glaus, 1967; Campi, 2000; Kautt, 1984). While this type of construction was not a prominent subject of debate in the United States (Koolhaas, 1999), there was impassioned discussion in Europe on the drastic remodeling of the city which it entailed. In Europe, high-rise buildings remained a controversial form of construction subject to planning restrictions in the centers of cities like Munich, Dresden, and Paris. Until the postwar period, building regulations in Germany permitted a maximum height of 25 meters to the roof construction. European proponents of this building type — like the architects Peter Behrens, Bruno Mohring and Bruno Paul — regarded the tower building as a symbol for the organization of a metropolis. Their arguments included the enlivening effects on the cityscape produced by the “dynamic combination of vertical structures” and low buildings and by the large open spaces for recreational purposes provided between buildings. The opponents of high-rise development objected primarily to the destruction of the unified cityscape through functional monumentality and resulting visual chaos. There were also fears about unmanageably heavy traffic at peak hours and inadequate light and ventilation in the inner city: “The higher the vertical wall of a building is, the smaller is the insolated area of the street, the greater the shadows, and the more unpleasant the appearance of the shaded street frontage” (Gruber, 1918: 210). At the conference of the ‘Free German Academy of Urban Development’ on high-rise development and downtown formation held in Hamburg
in July, 1925, it became clear that, although many building authorities regarded high-rise development as the only prospect for the inner city, they were also anxious about the impact on lifestyles. After all city dwellers would not only be massed in greater numbers by this type of development but would also be differently "stratified".

Until well into the 1950s, tower buildings were consequently the exception in the centers of Europe. It was only the visionary reconstructional enthusiasm of the postwar period that made it possible to liberalize the rules of building height. The symbol of this reorientation in urban development was the Tour Maine Montparnasse in Paris, an office building designed in 1958 and completed in 1973. The writer Jean-Paul Sartre even gave interviews there as an expression of new societal thinking. Tower buildings were praised for their functional beauty, for rapidly overcoming differences in height by means of lifts, for providing wide views and accommodation above the urban chaos, and for the short distance between buildings, sometimes via underground walkways.

The increased demand for space within the metropolitan areas for residence, administration, businesses and industries resulted in the extensive use of available space by constructing high-rise buildings. These buildings are as much part of our modern civilization as the computer or aero plane. Today every major city in the world in Europe, America and Asia has its share of these multi-story buildings. In fact, the usefulness of these tall buildings in terms of providing accommodation to a large number of firms and families cannot be ignored. Nevertheless such vertical expansion of the city by creating a cluster of tall buildings generates high-density neighborhood in a region, yet it 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, in
recent times, cities around the world are also trying to create its own identity with skyscraper landmarks.

3.2. Reported Negative Impact of High-rise buildings on Users and Neighbours:

By the 70s, there had arisen an awareness of the problems, mental and social – created by the high-rise structures. Much adverse opinions have appeared criticizing high-rise living in many contexts. High-rise buildings have often been criticized for causing many unpleasant consequences, namely, fear, dissatisfaction, stress, behaviour problems, suicide, poor social relations, reduced helpfulness, and hindered child development (Angrist, 1974; Cappon, 1972; Conway and Adams, 1977). Furthermore, a recent study by Broyer (2002) reveals that high-rises burden existing services and infrastructure, worsen traffic problems and contaminate neighbourhood character. It is also accused of 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 (Hird, 1967; Cappon, 1971; Mitchell, 1971; Jephcott, 1972; McCarthy and Saegart, 1978).

