THE present investigation was undertaken to study the impact of environmental stressors on perceived stress; everyday errors; health complaints; experience and expression of anger, that is, state anger, trait anger, anger-in, anger-out, anger control, anger expression subscales of STAXI; MHI factors of anxiety, depression, loss of behavioural/emotional control, general positive affect, emotional ties and life satisfaction, the higher order factors of psychological distress and psychological well-being and the general factor of mental health (mental health index); satisfaction with life; positive affect and negative affect.

Means and standard deviations were computed for high and low residential density groups, high and low noise sensitivity groups and males and females. A three-way analysis of variance (2x2x2=8) was applied for the above twenty one variables incorporating two categories of residential density, high and low; two categories of noise sensitivity, high and low; and two gender groups, males and females, with forty subjects in each group.

1. Impact of Residential Density, Noise Sensitivity and Gender on Perceived Stress

To ascertain the impact of residential density, noise sensitivity and gender on perceived stress, the following hypotheses were formulated:

1.(i) It is expected that individuals living under conditions of high residential density will score higher on perceived stress than individuals living under conditions of low residential density.
1.(ii) It is expected that individuals high on noise sensitivity will score higher on perceived stress than individuals low on noise sensitivity.

1.(iii) It is expected that females will score higher on perceived stress than males.

The application of 2x2x2 ANOVA revealed that the main effect of residential density was found to be significant, the F-value being $F(1,312)=18.32, p<.01$. The mean perceived stress scores for high residential density were higher than the mean perceived stress scores for low residential density (Mean : 25.72 vs. 22.94).

Further, although the main effects of noise sensitivity and gender were non significant, the two-factor interaction of noise sensitivity and gender was found to be significant, the F-value being $F(1,312)=5.42, p<.05$. A perusal of the mean perceived stress scores (Contingency Table I) indicates that the greatest degree of stress is experienced by females low on noise sensitivity while the lowest degree of stress is experienced by males low on noise sensitivity.

The finding reveals that women, inspite of being low on noise sensitivity, experience more stress. Clearly, gender is the factor that emerges as more potent vis a vis than noise sensitivity in respect of this finding. This finding is corroborated by several studies wherein it has been found that urban women were higher on perceived stress in a host of different situations (Maini, 2001; Neitzeri et al., 1997; Novaco et al., 1991; Nolen, 1990; Henderson et al., 1981; Lundberg et al., 1981).

The main effect of residential density and the interaction effect of noise sensitivity x gender must be viewed cautiously in the light of the fact that the three-way interaction of residential density, noise sensitivity and gender has also emerged significant, the F-value being
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\[ F(1,312)=5.07, \ p<.05 \]. This shows that residential density moderates the effects of noise sensitivity and gender. The moderating effect of residential density becomes clear from a perusal of the mean scores of the eight different groups formed on the basis of residential density x noise sensitivity x gender shown in Contingency Table-II.

The mean scores reveal that perceived stress is most pronounced in females high on noise sensitivity living under high residential density and least pronounced in males low on noise sensitivity, living under low residential density (Mean = 26.8 vs. 21.43). Thus, residential density is the factor that clearly moderates the effect of noise sensitivity and gender in producing perceived stress.

This finding can be explained in terms of Indian cultural traditions and women’s role obligations. The tradition of extended family is prevalent in India where women have to adjust to their husband’s family. High residential density leads to curtailed privacy. Moreover, women are expected to assume nurturant role obligations and be attentive to others’ needs. The more the number of people in the house, the more demanding the role becomes. As a result, women experience greater stress than men under high residential density conditions.

The above finding is supported by several studies. Tripathi (1986), on the basis of a survey conducted in Varanasi, reported the adverse effects of high density on feelings in terms of experienced stress. Ruback and Pandey (1996) found that prolonged exposure to household crowding was related to aversive adjustment. Pandey (1998) has concluded that although people are more willing to tolerate greater number of individuals around them, India being a collective culture, yet at the individual level, perception of high density becomes a source of stress.

In the light of the above discussion, the three hypotheses
formulated to ascertain the impact of residential density, noise sensitivity and gender on perceived stress have not been supported, suggesting thereby that perceived stress must be viewed in terms of the interactional effects of these variables.

2. **Impact of Residential Density, Noise Sensitivity and Gender on Everyday Errors**

In the light of the objectives of the study, the following hypotheses were formulated:-

2.(i) It is expected that individuals living under conditions of high residential density will score higher on everyday errors than individuals living under low residential density.

2.(ii) It is expected that individuals high on noise sensitivity will score higher on everyday errors than individuals low on noise sensitivity.

2.(iii) It is expected that females will score higher on everyday errors than males.

Application of 2x2x2 ANOVA revealed that the main effect of gender emerged significant, the F-value being $[F (1,312) = 15.18, p<.01]$. A perusal of the mean scores of males and females as shown in Table C brings out that the mean everyday error scores of females are higher than the mean everyday error scores of males (Mean : 28.42 vs. 23.53). None of the other main effects and interaction effects emerged significant. Thus, hypothesis 2.(iii) is accepted, while hypotheses 2.(i) and 2.(ii) have not been supported.

