3.1 Life Events and Illness

Stress has become an inevitable part of people's life in the modern world. In the recent years, there has been an increasing incidence of psychosomatic (psychophysiological) or stress disorder. A big amount of research has been done in the West to examine the relationship between stress and psychological as well as physical well-being. Majority of these researches yield significant negative relationship between perceived stress and psychological and physical well-being of the focal individual (Sharma, 1988).

3.1.1 Life Events, Anxiety, Anger/Hostility/Aggression and Psychophysiological Illness

Stress has been found to be an effective variable vis-a-vis health both in clinical and in organizational set up. World Health Organization defines 'Health' as the presence of physical and emotional (psychological) well-being. Cost of stress is expected in terms of its effect on
well-being. Research on the stress-disease connection has engrossed many investigators and has captured the attention of mass-media and the general public as well. Cooper (1983) concluded that stress plays some role in developing of every disease; and its effects for better or worse are added to the specific changes and characteristics of the disease in question. A stressor can disrupt homeostasis, since it has been observed that person under intense stress is vulnerable to illness. The role of stressful life events in the etiology of various diseases has been a fertile field of research for the last twenty five years. A host of studies have suggested a positive relationship between stressful life events and illness (e.g., Dohrenwend & Dohrenwend, 1974; Sarason et al., 1978). Several other studies have also explored the relationship between daily life events and well-being. For instance, Zaraski (1984), David and Paul (1984), Chan (1986) and Jandrof, Esther, John and Stone (1986) also reported that undesirable events were better predictors of physical symptoms. Tenison (1988) examined the relationship among major life events and daily hassles in physical illness in case of 75 female and 35 male graduate and upper division university students. This study revealed that major life events were significantly related to illness for women and not for men. However, daily hassles were found to be more strongly related to men's physical symptoms than the life events. But both life events and daily hassels were equivalently related to physical symptoms of the women. Earlier, Kijek (1982) had
also reported a significant positive relationship between life change / events and health status on a sample of 75 male volunteers. Pefley (1986) studying 35 males and 35 females, found that life events were significantly related to illness (e.g., common cold, flu & other minor illness). His study further reported that total life event counts were generally more predictive of illness than those events rated by subjects as desirable. Earlier, Sevenson and theorell (1983), however, did not find any significant difference in total mean number of events between the groups of hypertensives and hypotensives, and significant difference emerged on positive life events only. More positive life events were reported in the hypotensive and not in the hypertensive groups. The findings of this study depart in opposite than the general trend of related research. Moreover, Talley and Piper (1986) compared 68 patients of dyspepsia and equal number of community controls. They did not observe any significant difference between the control and the patient groups on total number of life events experienced during the last one year. Recently, Hoffman (1990), on a group of non-insulin dependent diabetes mellitus patients, found that the total number of life events experienced predicted the mean of their past year blood glucose level. Earlier, Hillevi (1987) examined 999 girls and 1,002 boys thrice over seventeen months. The life events and interpersonal problems were found to be associated with psychosomatic symptoms. Holahan and Holahan (1987) concluded that the frequency of daily hassels was the strongest
predictor of psychosomatic symptoms. A series of earlier studies have also reported a significant relationship between life stress and illness, cardiac death (Rahe and Lind, 1971) myocardial infarction (Edwards, 1971) as well as major health problems, tuberculosis and multiple sclerosis (Rabkin and Struening, 1976).

Some Indian studies have been conducted to investigate the relationship between stress and illness. Lal, Ahuja and Madhukar (1982) have observed that hypertensives reported more number of distressing life events and gave higher mean distress ratings than normals. This observation was more characteristic of males who were over 45 years of age. Chakraborty, Shah and Parikh (1983) in a controlled study on 20 patients of ulcerative colitis, found that ulcerative colitis patients were more exposed to stressful life situations and more prone to develop illness. With respect to coronary patients, Bhargava, Sharma and Agarwal (1982) observed that such patients reported a major change in work responsibility and death of a close relative as compared to normal controls. Bandopadhyay, Ghosh, Chattopadhyay and Majumdar (1986) studied 10 patients of lung cancer and oral cancer, 10 patients awaiting for oral surgery and 10 normal controls. Both the cancer groups showed a high degree of exposure to stressful life events prior to the onset of cancer than their normal-control counterparts. Srivastava and Broota (1987) compared 30 diagnosed, 30 prediagnosed and 30 treated patients with 30 healthy controls. This study revealed that all the three patient groups experienced greater stress than
their control counterparts. It was further revealed that stress experienced during 10 years preceding illness is a better predictor of cancer. Earlier, Christopher (1979) reported a significant correlation between breast cancer and the occurrence of subjectively stressful events up to 15 years before the appearance of breast cancer. Udupa (1980) also observed that stress plays an important role in the development and progress of carcinoma in various parts of the body. Gupta and Srivastava (1983) studied the effect of stressful life events on the course of pulmonary tuberculosis. They concluded that patients who faced continued stressful situations responded poorly to treatments as compared to those who were free from such an exposure. Agarwal and Naidu (1988) studied the impact of desirable and undesirable events on health. Scale of Stressful Experiences of Students (Agarwal, 1985) was administered on 100 students of Allahabad University. To assess the health of subjects, Wig and Verma's (Verma and Wig, 1977) PGI Health Questionnaire (N-2) was used. The subjects endorsed the events they had experienced in the previous one year and rated them for the amount of distress and amount of change entailed in them. The items of the scale were divided into desirable, undesirable and ambiguous categories. The results showed that undesirable events contributed more to the stress-strain relationship than the desirable ones. It was also observed that distress was a more sensitive measure of stressfulness in comparison to change.
Regression analysis revealed that undesirable events alone were significant predictor of strains.

In many medical disorders, in fact, anxiety is an inherent part of the disease. Physical causes of anxiety are seen in many patients presenting with anxiety or depression. Such disorders include hyperthyroidism, angina pectoris, cardiac arrhythmia, chronic obstructive lung disease, embolism, hypoglycemia, pernecious anemia and porphyria. Clinically significant anxiety is also seen sometimes as a relation to chronic medical disorders, such as post-myocardial infarction, post-cardiac surgery, ulcer, irritable bowel syndrome, ulcerative colitis and asthma (Schuckit, 1983). Mitral valve prolapse is a current example of a physical disorder apparently associated with symptoms of anxiety (Boudoulas, King & Wooley, 1984; Margrat, Ehlers, & Roth, 1988).