The most commonly voiced reservations with regard to high-rise buildings concern the social aspect. It is claimed and there are a number of studies to prove that cohabitation in high-rise buildings does not work as smoothly as in homogeneous, historically grown districts with numerous small, manageable dwellings. The anonymity suffered by the people in these residential buildings is criticized in particular- above all on account of the total isolation from other residents in order to avoid the stress of permanent contact.
Organic, homogeneous population structures with their positive effects on social conduct are rarely found and the charge that high-rise buildings are hostile to families and children is consequently not entirely unfounded. Two diametrically opposite ghetto situations can easily arise in high-rise buildings; since the costs for construction and maintenance of these buildings are disproportionately high, correspondingly high rents must be charged, with the result that these apartment blocks are more or less reserved for the well-off, while the socially weaker classes are excluded. The ghetto situation is intensified when high-rise apartment blocks are built in newly developed fringe areas — far away from cultural and social centers — on account of the high cost of land in inner city areas.

Studies have also proved beyond all doubt that criminal activity is promoted by high-rise buildings. According to these studies, this phenomenon is attributable to the anonymity of the residents, as well as to the “pro-crime” environment with elevators, poorly lit corridors devoid of human beings, and above all underground parking lots. It is a proven fact that considerably more murders, burglaries, muggings, rapes and other crimes are committed in such buildings than in residential areas with smaller rented or private homes.

Not only high-rise residential buildings have a usually negative effect on people’s social environment, office towers are equally disadvantageous. The vertical structure of the buildings simultaneously underlines the vertical hierarchy: the location of the office space and the number of floors occupied by the company in a high-rise building are the indicators of a company’s “importance”. The company’s top executives reside on the uppermost floors with the best views; the floors below provide a shield and every employee can positively see the distance between himself and “them up there”. It is
therefore not wrong to question whether high-rise office towers are really appropriate to modern organizational structures with their emphasis on team-work and interdisciplinary cooperation.

The high-rise buildings also have been reported to have a negative effect on the world around them, for they not uncommonly generate air turbulence and downdrafts in their immediate vicinity; they can be a source of unpleasant reflections and some adjacent areas remain permanently in the shade. The people outside the high-rise buildings also often have the feeling that they are observed or threatened by the possibility of falling objects. The fear is surely not entirely unfounded, for there have been cases in which, parts of buildings, such as green panes, have been torn out of their anchorage by strong winds and injured or even killed people on the street below.

Another phenomenon that may create stresses among the high-rise residents is the building vibration. Wind is a phenomenon which varies strongly in strength and direction and can produce dynamic effects in combination with vortices separating off from the buildings around which the air flows. Particularly in the case of slim buildings capable of vibration, such as skyscrapers, this can lead to stresses which must not be neglected. Depending on their frequency and amplitude, vibrations will be perceived by the building's users. These vibrations can become unpleasant or even intolerable when they reach a certain limit which, however, is normally still far away from threatening the stability of the building.

The existing literature comprises largely studies carried out on the residents or potential residents of normal tall buildings, where they examine issues such as the
residents’ preferences and needs as well as the relationship between the residents’ acceptability and their previous experience of living in a high-rise development.

3.2.1. Physical Health in High-rises

People living in or near high-rise buildings are subject to a higher incidence of respiratory illness, high blood pressure and psychological problems than those living in other area, according to results of a study conducted by Dr. Pongthep Vivathanadej in the Northern Thai city of Chiang Mai published in the Bangkok Post on July, 17, 2002.

It was also noted by Young (1976) that health problems such as respiratory infection had been more prevalent among women and children living in high-rise buildings.

Recent researches done by Evans, Wells and Moch (2003) and Jackson (2002) revealed that high-rise apartment housing had negative impact on residents, and was associated with lower physical activity, behavioral problems, respiratory problems, and social isolation.

3.2.2. Strain, Crowding and Mental Health in High-Rises

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 – a growing part of the urban landscape. Pathology was viewed as being related to housing type via the constraints various buildings imposed.

Dasgupta, Bhattacharyya and Asaduzzaman (1992) designed an investigation to explore some of the social and psychological problems that were being 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. There were certain environmental inadequacies in connection with the selected high-rise housing complex, neighbourhood and apartment, its layout, design, security measures and other provisions, which might have the latent potentials to generate stress and anxiety among the residents and thereby creating a deleterious impact on their environmental adaptation and coping mechanisms.