This finding needs to be seen in the context of the multiple pressures faced by women. Family needs and demands are the primary source of pressure since women are expected to fulfil the roles of the ideal wife, mother and housekeeper. If she is a working woman,
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she experiences role conflict. Add to this the daily hassles of maintaining the home and herein we have the woman who is highly vulnerable to stress. In contrast, males are principally expected to carry out the role of breadwinners. It is a matter of choice for them whether they lend a helping hand at home or not. All the above factors, however, combine to produce self-reported absentmindedness or slips of action i.e. everyday errors in women.

3. Impact of Residential Density, Noise Sensitivity and Gender on Health Complaints

In the context of the objectives to examine the effect of residential density, noise sensitivity and gender on adult health complaints, the following hypotheses were formulated:

3.(i) It is expected that individuals living under high residential density will have higher scores on health complaints than individuals living under low residential density.

3.(ii) It is expected that individuals high on noise sensitivity will have higher scores of health complaints than individuals low on noise sensitivity.

3.(iii) It is expected that females will have higher scores on health complaints than males.

Application of 2x2x2 ANOVA revealed that the main effect of gender emerged to be significant \[F(1,312)=23.13, p<.01\] with higher number of health complaints reported by females than males. What is significant here is the finding that the two-way interaction effect of residential density x noise sensitivity was found to be significant \[F(1,312)=4.08, p<.05\], though their main effects were non significant.

In order to have more precise information about the role of residential density and noise sensitivity in health complaints, scores for
four different groups formed on the basis of residential density x noise sensitivity were computed (Contingency Table III).

The mean health complaints scores reveal the following significant information:

a) Individuals high on noise sensitivity scored significantly higher on health complaints than individuals low on noise sensitivity (Mean: 31.60 vs. 26.40). The maximum number of health complaints are reported by individuals high on noise sensitivity and living under high residential density conditions.

b) Individuals living under high residential density conditions scored lower on health complaints than individuals living under low residential density conditions (Mean: 28.88 vs. 29.11). The least number of health complaints was reported by individuals low on noise sensitivity but living under high residential density conditions.

Thus, noise sensitivity clearly plays a more powerful role in the context of health complaints than residential density.

High noise sensitivity makes an individual vulnerable to the risk of disease by heightening social and emotional strain. As a consequence, individuals high on noise sensitivity report more health complaints than individuals low on noise sensitivity. Several studies support this finding. For instance, it has been reported that those individuals who are more sensitive to noise experience more serious effects on their health from noise than those who are less sensitive to noise (Iwata, 1984; Tarnopolsky et al., 1978; Weinstein, 1978). In a study conducted by Nivison (1992), it was found that the effects of noise on physiological changes viz., autonomic responses, subjective health and sleep complaints were strongly and consistently mediated by the subjective experience of noise. A strong correlation was
reported between noise sensitivity and health complaints such as cardiac health complaints, nervous, muscular, intestinal and allergic complaints, poor sleep quality and nocturnal awakenings. On the basis of this study, Nivison (1992) suggested that people who report being sensitive to noise may be at risk for increased health complaints and these may be exacerbated by high noise levels.

4. Impact of Residential Density, Noise Sensitivity and Gender on State Anger

On the basis of the objectives of the study, the following hypotheses were formulated:

4.(i) It is expected that individuals living under high residential density conditions will score higher on state anger than individuals living under low residential density conditions.

4.(ii) It is expected that individuals high on noise sensitivity will score higher on state anger than individuals low on noise sensitivity.

4.(iii) It is expected that males will score higher on state anger than females.

Application of 2x2x2 ANOVA revealed that none of the main effects emerged significant. The mean state anger scores in high and low residential density conditions were found to be 14.13 and 14.24 respectively. However, the interaction effect of residential density x gender emerged to be significant, the F-value being $\text{F} (1,312) = 3.88$, $p<.05$.

Mean state anger scores for four different groups formed on the basis of residential density x gender were computed (Contingency Table IV). The mean scores revealed the following significant information:-
(a) Males scored low on state anger in high residential density conditions than low residential density conditions (Mean: 13.69 vs. 14.83).

(b) Females scored low on state anger in low residential density conditions than high residential density conditions (Mean: 13.64 vs. 14.56).

(c) Noteworthy is the finding that under high residential density conditions, females scored higher on state anger than males (Mean: 14.56 vs. 13.69) and this was similar to mean state anger scores (Mean: 14.83) of males in the low residential density. On the other hand, under low residential density conditions, males scored higher than females on state anger (Mean: 14.83 vs 13.64). This seems to be a paradox but has important implications. Possibly, high residential density creates a sense of insecurity and inadequacy in females resulting in state anger while for males who remain away from home for a longer time, low residential density creates a feeling of unwantedness and being alone, resulting in state anger.

5. **Impact of Residential Density, Noise Sensitivity and Gender on Trait Anger**

In the context of the objectives of the study, the following hypotheses were formulated:-

5.(i) It is expected that individuals living under high residential density conditions will score higher on trait anger than individuals living under low residential density conditions.

5.(ii) It is expected that individuals high on noise sensitivity will score higher on trait anger than individuals low on noise sensitivity.
5.(iii) It is expected that females will score higher on trait anger than males.

Application of 2x2x2 ANOVA revealed that the main effect of noise sensitivity emerged significant, the F-value being $[F(1,312) = 8.79, p<.01]$ with higher trait anger scores for participants belonging to the high noise sensitivity group. What is significant here is the finding that the main effect of noise sensitivity was moderated by the residential density of the participants because the interaction of residential density and noise sensitivity was also found to be significant $[F(1,312) = 6.47, p<.05]$. In the light of the significant interaction effect of residential density and noise sensitivity, the main effect of noise sensitivity loses its merit from the viewpoint of trait anger. In other words noise sensitivity per se does not play a meaningful role in the presence of trait anger.