Earlier, Cameron (1963) opined that anxiety was principal factor contributing to physical symptom in psychosomatic disorders. Miller (1965) also found that cardiac patients experienced significantly more anxiety than a matched control group. Cochrane (1971) reported hypertensives to be more neurotic than controls. Talley, Fung, Gilligan, McNeil and Piper (1986) assessed psychological factors associated with patients of essential dyspepsia in 76 patients and 76 randomly selected community controls. Results revealed that essential dyspepsia patients were significantly more prone to anxiety.
than community controls. Earlier, Robinson (1962), Sainsbury, (1964) and Kidson (1973) had reported that patients with known hypertension could be described as more neurotic than the controls. Whitehead et al. (1977) reported that anxiety was more highly correlated to blood pressure than anger in hypertensive patients. James, Yee, Harshfield, Blank, Mee and Rickering (1986) examined influence of happiness, anger and anxiety on the blood pressure of borderline hypertensives. The results showed that emotional arousal significantly increased systolic and diastolic pressure. On average, pressures during reported angry or anxious states were higher than those during happy states. A report by Vander Ploeg, Van Burren and Van Brummelen (1985) brought forth the evidence of significant differences in the levels of anxiety and anger in the patients with essential hypertension.

A series of studies have been conducted to investigate the association of anxiety and chronic pain patients. Romano and Turner (1985) suggested that anxiety may play a mediating role in development of coexisting pain and depression. Heightened anxiety is generally considered a common feature in chronic pain population (Mersky, 1980). Later, Garron and Leavitt (1983) assigned patients to one of the three groups on the basis of self report of the duration of low back pain: less than 6 months, 6 months to two years and more than 2 years. The groups did not differ in state anxiety (S-anxiety), but the longest pain duration group was
significantly higher than other groups in trait anxiety (T-anxiety). Flor, Turk and Birbaumer, (1985) found a significant positive correlation \( r = .59 \) between S-anxiety and body immobility in patients with chronic back pain. Kinder, Curtiss and Kalichman (1986) found that T-anxiety scores consistently predicted elevations on the three MMPI scales Hs, D and Hy for both males and females. They hypothesized that the elevated T-anxiety scores of their patients were not simply a reaction to chronic pain, but reflected a stable anxiety trait that contributed to the etiology and the maintenance of chronic pain.

Some Indian studies have also been conducted to explore the association of anxiety and psychophysiological disorders. Chaudhuri (1977) examined patients having complaints of amenorrhoea and found anxiety as one of the major factors responsible for such disorder. Chattopadhyay, Biswas Chatteraj and Basu (1979) have assessed state and trait anxiety in psychosomastics comparing them to psychotics, somatics and normals and found that state anxiety was high in the three patient groups as compared to normals, while trait anxiety was highest in psychosomastics followed by psychotics and somatics in that order. Shanmugam and Kaliappan (1982a, & 1982b) have also examined anxiety and adjustment problems, while Ansari, Sampurna, Udupa, and Agarwal (1979) have assessed anxiety and motives in psychosomatic cases. These studies have reported the incidence of significantly higher anxiety in psychosomatic cases in general as compared to
control groups. Some studies have tried to investigate the pattern of anxiety in coronary heart patients. Pestonjee and Bagchi (1978) have assessed anxiety in myocardial infarction cases at regular intervals after their discharge from the hospital. They noted that anxiety was higher in these patients during hospitalization as well as after discharge as compared to the normative score provided on Sinha's Manifest Anxiety Scale. Pestonjee and Bagchi (1979) examined coronary patients and normals to assess their level of anxiety. They found that coronary patients were more anxious about their health, success or failure of their ambitions, family, friendship, love, social relations and their future. Bhargava, Sharma and Agarwal (1980) have examined coronary patients to assess their anxiety level and neuroticism. They observed higher neuroticism, free floating and somatic anxiety in coronary subjects as compared to the normals. Recently, Katiyar, Gupta and Singh (1989) examined 30 males patients of myocardial infarction and 30 comparable normals. It was observed that myocardial infarction patients scored significantly higher on neuroticism than the controls.

Robbins (1972) and Wolf (1973) from their analytical work consider hostility as a pathogenic factor in psychosomatic conditions. Henryk and Rees (1973) investigated the direction of hostility in psychosomatics. Their findings revealed that psychosomatics tend to inhibit, "Bottle up," excessively control their aggression and internalize it. More recently, Seigel (1984) examined the relationship between anger and cardiovescualar risk among 213 adolescents aged
13-18 years old. Association of multi-dimensional nature of anger with indices of cardiovascular risk was found. Demborski, MacDougall, Williams and Haney (1985) found that high ratings of potential for hostility and anger-in were significantly and positively associated with severity of atherosclerosis. Deshields (1986) compared hypertensives to a chronic patient (diabetes) control group and a non-patient control group. He observed that hypertensive group yielded higher score on trait anger and anger externalization in comparison to the non-patient control group. Abernethy (1986) examined 130 black male bus drivers half of whom were hypertensives and half normotensives. Spielberger's Anger Expression Scale was used to assess anger-in and anger-out. It was observed that hypertensives experienced greater conflict around anger expression. In contrast, normotensives express their anger immediately and frequently or allowed the situation to determine the form of anger management. Boucette, Epstein and Ruddy (1987) compared 60 hypertensives aged 25-74 years with matched controls on proneness to anger. They found that hypertension can result from the inhibition of feelings of anger. Anthony (1989) examined the association of anxiety, anger / hostility and chest pain with coronary heart disease (CHD) in 542 patients (332 males and 210 females). Patients were administered State-Trait Personality Inventory, Anger Expression Scale and Cook-Medley Hostility Scale. It was found that a large proportion of patients with lower anxiety and higher anger / hostility scores were found to have
Conversely, a large proportion of patients with higher anxiety and lower anger / hostility scores were free of CHD.