In another study of housing type and stress in Toronto, Edward et al (1982) found the apartment dwellers having a greater likelihood of reporting symptoms of stress.

A 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 seemed not to be satisfactory in comparison to those residing in the low-rise buildings. 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 their young children. They opined that limited activities and movements in the high-rise flats might seriously affect the physical and mental health of their children. They also apprehended that the children, in their vertical living, have had the limited scope either to widen their ambit of experiences due to less association within the peer group, or to gain adequate self-sufficiency and/or self-confidence. That might be considered as a source of respondents' environmental stress.

Other significant sources of the respondents' irritation were “too high temperature during summer”, “noise, especially the traffic noise”, “stormy wind”, “fire hazards”, “very
limited social interaction” and “feeling of being unsecured”. Furthermore, it was observed that the housewives residing in the upper floors of the high-rise complexes had their mental state being grossly engulfed with a feeling of being ‘disturbed’, ‘irritated’, ‘depressed’, ‘impersonal’, ‘uncomfortable’, and ‘boring’.

In addition, by interviewing the respondents it was known that as large as 40% of those living in high-rise buildings did neither find any activity nor did they find any preference towards such, rather they used to pass somehow their leisure time, just casually, idly and even sometimes doing nothing and roaming erratically in fantasy. Such findings largely emphasized the fact that great majority of those housewives failed to cope with their perceived environmental stress due to living in high-rise buildings.

The findings of the research conducted by 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.

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 researchers’ aims were both to assess the impact of various architectural criteria (i.e., the height of the building, the number of apartments on a landing etc.) on those subjective perceptions and also to find out whether that perception was influenced by interpersonal relationships and by the feeling of “being in control” of one’s social interactions. They selected three buildings (two high-rise buildings of 23 and 28 floors respectively, and a thirteen-storey apartment complex) located in the 13th arrondissement of Paris. The findings provided several
important insights into the issues concerned. The feeling of overcrowding was most often mentioned by those living in the tallest high-rise building. They compared their building to "a real city"; spoke of "huge, immense" areas and of "high concentrations of people". As far as social ties were concerned, 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.

Perception of density and one's evaluation of one's social relationships are clearly linked. The more a resident feels crowded in, the more he or she will be dissatisfied with the quality of his or her interactions with neighbors. The feeling of living in crowded conditions causes people to fear encounters and avoid contact. Waiting for the lift, for e.g., can increase this feeling. It also appeared from the results that wellbeing was inversely proportional to the feeling of overcrowding: the higher the perceived density, the more people feel ill at ease in their surroundings.

McCarthy and Saegert (1978) compared results, which had similar accommodation and demographic characteristics, in high and low-rise buildings of a public housing estate in New York. In those two situations, the subjects' daily experiences, social relationship and orientation to the housing were significantly different; the high-rise tenants saw more people and felt more crowded, felt less satisfaction, privacy and safety, and had greater difficulty in social relationships with neighbors and people outside. The difference was more marked for tenants on higher floors, who had even more casual contacts. Whereas low-rise residents identified with their building, yet had outside social relationships, high-rise tenants saw it mainly as a conglomerate of alien spaces and threatening people. The researches regarded the unmanageable number of unrelated residents in high blocks as causing social overload, related to the feeling of being crowded.
Freedman (1975) concluded from his studies of crowding that living in a high-rise building with hundreds of other families was likely to exaggerate feelings of fear, suspicion and isolation.

Psychological symptoms were more often present in high-rises (Hannay, 1979). Hannay (1981) further reported that the association between symptoms and living in the upper floors of high-rise flats remained significant, even when allowing the effects of age and sex. When residents moved out of high-rise dwellings, they reported fewer symptoms of depression (Littlewood & Tinker, 1981).

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) drew the conclusion 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.

Floor level is a research area that has not received a great deal of attention. Rates of mental illness rose with floor level in an English study (Goodman, 1974).