In order to have more precise information about the role of noise sensitivity in trait anger, the mean scores for four different groups formed on the basis of residential density x noise sensitivity were computed (Contingency Table-V). The mean scores revealed the following significant information:

a) Regardless of gender, high noise sensitivity subjects living under conditions of high residential density scored significantly higher on trait anger than high noise sensitivity subjects living under low residential density conditions (Mean: 21.96 vs. 20.48).

b) Low residential density failed to differentiate trait anger scores of high and low noise sensitivity subjects.

Thus, the role of 'noise sensitivity' in trait anger becomes more meaningful if residential density is taken as an additive variable. The findings reported above about the interaction of residential density and noise sensitivity are meaningful and need closer scrutiny. One
plausible explanation could be derived from the earlier finding that both high noise sensitivity and high residential density are instrumental in inducing stress. Perceived stress could lead to the manifestation of trait anger. It is equally possible that trait anger is being developed as a negative coping strategy to deal with environmental stress. Further, noise sensitivity has been postulated to be a sort of trait in the disposition of an individual (Weinstein, 1978). Higher the noise sensitivity, higher the vulnerability to irritation from environmental noise. Because of the continual nature of this irritation, trait anger may develop as a frequently used coping strategy of the individual.

6. Impact of Residential Density, Noise Sensitivity and Gender on Anger-in

   In the light of the objectives of study, the following hypotheses were formulated:-

6.(i) It is expected that individuals living under high residential density conditions will score higher on anger-in than individuals living under low residential density conditions.

6.(ii) It is expected that individuals high on noise sensitivity will score higher on anger-in than individuals low on noise sensitivity.

6.(iii) It is expected that females will score higher on anger-in than males.

The application of 2x2x2 ANOVA reveals that none of the main effects emerged significant. Neither any of the two-way interaction effects nor the three-way interaction effect emerged significant. Hence, none of the three hypotheses have been supported.
7. Impact of Residential Density, Noise Sensitivity and Gender on Anger-out

In the light of the objectives of the study, the following hypotheses were formulated:-

7.(i) It is expected that individuals living under high residential density conditions will score higher on anger-out than individuals living under low residential density conditions.

7.(ii) It is expected that individuals high on noise sensitivity will score higher on anger-out than individuals low on noise sensitivity.

7.(iii) It is expected that males will score higher on anger-out than females.

The application of 2x2x2 ANOVA reveals that none of the main effects emerged significant. Neither any of the two-way interaction effects nor the three-way interaction effect emerged significant. Hence, none of the three hypotheses have been supported.

8. Impact of Residential Density, Noise Sensitivity and Gender on Anger Control

In the light of the objectives of the study, the following hypotheses were formulated:-

8.(i) It is expected that individuals living under high residential density conditions will score lower on anger control than individuals living under low residential density conditions.

8.(ii) It is expected that individuals high on noise sensitivity will score lower on anger control than individuals low on noise sensitivity.
8. (iii) It is expected that females will score higher on anger control than males.

The application of 2x2x2 ANOVA reveals that none of the main effects emerged significant. Neither any of the two-way interaction effects nor the three-way interaction effect emerged significant. Hence, none of the three hypotheses have been supported.

9. Impact of Residential Density, Noise Sensitivity and Gender on Anger Expression

In the light of the objectives of the study, the following hypotheses were formulated:-

9.(i) It is expected that individuals living under high residential density conditions will score higher on anger expression than individuals living under low residential density conditions.

9.(ii) It is expected that individuals high on noise sensitivity will score higher on anger expression than individuals low on noise sensitivity.

9.(iii) It is expected that males will score higher on anger expression than females.

The application of 2x2x2 ANOVA reveals that none of the main effects emerged significant. Neither any of the two-way interaction effects nor the three-way interaction effect emerged significant. Hence, none of the three hypotheses have been supported.

10. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Anxiety

Keeping in view the focal theme of the present study, the following hypotheses were formulated:-

10.(i) It is expected that individuals living under high residential
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density conditions will have higher scores on anxiety than individuals living under low residential density conditions.

10.(ii) It is expected that individuals high on noise sensitivity will have higher scores on anxiety than individuals low on noise sensitivity.

10.(iii) It is expected that females will score higher on anxiety than males.

The application of 2x2x2 ANOVA revealed that the main effects of residential density and gender were found to be significant, the F-values being \[ F(1,312)=9.84, \ p<.01 \] and \[ F(1,312) = 8.80, \ p<.01 \] respectively. The mean anxiety scores for high residential density were higher than the mean anxiety scores for low residential density (Mean : 25.30 vs 22.75). Likewise, the mean anxiety scores of females were higher than those of males (Mean : 25.22 vs 22.83).

These two significant main effects of residential density and gender are to be accepted and interpreted with caution because noise sensitivity moderates the main effects of residential density and gender. The three-way interaction effect of residential density, noise sensitivity and gender was found to be significant \[ F(1,312) = 7.57, \ p<.01 \].

The moderating role of noise sensitivity becomes clear from a perusal of the mean anxiety scores for eight different groups formed on the basis of residential density x noise sensitivity x gender. The mean anxiety scores have been shown earlier in Contingency Table-VI.