Some Indian studies also tried to find an association between aggression, hostility and psychophysiological disorders. No study in Indian setting has so far related anger-expression or its various dimensions (anger-in, anger-out and anger-control) with psychophysiological disorder. Indira and Murthy (1977, 1979) examined hostility in psychosomatic neurotic and normal subjects and noted that the two clinical groups differed from normals in general punitiveness; psychosomatics tended to be highly intro-punitive as compared to the other two groups. Pestonjee and Bagchi (1979) examined coronary patients and normals to assess their level of aggression and found that coronary patients used obstacle-dominance and ego-defensive modes to cope with their aggression and it was directed more towards the external environment. In a similar study, Seth and Seth (1979) have observed that coronary heart patients were more intra-punitive as compared to normal controls. Barnes and Pai (1983) studied two groups of children, 20 in each with hysterical reactions and psychosomatic symptoms. Results showed that on direction of aggression, the patients with psychosomatic symptoms showed significantly higher mean on intro-punitive tendencies than the children with hysterical reactions.

A recently developed test called State-Trait Anger Expression Inventory (STAXI, Spielberger, 1988) has now been
used in research on behavioural medicine and health psychology. Relationships between anger and various indices of health/disease have been examined in a number of studies (Brooks, Walfish, Stenmark & Canger, 1981, Cavanaugh, Kanonchoff & Baruels, 1987, Johnson and Broman, 1987, Johnson-Saylor, 1984, Vitaliano, Maiuro, Russo, Mitchell, Carr & Van Citters, 1986). The STAXI scales have also been used extensively in relationship between anger and Type-A behaviour (Booth-Kewley & Friedman, 1987; Herchberger, 1985, Janisse, Edguer & Dyck, 1986, Krasner, 1986) and in the investigation of the contribution of the components of anger to elevated blood pressure and hypertension (Crane, 1982; Deshields, 1986; Gorkin, Appel, Holrayd, Saab & Stouder, 1986, Kearns, 1985, Schneider, Egan & Johnson, 1986).

Kinder, Curtis and Kalichman (1986) have used the STAXI scales in a series of studies on psychological factors that contribute to chronic pain. The scales have also been used in recent studies of anger management and treatment by Deffenbacher, Demm and Brandon, (1986), Deffenbacher, Eisworth and Stark, (1986), Demm and Deffenbacher, (1986) and Hazaleus and Deffenbacher, (1986) and in research on effects of situational factors on the experience and expression of anger by Aragona, (1983) Bromet and Leonard (1987), Buck (1987) and Pape (1986).

McMillian (1984) has used the STAXI scales to assess the anger experienced by patients undergoing treatment for Hodgkins disease and lung cancer. The STAXI scales have
also been used to examine relationship between anger-expression, hardiness and well-being and coping with stress (Johnson-Sayor, 1984; Schlosser & Schedey, 1985a, 1985b). It is evident from the review of literature that STAXI scales have not so far been used in India in the case of patients of various types, especially those with peptic ulcer and bronchial asthma that have been considered in the present study.

It is hoped that the availability of a Hindi version of STAXI (the most recent and sound measure of various components of anger) will stimulate research in India.

3.1.2 Life Events and Psychiatric Illness

Life events and crisis have been known to be a significant stressors causing psychiatric problems such as psychosis (Birley and Brown, 1970; Paykel and Myers, 1969) and neurosis (Cooper and Sylph, 1973).

In a comparative study, Paykel, Prusoff and Uhlemtuth (1971) observed that depressive patients reported three times more life events than the controls. Harder, Strauss, Kokes, Ritzler and Gift (1980) reported an association between general psychotic symptoms and life events. Elizabeth (1984) carried out an investigation on 97 patients with affective disorder (manic and depressive) and healthy controls. The results revealed that stress factors relating to family and marital conflicts, emotional and health problems, lack of
success and work load occurred more in these patients than healthy controls. Parry (1986) studied 193 working class mothers in U.K. and found that mothers who had suffered a severely stressful life events in the previous year had higher level of psychiatric symptomatology. Day, Nielsen, Korten and Ernberg (1987) reported in correlational study on life events and schizophrenia that socio-environmental stressors may precipitate schizophrenic attacks and such events tend to cluster in the 2-3 weeks prior to the onset of illness. Kaplan, Busner, Weinhold and Lenon (1987) studied seventeen, 13-19 years old and twenty one, 7-12 years old subjects and found that depressive symptoms were highly related to psychosocial life events. Cook (1989) studied the relation between life events and psychological distress in 191 normal community volunteers. The findings revealed an association between major life events and psychological distress. Recently, Ellicot, Hammen, Gitlin, Brown et al. (1990) in a longitudinal study on the course of bipolar disorder over 2 years in 61 out-patients, observed a significant association between life events and relapse or recurrence of the disorder.

Since the study of life events appears to be more meaningful in neurosis wherein psychosocial factors as compared to biological factors may be of more etiological significance, some researchers have paid attention to these groups. Neurotic patients have been found to experience
significantly more life events, particularly anxious and threatening ones, during the period of 3 months prior to illness (Cooper and Sylph, 1973; Miller, Ingham & Davidson, 1976). McKeon, Roa and Mann (1984) compared 25 patients of obsessive compulsive neurosis and matched controls. This study revealed that patients experienced significantly more events than the normals. In another study Yanping and Denson (1986) compared 105 neurotics with 103 normals in China. They found that patient group experienced more life event changes in the year prior to the onset of illness and had significantly higher level of stress than the control group.

Some attempts have also been made in India to investigate the association between life events and both psychosis and neurosis. Saxena, Mohan, Dube, Chawla and Sundaram, (1983) compared 166 psychiatric patients with an equal number of matched controls on stressful life events. The results showed that the patients experienced a significantly higher number of life events as compared to matched controls. Earlier, Wig, Menon and Chawla (1982) studied life events in short term prognosis of schizophrenia. They concluded that schizophrenics with more life events during six months period had slower recovery. Chattopadhyay and was (1983) compared 20 psychotics, 20 neurotics and 20 normal controls on relationship between desirable, undesirable and recent remote stressful life events. The results revealed that neurotics reported not only higher stress scores but also were higher on life time events and recent life events than
the normals. Bhatti and Channabasavanna (1985) observed that neurotics experienced multiple stressful life events as compared to normals. Sharma and Ram (1986) studied 84 patients of anxiety neurosis and 47 healthy controls. They observed that the patients had significantly higher stress scores for life time and past six months than the controls. Kulhara and Rao (1986) conducted a study on 24 obsessive compulsive neurosis patients and 24 healthy controls, and found that the patient group scored significantly higher than the control group on Presumptive Stressful Life Event Scale: PSLES (Singh, Kaur and Kaur, 1984). However, the two groups did not differ with regard to the occurrence of desirable life events. Recently, Sharma and Ram (1988) carried out a study on 84 patients of anxiety neurosis, and 47 controls were selected from the relatives of patients admitted to the medical ward. Their study revealed that the frequency and total stress score of life events during life time and 6 months prior to the onset of the illness was significantly higher in the patients as compared to the controls.