A review of the literature on mental health and high-rise housing by Freeman (1993) concluded that evidence of a positive correlation between mental health and floor level was modest. To determine the independent effect of the height of a dwelling from the
ground on mental health requires controlling for social class, size, and quality of the dwelling, stage in the life cycle, structural features of the block, and the immediate surroundings of the block. However, it is hard to separate these factors since they tend to cluster.

Bagley (1974) and Hannay (1981) reported that residents of lower floors in high-rises had more mental symptoms or signs of neuroticism, but residents of the higher and lower floors were different in other ways, such as age and life cycle stage, which may have accounted for the differences.

A Canadian study by Gillis (1977) employed more control over possibly confounding factors, and is worthy of special attention. It investigated strain in 39 public housing projects in Calgary and Edmonton. It was found that on higher floors, men experienced less strain, whereas women experienced more strain. The women in this study were all mothers, so the difference may well result from the difficulties of parenting from on high, a problem noted in the Pruitt-Igoe studies (e.g., Yancey, 1972), or from fear of themselves or children falling (cf. Izumi, 1970), but this does limit the study's generalizability to women with children.

In an Israeli study, Churchman and Ginsberg (1984) found crowding not to increase linearly with building height (nor was it related to density within the dwelling). More precisely, crowding was significantly less among residents of 12-storey buildings than of either 8- or 20-storey buildings.

Research suggested that nearby nature (e.g., 'green' common spaces) could result in positive human health benefit ranging from: enhancement of mental wellbeing (Kaplan and Kaplan, 1989) to improved social interaction and creation of opportunities for
informal supervision of children and outdoor areas (Coley et al., 1997), to stronger
neighbourhood ties and a sense of community amongst the elderly (Kweon et al., 1998),
to an increased sense of safety (Kuo et al., 1998), and to promotion of individual’s ability to
deal effectively with daily life challenges (Kuo, 2001).

In addition, Kuo (2001) had also found a connection between contact with nature
for high-rise residents and their strengthened ability to cope with poverty and the
hardships of life in public housing.

### 3.2.3. Behavior Problems and High-Rise Housing

Ineichen and Hooper (1974) found children residing in high-rise (versus non-high-
rise buildings) to manifest twice as many behavior problems, such as bedwetting and
temper tantrums.

Yet another study in the same year found no differences in behavior problems
among children who lived in high-rises, low-rises, and single-family dwellings (Richman,
1974), so the results are not consistent.

Richman (1977) further reported that children who lived in high-rises were
significantly more likely to have severe behavior problems than children in other forms of
housing.

In another, boys (but not girls) who lived in 14- versus 3-storey buildings were
rated by their teachers as having more behavioral problems, such as hyperactivity and
hostility (Saegert, 1982).

A recent study by Gifford and Lacombe in 2006 demonstrated a strong connection
between the physical condition of dwellings and behavior problems among children.
3.2.4. High-rise Housing and Prosocial Behavior

Students who lived in low-rises said they were more willing to offer help and to seek help than those who lived in high-rises (Nadler, Bar-Tal and Drukman, 1982).

Bickman et al. (1973) found the frequency of helping behaviour to be inversely proportional to the building height; a significant difference was reported in favour of low-rise building.

The high-rise building was perceived as having the least amount of resident cooperation in a college dormitory study (Wilcox and Holahan, 1976), one that added that perceived social support and involvement declined with height within buildings.

Social support also was lower among elderly African-Americans in a high-rise than among elderly African-Americans in nearby low-rises (Husaini et al., 1990), although the two groups were dissimilar in other ways, too, which may have had an influence.

3.2.5. High-Rise Housing and Social Relations

Social relations may be divided into two main domains, relationships within a dwelling and relationships among neighbours in the building. One review concluded that high-rise residents have poor social relationships, both among themselves and toward outsiders (Korte and Huismans, 1983).