An examination of mean anxiety scores revealed that the differences between female and male participants are more pronounced in the conditions of high residential density and high noise sensitivity with females scoring higher than males (Mean = 27.98 vs 22.03). In other conditions referring to the combination of residential...
density and noise sensitivity, the differences in the mean anxiety scores of males and females are not so marked.

These findings reveal that gender per se is not a relevant variable to explain gender differences in anxiety. Earlier investigations trying to explain gender differences in anxiety just on the basis of gender variable suffer from this methodological flaw. This is clearly evident from the present study where gender differences in anxiety are moderated by two environmental factors, namely residential density and noise sensitivity. High residential density and high noise sensitivity seem to be more detrimental for females than males, from the viewpoint of feeling more anxious. The possible roots for the detrimental effect of high residential density and high noise sensitivity in urban females seem to lie in the process of socialization which lays more emphasis on keeping calm and quiet and desisting from frequent intermixing and visits, the antitheses of anxiety.

11. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Depression

The following hypotheses were formulated from the viewpoint of the effect of residential density, noise sensitivity and gender on depression:

11.(i) It is expected that individuals living under high residential density conditions will have higher scores on depression than individuals living under low residential density conditions.

11.(ii) It is expected that individuals high on noise sensitivity will have higher scores on depression than individuals low on noise sensitivity.

11.(iii) It is expected that females will have higher scores on depression than males.
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The results reported in Table 11 show that the main effect of residential density emerged to be significant \( [F(1,312)=9.18, p<.01] \) with higher depression scores for participants belonging to high residential density. What is new here is the finding that the main effect of residential density was moderated by the gender of the participants because the interaction of residential density and gender was also found to be significant \( [F(1,312)=5.02, p<.05] \). In the context of the significant interaction effect of residential density and gender, the main effect of residential density loses its merit from the viewpoint of depression. In other words, residential density per se does not play a meaningful role in the presence of depressive tendencies. In order to have more precise information about the role of residential density in depression, mean depression scores for four different groups formed on the basis of residential density x gender were computed (Contingency Table VII).

The mean depression scores reveal the following significant information:

(a) Females belonging to high residential density scored significantly higher on depressive tendencies than females belonging to low residential density (Mean: 10.81 vs 8.98).

(b) Residential density in terms of high and low failed to differentiate the depression scores of males belonging to low and high residential density.

Thus, the role of residential density in depression becomes more meaningful if gender is taken as an additive variable. The findings reported above about the interaction of residential density and genders are meaningful and need closer scrutiny. Possibly, females are socialized from the very beginning to maintain privacy while the emphasis on privacy is relatively less for males. The emphasis on
more privacy in case of females in comparison to males probably threatens their self and makes them uncomfortable in high residential density, leading to the development of depression which incorporates into its domain the important features related to self as measured by the items included in the depression subscale of Mental Health Inventory.

Interestingly the role of noise sensitivity has emerged to be non-significant, thereby rejecting Hypothesis 11.(ii). This finding is in the expected direction in the context of earlier researches falling in the domain of depression.

12. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Loss of Behavioural / Emotional Control

In the context of the objectives to examine the effect of residential density, noise sensitivity and gender on loss of behavioural/emotional control as measured by the Mental Health Inventory, the following hypotheses were formulated:

12.(i) It is expected that individuals living under high residential density conditions will score higher on loss of behavioural/emotional control than individuals living under low residential density.

12.(ii) It is expected that individuals high on noise sensitivity will score higher on loss of behavioural/emotional control than individuals low on noise sensitivity.

12.(iii) It is expected that females will score higher on loss of behavioural/emotional control than males.

The application of 2x2x2 ANOVA revealed that the main effects of all three variables included in this study, namely residential density, noise sensitivity and gender were found to be significant, the F-values
being \( F(1,312) = 9.89, p<.01 \), \( F(1,312) = 6.82, p<.01 \) and \( F(1,312) = 13.0, p<.01 \) for residential density, noise sensitivity and gender respectively. In the light of main effects, it can be seen from Tables A, B and C that mean scores on loss of behavioural/emotional control are more in high residential density than in low residential density (Mean :23.59 vs 21.45). Likewise, female participants are significantly higher on loss of behavioural/emotional control than male participants (Mean :23.75 vs 21.30). These conclusions based on main effects are basically artifacts because the interaction of residential density, noise sensitivity and gender has also emerged to be significant \( F(1,312) = 7.51, p<.01 \). The significant interaction of these variables brings a change in the conclusions that we derived on the basis of main effects of these variables.

The mean scores on loss of behavioural/emotional control separately for eight different groups derived as a consequence of significant interaction of residential density x noise sensitivity x gender reported in Contingency Table-VIII clearly brings into focus an interesting trend in the findings discussed below:-

Female participants with high noise sensitivity and high residential density have scored substantially higher on loss of behavioural/emotional control than male participants. Thus, high residential density – noise sensitivity combination emerged as the sole contributor for explaining gender differences in loss of behavioural/emotional conditional control. The other combinations of residential density – high noise sensitivity failed to differentiate between male and female participants.

Females with high noise sensitivity and high residential density have scored substantially higher on loss of behavioural/emotional control. This is an interesting finding and brings into focus the role of environmental factors in explaining higher psychological distress in
females. Possibly high residential density and high noise sensitivity are environmental factors, which are basically aversive to urban women in the contemporary fast changing society. As a consequence, they make their impact on loss of behavioural/emotional control in urban women.