3.2 Life Events and Bronchial Asthma

Psychological factors are accorded a mixed reception in modern medical text, being acknowledged in some (e.g., Crofton and Douglas, 1981) but entirely ignored by others (Flenley, 1981). While considerable research has been devoted to role of psychological process in asthma, it has been contended that no consistent picture of the 'psychology' of asthma has
emerged. It has been proposed that psychosocial stresses may precipitate, exacerbate, or maintain asthmatic illness in physiologically predisposed individuals. The intermittent course of asthma suggests that stressful life events may precipitate acute attack and that each individual's ability to cope with stress and with his underlying disease may affect his susceptibility to exacerbate (Weiner, 1977). Weiner (1987) reviewed the etiologies and pathophysiology of asthma and also has discussed the interrelationship of asthma with stress. He further suggested that in addition to asthma triggered by allergens other non-specific stimuli such as stress can induce asthmatic attack. Earlier, Kieruff (1984) also made similar observations. Recently, Imandescu (1987) discussed psychosomatic aspect of asthma and other pulmonary disease and indicated that most frequently psychic stresses act as triggering effect for allergic syndrome related to respiratory disease. Earlier Aitken et al. (1969), Miklich, Rewey, Weiss and Kolton (1973), Plutchik, Williams, Jerret, Karasu and Kane (1978) suggested that severity of asthma symptoms can be affected by life stress. Goreczny, Brantley, Buss and Waters (1988) conducted a study on 12 asthmatic and 12 chronic obstructive pulmonary disease patients. They found that both total and impact score on daily stress inventory related significantly to the severity of symptoms of asthma. Earlier Douglas and Rayan (1986) studied 235 adults in a six months prospective study in Australia. High and low stress groups were identified by median split of data collected from
the life event inventory and daily hassel scale. They found that high stress group experienced significantly more episodes and symptom days of respiratory illness. Likewise, Teshima and his colleagues (Teshima et al. 1986) argued that the stress from daily life events influences certain biochemical changes which cause bronchial asthma. In contrary to the above findings, Spittle and Sears (1984) did not find any relationship between illness severity and psychosocial variables.

In India a few studies have been conducted to investigate the association between life events and bronchial asthma. Sampurna, Ansari, Agarwal and Udūpa (1979) investigated the role of social factors in stress disorders including asthma. They observed stresses inherent in the family set-up as one of the factors associated with asthma. In a review of stress researches in India Pestonjee (1988) reported asthma to be associated with stress. Earlier, Jha, Udupa and Kumar (1977) studied the effects of neurohormones in asthma. They observed certain biochemical changes during acute asthma attacks which are caused by stress. Ramachandran, Thiruvengadam, and Zackria (1977) reported parental loss and emotional factors in asthmatic patients as compared to tuberculous and normal subjects.

3.3 Personality and Bronchial Asthma

Earlier investigators observed that asthmatic patients showed a dependency need. Alexander (1950) observed an
underlying dependency conflict amongst asthmatics. Neuhaus (1958) reported asthmatic child as being characterized by lack of self confidence, over anxiety and a deep seated dependency on mother. Earlier, Schatia (1941) found high incidence of psychoneurosis in asthmatics and termed them as a compulsive type of personality. Sainsbury (1960) observed asthmatic to be above average on neuroticism. Other investigators have nevertheless found indication of passivity and dependence amongst children and adults with asthma using self report and projective tests (see Fine, 1963).

In India several researchers (Indira and Murthy, 1977, Ramachandran and Thiruvengadam, 1975, Ramachandran, Thiruvengadam, Zackria and Kathiresan, 1974, Shanmugam, 1979) have shown that bronchial asthma patients as a group were high on neuroticism and they were likely to show the pattern of those neurotic disorders coming under dysthymia (introverted-neurotics). In a review on asthmatic adults Ramachandran, Thiruvengadam and Zackria (1977) found asthmatic patients manifested excessive neurotic traits, dependency and difficulty in social relation. Sharma and Nand Kumar (1980) studied asthmatics and normals. They found that asthmatic patients showed neurotic constriction and dependency on mother. Desai, Gandhi and Shah (1981) noted that bronchial asthmatics were reserved, detached, emotionally unstable and dependent as compared to the control group. More recently, Khan and Husain (1990) studied 29 asthma patients, 23 heart patients, 21 peptic ulcer patients, 27 chronic gastritis patients and 50 normals from Saharanpur and Aligarh. To study
the personality adjustment Aligarh Adjustment Inventory (Umaruddin and Quadri, 1964) was used.

They found that asthmatic patients were significantly less maladjusted on almost all the areas of adjustment (such as home, health, social, emotional, financial and overall adjustment) from the other patient groups. However, when compared with normals, asthmatics were found to be significantly more maladjusted in all the areas of adjustment. Earlier, Shanmugam and Kaliappan (1982a) found that asthmatic patients were poor in emotional and health adjustment as compared to ulcer patients and normals.

3.4 Anxiety and Bronchial Asthma

Goreczny, Brantley, Buss and Waters (1988) theorized that anxiety may play a large role in the initiation and exacerbation of asthma symptomatology. This formulation has provided major impetus to studies on bronchial asthma vis-a-vis anxiety. Even earlier studies have shown that asthmatics as a group, are more anxious than normals. This has been documented through the use of observer rating scales (Rees, 1956), psychological tests (Dekker, Barendregy, & DeVries, 1961) and psychiatric interviews (Teiramaa, 1978). Earlier, Knapp, Mushatt, Nemetz, Constantine and Friedman (1970) have also pointed out high anxiety as a major antecedent factor prior to onset of an asthmatic attack. Other have also shown anxiety as a chief characteristic of
asthma patient (Mathe and Knapp, 1971; Lolas and VonRod, 1977). Angle and Baum (1977) also observed that 22 out of 23 asthma patients displayed symptoms of anxiety sufficient to interfere with their rehabilitation. Earlier, Rosenthal and his colleagues (Rosenthal et al. 1973) studied adult asthmatics with matched normal controls and neurotic. They found six source traits in these groups including anxiety. Asthmatics scored midway between neurotics and normals. Later, Erskine-Millis and Schonell (1981) also showed that anxiety is likely to accompany an asthmatic attack even though the acute episodes may have been precipitated by other factors such as allergy, infection, etc. In other words, anxiety can be a concomitant of asthma. Recently, Frost (1990) examined the existence of a possible difference in cognitive, emotional complex of asthmatic and healthy adolescents. Their findings documented that adolescents with more chronic and severe asthma experienced higher level of anxiety than their healthy counterparts.