Jephcott (1971) suggested that high-rise living is particularly hard on those who are below average in social assets, since the support which they might expect from neighbours and friends in a traditional street is much less likely to exist, in view of the large numbers of people involved and the isolation of individual flats.
Saegert's (1979) study of public housing projects found poorer social relations in high-rise, as compared to low-rise buildings. Zalot and Adams-Webber's (1977) results repeated this trend, and added that, probably as a consequence of less-frequent interaction, high-rise dwellers tended to have less cognitively complex impressions of their neighbours.

In a study that investigated the sense of community in high-rise and garden apartments in public housing for the elderly, the residents of garden apartments had a significantly greater overall sense of community, and expressed a greater sense of membership (Zaff and Devlin, 1998).

On the other hand, Franck (1983) found no differences in the frequency of making acquaintances and friends in her comparison of high-rises with row housing and walk-ups. One-third of high-rise residents in public housing estates in Hong Kong had never socialized with their next-door or nearest neighbours, suggesting a low rate of community interaction, but the rate was no different in low-rise neighbourhoods (Chang, 1975).

In one within-dwelling study in a building in which residences were equal in floor area and supplied furniture, roommates on higher floors got along with one another better than roommates on lower floors (Schiffenbauer, 1979).

Edwards, Booth, and Edwards (1982) concluded that high-rises were associated with greater marital discord than low-rises.

In an Israeli study of women who lived in 8- and 20-storey buildings, 97% knew at least someone on their own floor, and 67% knew everyone on their floor; in contrast, 36% knew over 30% of all people living in their building (Ginsberg and Churchman, 1985).
A large-scale study in Toronto found that high-rise apartment dwellers tended to choose friends outside the building, from school or work (Michelson, 1977). Those residents viewed their neighbours negatively and as dissimilar to them, except that they were approximate financial equals.

According to Churchman and Ginsberg (1984) high-rise residents may have more acquaintances but fewer friends because residents of high-rises simply encounter a larger number of people in their building than residents of low-rises.

In Hong Kong, a high-rise, high-density city, interview results suggested that the overall sense of residential community was low and that where respondents had a very strong sense of neighborhood, their interactions were often work- or school-based, with colleagues or schoolmates living in the same area (Forrest, La Grange and Ngai-Ming, 2002).

Dr. Pongthep (quoted by the Bangkok Post on July, 17, 2002) reported on the basis of a study conducted in the Northern Thai city of Chiang Mai that 70.1% of respondents agreed that personal relations between people inside tall buildings gradually declined, while 48.1% thought that tall buildings widened the social disparity between those living there and those in surrounding areas.

3.2.6. Children in High-rises

Conway and Adams (1977) flatly stated that "for ... families with small children, the evidence demonstrates that high-rise living is an unsuitable form of accommodation". Cooper Marcus and Hogue (1976) concluded that "high-rise housing does not provide an appropriate living environment for preschool or school-age children because too few of the attributes of a single-family house have been accounted for ...".
The problems range from fundamental child development issues to everyday activities such as play. For example, a Japanese investigation (Oda, Taniguchi, Wen and Higurashi, 1989) concluded that the development of infants raised above the fifth floor in high-rise buildings was delayed, compared to those raised below the fifth floor. The development of numerous skills, such as dressing, helping and appropriate urination was slower.

Learning to read might be affected by the floor level on which children lived (Cohen, Glass and Singer, 1973). The researchers measured sound levels, ability to discriminate auditory stimuli, and reading skills in children who lived in high-rises built above a major highway in New York. Children in lower-level apartments, which had higher sound levels from traffic, were less able to discriminate sounds and had poorer reading skills, than children who lived in higher floors.

Children's play clearly is affected, as parents in high-rises either keep their children indoors more often, which means close protection or over-protection in an indoor environment, or allow them outside, many floors away, which can result in under-supervision.

Two Israeli studies found that raising children in high-rises, especially on the higher floors, was problematic (Broyer, 2002; Landau, 1999). Children under 8 were not allowed to go downstairs by themselves, but after they were allowed to go down, parents found it difficult to supervise their play.