13. Impact of Residential Density, Noise Sensitivity and Gender on MHI: General Positive Affect

In the light of the objectives of the study, the following hypotheses were formulated:

13.(i) It is expected that individuals living under high residential density conditions will score lower on general positive affect than individuals living under low residential density conditions.

13.(ii) It is expected that individuals high on noise sensitivity will score lower on general positive affect than individuals low on noise sensitivity.

13.(iii) It is expected that females will score lower on general positive affect than males.

Results reported in Table-13 show that the main effect of residential density emerged significant [F (1,312) = 8.5, p<.01] with higher general positive affect scores for low residential density than high residential density. However, what is significant here is the finding that the effect of residential density was moderated by the gender of the participants because the interaction of residential density and gender was also found to be significant [F (1,312) = 4.32, p<.05]. In the context of the significant interaction effect of residential density and gender, the main effect of residential density loses its merit from the viewpoint of general positive affect. In other words, residential density per se does not play a meaningful role in the presence of general positive affect.
In order to have more precise information about the role of residential density in general positive affect, scores for the four different groups formed on the basis of residential density x gender were computed (Contingency Table-IX).

The mean general positive affect scores reveal the following significant information:

a) Females scored lower on general positive affect than males (Mean: 37.33 vs. 38.78).

b) Individuals living under high residential density scored lower on general positive affect than individuals living under low residential density (Mean: 36.73 vs. 39.38).

c) Gender differences on positive affect were eliminated in low residential density conditions, (Mean: 39.60 vs. 39.16) while in high residential density conditions gender differences are marked with males scoring higher on general positive affect than females.

The findings reported above about the interaction of residential density and gender are meaningful and need closer scrutiny. Conditions of high residential density provoke psychological reactance which can be viewed as the motivational or emotional consequence of cognitive inconsistency stemming from the recognized discrepancy between one's supply of and demand for space (Stokols, 1974). Lowered general positive affect is the emotional response to high residential density. This is particularly so in the case of females because of their socialization which places a premium on tolerance, privacy and the role of nurturance. With increase in the number of people around them, women experience an infringement of privacy but endure it. Concentration on their role and duties and a spontaneous lowering of general positive affect are responses to minimize the
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salience of their spatial restriction.

This finding finds support in several studies. Ruback and Pandey (1991) reported that females appear to be more affected by household density than males in a study to investigate the effect of crowding, social density, and perceived control on physical and mental health in the Indian context. Married women reported significantly more acceptance, self-control, physical symptoms, mental distress, lower ratings of their house and more quarrels with other adults in the house and neighbours. Pandey (1998) explained that the traditional Hindu belief in fatalism encourages people to be more accepting and emphasizes controlling one’s own emotions rather than the environment.


In the context of the objectives of the study to examine the effect of residential density, noise sensitivity and gender on emotional ties as measured by the Mental Health Inventory, the following hypotheses were formulated:

14.(i) It is expected that individuals living under conditions of high residential density will score lower on emotional ties than individuals living under conditions of low residential density.

14.(ii) It is expected that individuals high on noise sensitivity will score lower on emotional ties than individuals low on noise sensitivity.

14.(iii) It is expected that females will score higher on emotional ties than males.

The application of 2x2x2 ANOVA revealed that the main effect of residential density was found to be significant, the F-value being 158
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\[ F(1,312) = 7.17, p < 0.01 \]. The mean scores on emotional ties were lower for subjects living under high residential density than the mean scores for subjects living under low residential density (Mean: 7.89 vs. 8.89).

None of the two-way and three-way interactions emerged significant. The effect of residential density was not moderated by either noise sensitivity or gender. Thus, hypothesis 14.(i) stands accepted while hypotheses 14.(ii) and 14.(iii) have not been supported.

Individuals in high density conditions experience excessive, unwanted social interaction. They adopt social withdrawal as a coping mechanism in response to high residential density which, in turn, is responsible for lowered social support and weakening or disruption of social ties. Several studies support this finding. Fleming, Baum and Singer (1985) found that characteristics of the physical environment can alter social relationships among people. Residential crowding was found to be associated with a less supportive, interpersonal climate in the home (Nagar, 1985) and with greater withdrawal among family members (Evans et al., 1989; Baum & Paulus, 1987; Jain, 1987; Aiello et al., 1984).

15. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Life Satisfaction

In the light of the objectives of the study, the following hypotheses were formulated:-

15.(i) It is expected that individuals living under high residential density conditions will score lower on life satisfaction than individuals living under low residential density conditions.

15.(ii) It is expected that individuals high on noise sensitivity will score lower on life satisfaction than individuals low on noise sensitivity.
15.(iii) It is expected that males will score higher on life satisfaction than females.

Application of 2x2x2 ANOVA revealed that the main effects of residential density and gender emerged to be significant, the F-values being \[ F(1,312) = 4.04, p<.05 \] and \[ F(1,312) = 4.96, p<.05 \] respectively. A perusal of the mean scores shown in Table A indicates that the mean life satisfaction scores of individuals living under high residential density were lower than those of individuals living under low residential density (Mean: 3.80 vs. 4.02). Also, the mean life satisfaction scores of males were higher than those of females (Mean: 4.04 vs. 3.78). None of the interaction effects emerged significant. Hence, hypotheses 15.(i) and 15.(iii) are accepted while hypothesis 15.(iii) was not supported.