Contrary to above findings, some earlier studies did not observe significant difference on anxiety for asthmatic patients vis-a-vis controls (see Franks and Leigh 1956). Recently, Goreczny, Brantley, Buss and Waters (1988) administered state-trait anxiety inventory (STAI) on 12 asthmatic and 12 chronic obstructive pulmonary disease patients. They also did not find any difference between the two patient groups on anxiety.

Some studies in India also have dealt with this issue. Ramachandran, Thiruvengadam, Zackria and Kathiresan (1974)
reported 3.3% of asthmatics manifesting anxiety as against 5% of T.B. patients. Ramachandran and Thiruvengadam (1975) further observed anxiety to be more predominant in extrinsic asthmatics. Indira and Murthy (1977) and Shanmugam (1979) showed bronchial asthma patients as a group were high on neuroticism and that they were likely to show the pattern of those neurotic disorders coming under dysthemia as proposed by Eysenck (1963). As anxiety is one of the core symptoms of dysthymics, the raised level of anxiety could normally be attributed to dysthymic nature of bronchial asthma (Sreedhar, 1978).

Earlier, Singh, Nigam and Srivastava (1977) studied 20 asthmatic children, 20 normals and 20 physically sick children. They found that asthmatic children have more anxiety in comparison with normals but not in comparison with physically ill children. Ramachandran, Thiruvengadam and Zackria (1977) examined parental loss and emotional factors in asthmatic patients as compared to tuberculous and normal subjects. They found that asthmatic patients manifested excessive anxiety and neurotic traits. They opined that precipitating factors of asthmatic attacks were emotional factors, followed by allergens and infections in that order. Agarwal and Sethi (1978) also observed asthmatics to be more anxious than normals. A. Nigam, D. Nigam, V. B. L. Saxena, and S. B. Singh (1979) assessed anxiety and extraversion-introversion in asthmatic children and three other comparable groups. They found that asthmatic children were highly anxious and more introverted. Sharma and Nand Kumar (1980)
studied asthma patients and normals using a number of self-report and projective tests. They observed asthmatic patients to be anxious, inhibited and insecure. Shanmugam and Kaliappan (1982b) compared four groups namely, asthmatics, ulcer patients, neurotics and normals. They found an anxiety continuum with normals occupying the lowest end and asthmatics and peptic ulcer patients on the other end. Nigam, Singh and Srivastava (1983) examined on level of anxiety in 35 asthmatics, 30 cases of functional disorder and 35 cases of somatic illness. They found that asthmatic patients had higher trait anxiety than the normals or patients with somatic illness. However, patients with functional disorders reported higher level of anxiety in this study. Recently, Sreedhar (1989a) compared anxiety of asthmatics, general out patients and neurotics. Taylor Manifest Anxiety Scale was used to assess the anxiety level of these patient groups. The results revealed that asthmatics had higher anxiety than out-patients, but did not differ significantly from neurotic patients. Since the patient-groups were included as controls, findings of this study also imply that anxiety was not incidental to their diseased condition as it was significantly higher in asthmatic patients than their diseased groups.

3.5 Anger, Aggression, Hostility and Bronchial Asthma

The role of emotion in bronchial asthma has been the subject of speculation and systematic research for many years.
Severity of the condition and its clinical course are strongly associated with emotion and mood states (Steptoe, 1984, and Steptoe and Holmes, 1985). As early as 1956, Ibor administered Medical Index Health Questionnaire on male asthmatics and normals. He reported that asthmatics manifested significantly more anger than the normal controls. Similar findings were reported by VonRod, Druke, Kanuss and Lolas (1979). Zimet, Gregory, Driks, Jerald and Kinsman (1979). Teiramaa (1979) studied psychosomatic patients including bronchial asthma and found that asthma attacks were related to anger. Matus (1981) reported that a variety of psychological conditions including anger provoke an asthma attack. Northup and Weiner (1984) examined 25 consecutive asthma in patients and 26 non-complicated asthma patients. Their findings revealed that 67% of the cases implicated emotional factors such as anger which help in predicting or aggravating asthmatic attacks. An earlier study by Knapp (1969) had also reported similar findings. Alcok (1960) in his study on 100 children of age group 7-11 years, reported repression of anger as one of the major factors in the predisposition of asthma. Hollaender and Florin (1983) and Florin, Freudenberg, and Hollaender (1985) exposed children with bronchial asthma and healthy control children to frustrating achievement situations with time pressure and criticism and to a joyful situation. They observed that in the frustrating situations the asthmatic children showed fewer facial expression of aggression and of emotion in general than did controls, although heart rate
increase indicated that they were physiologically more aroused by the experimental condition. It appears they tend to suppress anger. Marx, Zofel, Linden, Bonner, Franzen and Florin, (1986) studied 18 asthmatic children and their mothers and 18 healthy children and also their mothers. Both groups were subjected to two frustrating achievement situations. Facial expression of emotion and heart rate were recorded. They observed no deficit of emotion expression in the asthmatic group. To the contrary, asthmatic children showed more expression of anger/aggression than the controls. Heart rate data did not differentiate between target and control group. Chiari, Foschino-Barbaro, Nuzzo, Pecci and Rossi (1987) also reported that in regard to their own anger asthmatic children regarded anger as acted-out. Majority of their responses were assigned to action category.

With regard to aggression, Weiss (1966) studied 17 male and 15 female asthma children. Scores on mood objective check list showed a relationship between aggression and asthma. Straker and Tamerin (1974) reported a negative relationship between the severity of asthmatic and aggressive behavioural expression. Findings further revealed that asthmatic children have difficulty in showing anger or hostility and tend to replace these emotions with abnormal respiratory pattern. Weiner (1977) compared asthmatics with non-asthmatics and found asthmatics to be more aggressive.