Nitta (1980, in Oda et al., 1989) found that children who lived on higher floors also went outside to play less often.
One outcome was that children in high-rises, on balance, spent more time playing alone and in restricted play (Gittus, 1976). Perhaps that was why there was evidence that high-rise raised children had lower levels of motor ability than children reared in single-family dwellings (Crawford and Virgin, 1971; cited in M.chelson, 1977).

Young (1976) also suggested that high-rise living could be detrimental to the creativity and physical development of young children due to the constraints of play activities and facilities.

A study in India recognized that children's difficulties were not solely a function of living in high-rises (Oke, Khattar, Pant and Saraswathi, 1999). As the authors put it, "The ecological constraints of crowding, the high-rise buildings, unsafe streets, scarce open spaces, the preoccupation with the "idiot-box," all seem to conspire against the urban child's natural propensity to play with joyous spontaneity" (p. 207).

3.2.7. Crime in High-rise Housing

Security may be considered as a major issue in high-rise buildings. Threats to security can realistically be considered a health risk and can result in psychological distress. While installations and improvements to technology are common approaches taken to make residences more desirable Van Vliet (1963) also emphasizes the need for planning to include contextual considerations, including factors such as building type and residential location.

Interest in the association of architectural design with incidence of crime, especially crime in public housing, began with the publication of Oscar Newman's Defensible Space: Crime Prevention through Urban Design (1972). Crimes, according to Newman (1975), occurred at about the same rate in low- and high-rises inside the
apartments, were somewhat more frequent on the outside grounds of high-rises and were much greater in the interior public spaces of high-rises. Newman noted that the increased anonymity that naturally accompanied the larger number of people in tall buildings was a key ingredient of the problem. Furthermore, high-rise buildings denied their residents opportunities for surveillance of the public grounds, lobbies, corridors, and stairways. He contended that that lack of surveillance rendered much of the public space in high-rise structures vulnerable to crime.

Holzman, Kudrick and Voytek analyzed the data from HUD’s (the U.S. Department of Housing and Urban Development’s) 1994 survey of public housing residents: Crime and Crime Prevention in Public Housing (“the survey”) which provided an opportunity for a fresh look at architecture as a criminogenic factor.

The authors presented an examination of the association between building design or development size and public housing residents’ perception of crime problems in their communities. In the course of the analysis, data on several other variables, such as disorder and resident support for a variety of crime-control strategies were also analyzed. The survey collected information from 1,547 public housing residents about their fear of crime, their assessment of the local crime problem, and their opinion of crime-prevention strategies in their development.

In general, residents of the larger developments (those with more than 500 units) were more apt to report major problems with crime than residents living in public housing properties with fewer units. Consistent with the residents’ level of concern about crime was the percentage of those who reported “feeling unsafe” and having a “fear of crime”: 48% and 57%, respectively. The incidence of crime in high-rises appeared to be greater,
with their residents reporting more trouble with crime than those living in low-rises. Some 34% of low-rise dwellers felt unsafe, versus 44% of high-rise residents.

As was the case with crime, the residents of the larger developments were more likely to report major problems with disorder. Again, as with crime data, the disorder data from developments with fewer than 500 units did not suggest a direct correlation.

The findings, coupled with those of Newman and Franck (1982), suggested that smaller developments are safer places to live.

Criminologists have long noted the association between crime and disorder and the fact that a disordered environment can engender a sense of unease and fear of crime (Skogan, 1990). Studies of public housing's family high-rises, such as the commissioned by the city of Philadelphia in the late 1970s, had concluded that those buildings were more suitable for elderly housing (Ueland and Junker, 1979), which had proven less vulnerable to crime and disorder.

Sommer (1987) compared crime rates in two student dormitories in California full of presumably middle-class students and found that the high-rise dormitory was the site of more crime than a nearby low-rise dormitory.