Life satisfaction is the cognitive component of subjective well-being. High residential density is an ambient environmental stressor. By nature of its prolonged and unalterable nature, individuals exposed to it experience an accentuated sense of frustration. It is heightened further by social reactions of significant others as well as other people pointing out the scarcity of space in a ‘small house’. As such, satisfaction with one’s life is lowered. However, male members of the house spend less time at home and are less exposed to spatial constraint. As a result, their satisfaction with life emerges relatively higher than females who spend more time at home and are more exposed to the stressor. These findings get further support from the findings discussed earlier where females were found to be higher on different dimensions of psychiatric disturbance.

This finding can also be explained in terms of the definition of ambient stressors that are relatively stable, continuous and intractable conditions of the physical environment (Campbell, 1983). In the wake of such a chronic stressor, individuals living under high residential density experience...
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density experience cognitive inconsistency stemming from the recognized disparity between their supply of and demand for space.

16. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Psychological Distress

In the light of the objectives to examine the effect of residential density, noise sensitivity and gender on psychological distress as measured by the Mental Health Inventory, the following hypotheses were formulated:

16.(i) It is expected that individuals living under conditions of high residential density will score higher on psychological distress than individuals living under conditions of low residential density.

16.(ii) It is expected that individuals high on noise sensitivity will score higher on psychological distress than individuals low on noise sensitivity.

16.(iii) It is expected that females will score higher on psychological distress than males.

The application of 2x2x2 ANOVA revealed that the main effects of residential density and gender were found to be significant, the F-values being \[ F (1, 312) = 12.39, p<.01 \] and \[ F (1,312) = 8.0, p<.01 \] respectively. The mean psychological distress scores for high residential density were higher than the mean psychological distress scores for low residential density (Mean : 64.5 vs. 58.26). Likewise, the mean psychological distress scores of females were higher than those of males (Mean : 63.89 vs. 58.88).

These two significant main effects of residential density and gender are to be accepted and interpreted cautiously because noise sensitivity moderates the main effects of residential density and
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The interaction effect of residential density, noise sensitivity and gender was found to be significant [F (1,312) = 7.15, p<.01].

The moderating role of noise sensitivity becomes clear from a perusal of the mean distress scores for the eight different groups formed on the basis of residential density x noise sensitivity x gender. The mean distress scores have been shown in Contingency Table-X.

An examination of the mean psychological distress scores reveals that the greatest degree of psychological distress is experienced by females high on noise sensitivity living under high residential density (Mean : 69.68) while the lowest degree of psychological distress is experienced by females high on noise sensitivity living under low residential density (Mean : 55.85). This shows that out of the two environmental stressors viz. residential density and noise sensitivity, the former is more potent in producing marked differences in psychological distress between males and females.

This finding is explained by the fact that women stay at home being housewives and have greater interaction with other adults and children in the house which, many a time, may be unwanted and over which they have no control. These factors related to residential density are responsible for producing greater psychological distress among females than males. Hence, even if females are high on noise sensitivity, they experience less distress than males when they are living under low residential density conditions because the above mentioned adverse factors produced by high residential density are missing for females in low density conditions while they may be constant for males outside the house. This finding is supported by Ruback and Pandey (1991) who found that females appeared to be more affected by household density than males. Wives reported significantly more physical symptoms, more mental distress, more
acceptance, lower ratings of their house, neighbourhood and children, 
less interaction with their spouse, more quarrels with other adults in 
the household and with neighbours and greater punishment for their 
children. Similarly, Evans et al. (1989) found that high residential 
density was associated with greater psychological distress and lower 
social support after controlling for education and income.

17. Impact of Residential Density, Noise Sensitivity and Gender on 
MHI: Psychological Well-being

In the context of the objectives of the study, the following 
hypotheses were formulated:-

17.(i) It is expected that individuals living under high residential 
density conditions will score lower on psychological well-being 
than individuals living under low residential density conditions.

17.(ii) It is expected that individuals high on noise sensitivity will 
score lower on psychological well-being than individuals low on 
noise sensitivity.

17.(iii) It is expected that females will score lower on psychological 
well-being than males.

Application of 2x2x2 ANOVA revealed that the main effect of 
residential density emerged significant [F(1,312)=10.17, p<.01] with 
higher psychological well-being scores for low residential density. 
What is significant here is that the effect of residential density was 
moderated by the gender of the participants because the interaction of 
residential density and gender was also found to be significant [F 
(1,312) = 6.61, p<.05]. In the light of the significant interaction effect of 
residential density and gender, the main effect of residential density 
loses its significance from the viewpoint of psychological well-being.

In order to have more precise information about the role of
residential density in psychological well-being, scores for four different groups formed on the basis of residential density x gender were computed (Contingency Table-XI).

The mean psychological well-being scores reveal the following valuable information:

a) Females belonging to high residential density scored significantly lower on psychological well-being than females belonging to low residential density (Mean : 49.93 vs. 56.80).

b) Residential density failed to differentiate the well-being scores of males belonging to high and low residential density.