Barendrgor (1957) compared patients with two psychosomatic disorders i.e. asthmatic and peptic ulcer. They
found that asthmatics showed more evidence of hostility and impulsive behaviour than the ulcer patients. Recently, Frost (1990) studied mild, moderate and severe adolescents asthmatics (both male and female) with their non-asthmatic counterparts. Common Belief Survey-Revised for Children (CBS-RC) and Multiple Affect Adjective Checklist (MAACL) were used to describe and compare the groups. Results showed that adolescents with more chronic and severe asthma had a tendency to experience higher levels of hostility.

Ramachandran, Thiruvengadam and Zackria (1977) have studied emotional factors in asthmatic patients as compared to tuberculoses and normal subjects. They observed that asthmatic patients manifested excessive anger and tension. Sharma and Nand Kumar (1980) studied asthmatics and normals. They observed asthmatic subjects were covertly aggressive.

3.6 Life Events and Peptic Ulcer

Some studies have been concerned with the role of stressful life events in peptic ulcer disease and have observed a positive association between the two (e.g., Alp, Court, and Grant, 1970; Piper, Greig, Shinner, Thomas & Crawford, 1978, Christodoulou, Alevizos and Konstantakakis, 1983).

Thomas, Greig and Piper (1980) compared on total life events the groups of ulcer patients (i) those who had onset of ulcer and (ii) who had an ulcer diagnosed for at least two years prior to their study. Equal number of matched normal-
controls were also considered for comparison. Life events over the previous two years were measured by a self administered inventory of 62 events based on those of Paykel et al. (1971) and Holmes and Rahe (1967). This study revealed that the two groups of patients separately or combined did not differ total life events from the controls. Other investigators have also reported no significant difference between peptic ulcer patients and controls on total number of life events experienced (e.g. Piper et al., 1978, & Piper et al., 1981). Later, Gilligan, Fung, Piper and Tennant (1987) observed 66 duodenal ulcer patients and 66 normal controls. They also did not find any significant difference in the frequency of life events in these two groups. More recently, Dinan, O'Kean, O'Boyle, Chua and Keeling (1991) compared 40 irritable bowel syndrome (IBS) patients and patients with peptic ulcer. Life Experiences Survey was used to assess the frequency of life events within past year. This study also showed that total frequency of life events within the previous year did not differ between patients of irritable bowel syndrome and peptic ulcer. Earlier, Feldman, Walker, Green and Weingarden (1986) compared patients with peptic ulcer, kidney stones and gallstones patients and healthy controls. Using Life Experiences Survey (Sarason, Johnson and Siegel, 1978), they also found that total frequency of life events experienced during the past year did not differ significantly among the study groups. Earlier, all these studies, taken together, point out the limitation of considering total life events (more especially the recent ones) when considering
disease groups. However, these findings do not rule out the possibility of a specific clustering of events leading to onset of ulceration.

As early as in 1937, Davies and Wilson pointed out that such clustering of life events occurred in peptic ulcer patients. According to them, the most often involved life events are related to work, financial difficulties and/or family illness. Thomas, Greig and Piper (1980) examined 120 chronic gastric ulcer patients and 120 matched normals. They found that peptic ulcer patients reported significantly more life events related to financial and legal aspects than the controls. Gilligan, Fung, Piper and Tennant (1987) studied 66 duodenal ulcer patients and 66 community controls. They used the life Events Schedule (Brown & Harris, 1978), a semi-structured face to face interview covering a wide range of life events and chronic difficulties. These researchers reported a positive association between duodenal ulcer and chronic difficulties relating to personal and family illness, death of a close family member, role change etc. They concluded that duodenal ulcer patients experienced significantly more of such chronic life difficulties/events than the controls. Earlier, Nasiry and Piper (1983) had also observed similar findings. Recently, Dinan et al. (1991) compared 40 patients of irritable bowel syndrome and 32 peptic ulcer. As stated earlier the patient group did not differ on total life changes / events. However, patients with irritable bowel syndrome reported more life events perceived
as negative than peptic ulcer patients. However, some studies have compared peptic ulcer patients with other disease groups. For example Feldman, Walker, Green, and Weingarden (1986) compared patients with peptic ulcer with two control groups i.e., patients with Kidney stones / gallstones and healthy controls. They also used Life Experiences Survey (Sarason, Johnson, & Siegel, 1978). In this study, the frequency of life events perceived as negative was found to be higher in peptic ulcer patients than in the two control groups. However, these groups did not differ on positive life events. On the basis of step-wise discriminant analysis, they further found relatively higher ranking of negative impact of life events, compared to total frequency of events. The negative impact of life events also emerged as one of the variables that best discriminated peptic ulcer patients from the normals as well as patient control groups. Later, Walker, Luther, Samloff and Feldman (1988) also investigated 49 patients with peptic ulcer and 52 controls including 32 patients with Kidney / gallstones. Step-wise discriminant analysis performed in this study also revealed that negative perception of life events caused significant discrimination between the two patient groups.

Very few Indian studies have considered specific clustering of life events vis-a-vis ulceration. Khorana (1983) reported that marital problems, financial pressure and family problems were positively associated with ulceration.
Similar results were also reported by Chakraborty, Shah and Parikh (1983). More recently, Banerjee and Vayas (1992) studied 50 patients of peptic ulcer and 50 controls consisting of relatives and attendants of patients. Using Presumptive Stressful Life Events Scale of Singh et al. (1984) they found that patients with peptic ulcer reported significantly higher number of stressful life events experienced in the preceding one year than the controls. However, Dutta, Jha and Shukla (1976), in an earlier study did not observe any specific pattern of life events in peptic ulcer patients as compared to the normal controls. In a bio-chemical study Verma, Singh, Gupta and Udupa (1977) showed that under stressful conditions peptic ulcer patients showed increased blood level of acetylcholine, histamine and plasma cholesterol.

In a laboratory study Ahmed and Rao (1977) fore-stomachtomized male Albino rats followed by pyloric legation in both normal and fore-stomachtomized rats. Autopsy was done 14 hours later. Results indicated that in normal rats stomach ulcer was formed due to considerable amount of acid which accumulated in fore-stomach.