Sweatt, Harding, Knight-Lynn, Rasheed and Carter (2002) conducted a study to assess the violent experiences of youth living in a public-subsidized urban high-rise. Findings indicated that those adolescents were very much aware of the high degree of violent behavior in their neighborhood. 90% of participants reported feeling comfortable or very comfortable within their building's home environment. However, 60% reported feeling fairly unsafe or very unsafe in their surrounding neighborhood. 80% knew someone who had been a victim of a violent act, particularly robbery and death from a gunshot. Over half, that is, 60% had witnessed a violent act (that is, beating, robbery,
shooting), and two participants had witnessed the killing of a person. Approximately 35% had actually experienced a violent act, with being robbed and/or shot at as the most prevalent experiences. While all participants reported that they had gotten into a physical fight at some point, only 15% reported having pulled a knife on someone. 30% of the adolescents reported carrying some sort of weapon with them at all times (e.g. pocket knife, sharpened hair brush handle).

3.3. Reported Positive aspects of High-rise Buildings:

Broyer (2002) reported that high-rise buildings generally occupy less land area and thereby can leave more room for parks and green space. In addition, many services and transport facilities are likely to be available because of the central urban locations of those tall buildings, “the large number of nearby neighbours affords greater potential choice of friends and acquaintances for social support” (Churchman, 1999).

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, one of the most densely populated cities in the world and observed that the population in Singapore had gradually accepted the high-rise life style. 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.

Hattori (2001) conducted a study for the purpose of understanding the ideal living perception of people living in a high-rise apartment building in Osaka, Japan and found
that people, especially the old ones who lived in high-rise apartment housing were fairly content with living in a high-rise apartment.

Three more 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 tall apartments increased with floor levels. Finally, upper floor residents experience less noise from outside the building, and may promote more and better social interaction to some residents. Over and above, controlled entrances are likely to reduce crime and fear of crime (Kim, 1997).

The view offered by a high-rise dwelling had been found to command a price premium (Rodriguez and Sirmans, 1994; The Straits Times, 11 March, 2000; Lee, 2001) such that the view was in fact regarded as an amenity within the housing unit. Again high-rises offer great views specially to upper-floor residents and relative urban privacy (Dornbusch and Gelb, 1977).

A recent survey by Wang Xu and Lau Siu Yu (conducted in 2001 and 2002 in Hong Kong) interviewed 102 numbers of residential households who lived in private and self-owned apartment buildings. The findings revealed that majority of the subjects liked to live on higher floors for the enjoyment of better views and fresh air more than anything else (such as, monetary benefit being on a higher floor). 84% of the 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%).
3.4. Methodological Complexities and Need for the Present Study:

Nevertheless the foregoing reports involving a cluster of complaints and benefits were published in different journals but an important question may be raised – how many of such negative and positive claims are the outcomes of well designed experimental observations? Because several recent observations (Evans and Lepore, 1997) provide that the outcomes of living in high-rise apartments depend in part on various non-building factors – economic status of the inhabitants, the amount of choice among residences a resident has, location of the building within the urban fabric, and population density seem to be most important. Besides these several other moderator variables may also be assumed to operate, namely, life-cycle stage of residents, gender, culture, dwelling design and building location.

Over and above, the observations regarding the probable effects of high-rise living had been made by following a cluster of various methodological approaches, such as, some followed case studies of a single high-rise or solely in high-rise buildings (Korte and Huismans, 1983; Williamson, 1981); some compared high-rises and low-rises but ignored the moderating variables (Oda, Taniguchi, Wen and Higurashi, 1989; Zalot and Adams-Webber, 1977); a few others included better research design along with only a couple of moderating factors. Hence, it may be inferred that no such empirical observation on high-rise living has been made which meets most of the requirements of a well exhaustive research design. That is the reason why no “absolutely certain causal conclusions” may be drawn. Furthermore, in our country very few empirical studies had been conducted on high-rise residents including adolescents, youths, and middle-aged as well as elderly residents. In view of the above perspective, the present investigation seems to throw ample light on such a complex but socially relevant issue.