Thus, the role of residential density in psychological well-being becomes more meaningful if gender is taken as an additive variable. The findings reported above about the interaction of residential density and gender are meaningful and need closer scrutiny. One clear trend that is emerging in this study is that it is the females who are more affected by the environmental stressor/residential density. In the presence of high residential density, they are the ones who are the most affected because they obtain the lowest scores on psychological well-being. Similarly, in the absence of high residential density (i.e. in low residential density), they are the ones who obtain the highest scores in psychological well-being. This is possibly due to the fact that females are the ones who spend more time at home than males and have to put up with the adverse effects of the environmental stressor of residential density.

This finding is in line with several studies where it has emerged that household density is negatively correlated with relative economic well-being and psychological health (Tripathi, 1988) and that females are more affected by household density than males (Ruback & Pandey, 1991).
18. Impact of Residential Density, Noise Sensitivity and Gender on MHI: Mental Health

Keeping in view the focal theme of the present study, the following hypotheses were formulated:

18.(i) It is expected that individuals living under high residential density conditions will have lower scores on mental health than individuals living under low residential density conditions.

18.(ii) It is expected that individuals high on noise sensitivity will have lower scores on mental health than individuals low on noise sensitivity.

18.(iii) It is expected that females will have lower scores on mental health than males.

The application of 2x2x2 ANOVA revealed that the main effects of residential density and gender were found to be significant, the F-values being \(F (1,312) = 16.44, p<.01\) and \(F (1,312) = 5.55, p<.05\) respectively. The mean mental health scores for high residential density subjects were lower than the mean scores for low residential density subjects (Mean : 153.17 vs. 163.72). Likewise, the mean mental health scores of females were lower than the mean scores for males (Mean : 155.38 vs. 161.51).

These two significant main effects for residential density and gender are to be accepted and interpreted with caution because the interaction effect of residential density and gender also emerged significant, the F-value being \(F(1,312) = 5.73, p<.05\). The significant interaction of these variables brings a change in the conclusions that we derived on the basis of main effects.

The mean scores on mental health for the four different groups derived as a consequence of significant residential density x gender have been reported earlier in Contingency Table-XII.
A perusal of the mean mental health scores shows that females in the high residential density condition have scored the lowest on mental health whereas females in the low residential density condition have scored the highest on mental health (Mean : 146.98 vs. 163.68). Thus, high residential density – female combination emerged as the sole contributor for explaining variance in mental health.

This finding must again be explained in the context of women’s socialization and role obligations. While socialization ingrains greater endurance and acceptance among females, their role obligations place pressing demands for caregiving and nurturance. As a consequence, though women are more enduring yet they pay the price in the form of poorer mental health. This finding is supported by several studies. For instance, studies by Ruback and Pandey (1996, 1991) to investigate the effect of crowding and social density and perceived control on physical and mental health in the Indian context clearly revealed gender differences between husbands and wives. Wives reported significantly more mental distress, more physical symptoms, acceptance and self control. Shifren and Bauserman (1996) reported that differences in perception of stress, appraisal and coping behaviour between genders may be responsible for finding differences in health-related behaviour. They found men to be reporting better physical health than women. Ruback et al. (1997) found in their study conducted in India and Bangladesh that women were more upset than men by environmental stressors (noise, air pollution and crowding). In India, females compared to males are more accepting and more helpless but not more likely to move away from stressors and less likely to feel helpless but more accepting of the situation.

19. Impact of Residential Density, Noise Sensitivity and Gender on Satisfaction with Life

In the light of the objectives of the study, the following hypotheses were formulated:-
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19.(i) It is expected that individuals living under conditions of high residential density will have lower scores on satisfaction with life than individuals living under conditions of low residential density.

19.(ii) It is expected that individuals high on noise sensitivity will have lower scores on satisfaction with life than individuals low on noise sensitivity.

19.(iii) It is expected that females will have lower scores on satisfaction with life than males.

Application of 2x2x2 ANOVA revealed that the main effect of gender emerged to be significant, the F-value being $F(1,312) = 4.17, p<.05$. A perusal of the mean scores revealed that the mean scores of females were higher than the mean scores of males (Mean: 23.52 vs. 22.33). None of the other main effects and interaction effects emerged significant. Hence, none of the hypotheses have been supported.

The mean scores reveal higher life satisfaction for females than males. Keeping in view the entire findings of the current study in a broader perspective, revealing more psychiatric disturbance in females, this finding of higher life satisfaction in females seems to be in contradiction. One plausible explanation could be derived from the nature of items used for measuring satisfaction with life. The items used in the scale have more general orientation in the context of satisfaction/dissatisfaction rather than having a negative connotation commonly emphasized in measures of psychiatric disturbance. This finding needs replication in order to ascertain whether it is real or an artifact of the measure employed.

Further, this finding can also be explained by the fact that even though women are upset by infringements of their privacy, yet by virtue of their socialization, they learn to adapt to a large number of people...
around them and continue with their role obligations. Hence, even though they pay a price for adaptation in other areas like positive affect and mental health, the gregarious instinct is responsible for higher life satisfaction in women.

This finding has been explained by Ruback and Pandey (1996) who reported that even though rural women in their study reacted negatively to crowding yet they wanted more people in the house. They explained that this may be because women enjoy high levels of social interaction more than men do and women are psychologically prepared to have positive attitudes towards more people and more children.

20. Impact of Residential Density, Noise Sensitivity and Gender on PANAS: Positive Affect

In the light of the objectives of the study, the following hypotheses were formulated:

20.(i) It is expected that individuals living under conditions of high residential density will have lower scores on positive affect than individuals living under conditions of low residential density.