3.7 Personality and Peptic Ulcer

Several personality factors have, at different times, been suggested as possible contributors to the genesis of duodenal ulcer disease (Magni et al. 1986a). As early as in 1950 Alexander, suggested that the patients with ulcer disease is characterized by strong dependence and passivity. Alp,
Court and Grant (1970) used the neuroticism scale questionnaire devised by Scheier and Cattell (1961) to test 181 patients with gastric ulcer. They found them to be more tough minded, depressed and submissive than the control subjects, thereby claiming that these gastric ulcer patients had an identifiable personality pattern. Piper, Greig, Thomas and Shinnners (1977) studied gastric ulcer patients and normal community controls from the same geographical area. Their findings revealed that male gastric ulcer patients were more neurotic and less extraverted than their controls. However, no significant differences were observed in the case of female groups. Liedtke et al. (1977) also observed anxiety and neuroticism features in ulcerative colitis patients. McIntosh, Nasiry, Frydman, Waller and Piper (1983) studied both male and female gastric ulcer patients, duodenal ulcer patients, community controls and patient control population. 16 PF Questionnaire was used to measure the personality traits of all these groups. Their findings showed that female duodenal ulcer and gastric ulcer patients were less emotionally stable than the community controls. Male gastric ulcer patients were less enthusiastic than community controls, male duodenal ulcer patients were less emotionally stable than community controls. Sjodin and Svedlund (1985) compared patients with peptic ulcer and irritable bowel syndrome (IBS) and normals. Swedish version of EPPS (Edwards Personal Preference Schedule) was used as a measure of personality. Findings showed that there was no significant difference
between IBS and peptic ulcer patients on personality profiles. This finding agreed with the general observation about psychosomatic patients having similar personality characteristics. When the patient groups were compared to normals, both the patient groups differed from normals in their needs of achievement and order. Further, peptic ulcer patients also had higher scores for dominance and endurance than the normal controls. Magni, DiMario, Rizzardo, Pulin and Maccarato (1986a) examined 79 patients with duodenal ulcer. They used 16 PF questionnaire. Their application of multivariate clustering procedure identified three subgroups of patients: 32 patients who could be described as dependent and anxious, 31 patients neurotic and anxious and 16 patients who could be described as having a balanced personality. Their results lent support to the idea that particular and different personality combinations exist among patients with duodenal ulcer. In another case-control study on personality pattern of patients with chronic gastric ulcer, Magni, DiMario, Trinciarelli, Conlon and Donzella (1986b) compared 28 gastric ulcer patients and 28 matched normal controls. They observed that peptic ulcer patients indicated a tendency to be taciturn, introspective adaptable, lacking in paranoid tendencies and dependent. Their earlier research relating to duodenal ulcer had shown that psychological characteristics most frequently emphasized in this respect were marked dependence neurotic type personality abnormalities (Magni et al. 1982 & 1984). Langeluddecke, Goulston and Tennant (1987)
studied 57 peptic ulcer patients, 77 CHD patients and non-patient controls. They found that gastric ulcer patients, on average, had higher neuroticism, psychotism and extraversion scores than their CHD counterparts but these differences did not reach the statistical significance. Feldman, Walker, Green and Weingarden (1986) studied patients with peptic ulcer, symptomatic Kidney / gallstones and healthy controls. Minnesota Multiphasic Personality Inventory (MMPI) was used to provide information related to personality. They observed that peptic ulcer patients were, on the average, more hypochondrial, pessimistic, dependent, immature, impulsive, socially alienated, introverted and restless than one or both the control groups. Earlier, Christodoulou, Alevizos and Konstantakakis (1983) had also observed increased introversion and neuroticism in male ulcer patients.

Studying the biochemical activities in relation to personality traits in peptic ulcer patients, Walker, Luther, Samloff and Feldman (1988) compared peptic ulcer patients with patients having Kidney stones / gallstones and healthy controls. They observed that peptic ulcer patients, who were characterized as severely disturbed, had significantly higher mean serum pepsinogen I (PG I) and serum pepsinogen II (PG II) concentration than their less disturbed peptic ulcer counterparts.

Some investigators in India have also tried to identify the specific personality pattern of ulcer patients. Dutta
(1978) examined the personality of duodenal and gastric ulcer patients and compared them with normal controls. He noted that ulcer subjects manifested a higher degree of neuroticism, anxiety, irritability and obsessionality with introversion tendencies as compared to the control group. Joshi and Banerji (1979) have reported that factors E and Q of the 16 PF were specific to peptic ulcer patients while factors A, F, M and O were common to peptic ulcer, tuberculosis and ENT patients. Using the Rorschach test, Dutta, Jha and Shukla (1976) did not, however, observe any specific diagnostic pattern in the peptic ulcer group as compared to normal subjects. Recently Khan and Husain (1990) compared 21 peptic ulcer patients, 29 asthmatic patients, 23 heart patients, 27 chronic gastritis patients and 50 normals on personality adjustment. They found that all the four patient groups were more maladjusted in all areas of adjustment as compared to normals they further reported that peptic ulcer patients were more maladjusted in social and health areas of adjustment than heart patients. When compared with asthmatic patients, peptic ulcer patients were more maladjusted in all the areas of adjustment except on home adjustment on which asthmatic reported higher score than their peptic ulcer counterparts. Likewise, when compared with gastritis patients, it was found that chronic gastritis patients were significantly more poorly adjusted in emotional and total adjustment than peptic ulcer patients.
3.8 Anxiety and Peptic Ulcer

Anxiety as an emotion has been identified as having important role in psychosomatic disorders of the gastrointestinal system. Persistence of intense psychophysiological reactions associated with anxiety states may ultimately lead to development of psychosomatic disorders (Beck 1972). Nevertheless the specific role of anxiety in peptic ulcer has not been properly identified. Earlier, Lader (1970) opined that anxiety might exist as a transient emotion, as a more chronic mood state, as a life long personality trait and as a morbid state of illness. Moreover, a number of researchers have not utilized multiple comparison groups.

Alp, Court, Grant (1970) compared 181 patients with a past history of gastric ulcer with a matched control group of 181 persons from non-clinical settings. They found that patients with chronic gastric ulcer were characterized by anxiety-prone personality pattern. Earlier, Thrope and Katz (1961) had identified intense feelings of anxiety as one of the causative forces operating in the development of peptic ulcer. Likewise, Rutter (1963) opined that anxiety had a better predictive value in the outcome of peptic ulcer than the physical or social factors. Magni, DiMario, Rizzardo, Pulin and Naccarato (1986a) studied 79 duodenal ulcer patients by using Italian version of 16 PF. The cluster analysis of personality profiles of the patients, as determined by the 16 PF, separated 79 patients with duodenal ulcer into three homogeneous subgroups, 32 dependent and anxious patients, 31 neurotic and anxious patients and 16 patients with a balanced
personality trait. A step-wise discriminant analysis revealed factor $Q_4$ (indicating anxiety) as the most important predictive variable among these three sub-groups. However, this study did not include a control group. But in another case-control study on chronic gastric ulcer patients, Magni, DiMario, Trinciarelli, Conlon and Donzella (1986b) found that the patients with gastric ulcer scored higher on $Q_4$ factor of the 16 PF which showed a higher degree of anxiety in these patients than their healthy counterparts.