20.(ii) It is expected that individuals high on noise sensitivity will have lower scores on positive affect than individuals low on noise sensitivity.

20.(iii) It is expected that females will have lower scores on positive affect than males.

The application of 2x2x2 ANOVA revealed that the main effect of gender emerged significant, the F-value being \[F(1,312)=4.34, p<.05\].

It can be seen from Table C that mean scores on positive affect are lower in case of females than in case of males (M: 30.57 vs.
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32.23). None of the other main effects and interaction effects emerged significant. As such gender is the critical factor as far as positive affect is concerned. Hence, hypothesis 20. (iii) stands accepted, while hypotheses 20. (i) and 20. (ii) have not been supported.

The roots of this finding can be traced to a combination of factors encompassing women's socialization and role conflict. Not only are women socialized to be more tolerant but a deep sense of propriety is also ingrained in them and they are expected to perform the role of principal caregivers in the home. When the number of people around them in the house increases, their privacy is threatened and they feel cramped. Because of their socialization they endure the discomfort and continue to perform their duties. However, this entire process takes its toll on their enthusiasm, energy and alertness.

This finding finds support in several studies. Ruback and Pandey (1996) found clear gender differences between husbands and wives in a study to investigate the effect of crowding, social density and perceived control on physical and mental health in the Indian context. Wives reported significantly more acceptance, self-control, physical symptoms, mental distress, lower ratings of their house and more quarrels with other adults in the house and neighbours. Thus, females appeared to be more affected by household density than males. Pandey (1998) explained that the traditional Hindu belief in fatalism encourages people to be more accepting and emphasized controlling one's own emotions rather than the environment.

21. Impact of Residential Density, Noise Sensitivity and Gender on PANAS: Negative Affect

In the light of the objectives of the study, the following hypotheses were formulated:-

21.(i) It is expected that individuals living under high residential
density conditions will have higher scores on negative affect than individuals living under low residential density conditions.

21.(ii) It is expected that individuals high on noise sensitivity will have higher scores on negative affect than individuals low on noise sensitivity.

21.(iii) It is expected that females will have higher scores on negative affect than males.

The application of 2x2x2 ANOVA revealed that the main effects of residential density and gender were found to be significant, the F-values being $F(1,312)=8.29$, $p<.01$ and $F(1,312)=10.3$, $p<.01$ respectively. The mean negative affect scores for high residential density were higher than the mean negative affect scores for low residential density (Mean : 22.75 vs. 20.68). Likewise, the mean negative affect scores of females were higher than those of males (Mean : 22.87 vs. 20.56).

These two significant main effects of residential density and gender are to be accepted because they are not moderated by noise sensitivity. None of the two-way and three-way interactions emerged significant.

Individuals living under high residential density experience heightened arousal which adversely affects their social and emotional reactivity. As such, they report being more irritable. This finding is supported by several studies. For instance, Griffitt and Veitch (1971) observed that interpersonal affective responses were significantly more negative under conditions of high density and high temperature than those under low density and comfortable temperature. Nagar and Pandey (1987) compared performance on complex tasks in high and low density environments and found not only performance decrements due to increase in density but also that high density aroused more
negative affect than the low density condition.

Similarly, Jain (1988) conducted semi-structured interviews of the residents of high density areas. Respondents were asked to report their feelings in various day-to-day crowding situations. Analysis of the contents of such responses to the open ended questions revealed three aspects of such feelings namely, arousal, negative affect and loss of control. Negative affect was expressed as ‘feeling unhappy’, ‘sad’ and ‘congested’. Subsequently, Jain (1991) applied factor analysis on scores of the feeling of crowding measure and noted four factors namely feeling of congestion, arousal, loss of control and disturbed mood with a total variance of 59.5%.

Ruback and Pandey (1996) found that certain categories of the population such as children, elderly and women are more susceptible to the adverse consequences of environmental stressors because they have little control over them and few resources to cope with them. Thus women react more negatively than men to long-term density.

CONCLUSION

Nature and environment have always been a source of human reflection and investigation and an intimate knowledge of the environment has been a crucial element in the sustenance of civilizations. Knowledge about the environment brings about an increase in environmental concern and this concern in conjunction with the knowledge of proenvironmental strategies often translates into appropriate environment-friendly behaviour (Bhandari & Duggal, 1999; Pelletier et al., 1996). The present investigation was carried out with the aim of studying the impact of environmental stressors on different facets of human behaviour. Specifically, the impact of residential density and noise sensitivity was examined on perceived stress, health and subjective well-being. The results of the study reveal that residential density and noise sensitivity have detrimental effects on
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several aspects of human functioning. Noteworthy is the finding that gender as an independent variable has not only emerged as a significant determinant of perceived stress, health and subjective well-being, it has also moderated the impact of residential density and noise sensitivity.

It is felt that future research may include more in-depth investigations of the coping strategies employed by individuals exposed to various environmental stressors along with measures of perceived control and personality. Research studies of the kind undertaken in the present endeavour are meaningful in order to expose the unsustainable pressure that human activities are exerting on the living environment. The findings of such studies will serve a two-fold purpose: (i.) assist the powers that be in policy formulation and framing of rules and regulations that help to conserve the environment; and (ii.) increase awareness among the people regarding the deleterious consequences of their activities. It is hoped that the present research has made a contribution in these directions.