Likewise in earlier studies by Magni and colleagues (Magni et al., 1982, 1984) it was observed that duodenal ulcer patients reported psychological characteristics, most frequently emphasized by high degree of anxiety.

Langeluddecke, Goulston and Tennant (1987) studied 31 duodenal ulcer, patients, 26 gastric ulcer patients, 77 CHD patients and matched community control. Using State-Trait Anxiety Inventory (STAI) they found no significant differences on trait anxiety among the three patient groups. However, when compared with community controls the gastric ulcer patients scored significantly higher on trait anxiety. They hypothesized that chronic difficulties of life produce chronic emotional arousal (anxiety or depression) which is associated with chronic autonomic and humoral changes that might in turn be linked to duodenal ulcer disease. Earlier, Piper, Greig, Thomas and Shinners (1977) examined gastric ulcer patients. They found a trend for gastric ulcer patients to be suffering more anxiety-neurosis than the community controls. Liedtke, Freyberger and Zepf (1977) reported an association of
anxiety and neuroticism in patients with ulcerative colitis. McIntosh, Nasiry, Frydman, Waller and Piper (1983) studied 79 (29 male and 50 female) duodenal ulcer patients, 79 (29 male and 50 female) community controls and 74 (26 male and 48 female) patients with cholelithiarsis. They found that female gastric and duodenal ulcer patients were more anxious than community controls. Later on, Sjodin and Svedlund (1985) compared 101 patients with irritable bowel syndrome (IBS) and 103 peptic ulcer patients. They used Swedish version of EPPS (Edwards Perosnal Preference Schedule). They found that the majority of the both IBS and peptic ulcer patients had symptoms relating to anxiety and both these groups differed significantly from normal controls. In other words, anxiety level did not differ between the two patient groups. Further, Talley, Fung, Gilligan and McNeil (1986) also observed higher anxiety in duodenal ulcer patients than in community controls. Some Western studies have tried to explain as to how anxiety is a contributor to peptic ulcer disease. Peters and Richardson (1983), in a case controlled study, reported that excessive acid secretion which contributes to ulceration is further increased with the emotions of anxiety. Noyes (1986) theorized, that anxiety could exhibit effects on gastrointestinal function via direct neural interaction with central control mechanism or via humoral modulation, e.g., by catecholamine.

Not many Indian researchers have addressed themselves to the relationship or role of anxiety in peptic ulcer disease.
In an early study Sharma and Rao (1974) showed that peptic ulcer patients had considerable amount of anxiety when compared with healthy controls. Dutta (1978) examined the personality of duodenal and gastric ulcer subjects and compared it with that of normal controls. He noted ulcer patients manifested a high degree of anxiety and neuroticism as compared to the control group.

Shanmugam and Kaliappan (1982b) found that ulcerative patients had higher trait anxiety than the normals. Sreedhar (1989b) studied 50 peptic ulcer patients, 60 hospital general out patients, 50 neurotics and 102 normals. The Manifest Anxiety Scale (MAS) of Taylor (1953) adopted for Indian culture (Rajalekshmi, 1973) was used to assess anxiety. The findings were as under: (i) Both male and female peptic ulcer patients had significantly higher anxiety than the hospital out-patients and normal controls and (ii) There were no significant differences on anxiety between peptic ulcer and neurotic patients. Since the level of anxiety observed in peptic ulcer patients was found significantly higher than that observed in the other out-patient group, Sreedhar (1989b) argued that the raised level of anxiety in peptic ulcer patients is not incidental to their diseased conditions. Jiloha and Vij (1989) considered 50 male peptic ulcer patients and equal number of normal controls. Using Maudsley Personality Inventory they found that patients with peptic ulcer had significantly higher score on neuroticism than the controls. Recently, Chaudhury, Singh and Augustine (1992) compared 25 duodenal ulcer patients, 25 patients with
dyspepsia, 25 normals and 25 patients with neurosis. All the patients were in-patients. Sinha's anxiety scale was used to measure the anxiety of the subjects. They found that patients with duodenal ulcer reported significantly more anxiety than the normals as well as from hospitalized patients with dyspepsia. However, duodenal ulcer patients reported significantly less anxiety than the neurotic. They also found that patients with dyspepsia reported significantly higher level of anxiety than the normals.

3.9 Anger, Aggression and Hostility in Peptic Ulcer

In a very early study Funkenstein, King and Drolette (1957) argued that persons who have learnt to react to frustration with "anger-in" would be more likely to suffer from peptic ulcer. Recently, Oken (1985) argued that an increase or decrease in secretion occurs in different emotional states, most often in anger, which in turn can lead to lesions resulting in ulceration. Hasenbring (1987) studied patients with gastric and duodenal ulcer and compared them with normal controls. He found that these patients showed more anger as specific response pattern to frustration than their normal counterparts. Walker, Luther, Samloff and Feldman (1985) studied 101 peptic ulcer patients, 32 patients with kidney / gallstones and 20 healthy controls. MMPI profile sorted peptic ulcer patients and controls into 4 clinical categories (normal, neurotic, personality disorder and severely disturbed). The mean MMPI profile of the severely
disturbed peptic ulcer group suggested that these patients suffered from extreme inadequacy and inability to express anger and hostility in an adaptive manner. In another study, Keltikangas-Jarvinen (1987) concluded that duodenal ulcer patients were highly disposed to Type-A behaviour pattern which is characterized by aggression / hostility / anger.

Some other studies have dealt with hostility vis-a-vis ulcer. In a case-controlled study, Peters and Richardson (1983) reported that an increment in gastric secretions that relate ulceration increased with heightened hostility. Sjodin and Svedlund (1985) compared patients with irritable bowel syndrome, peptic ulcer and normal controls. Their findings revealed that hostile feelings were reported significantly more often among female peptic ulcer patients and irritable bowel syndrome patients than in controls. Langeluddecke, Goulston and Tennant (1987) compared on hostility the patients with gastric ulcer, duodenal ulcer and coronary heart disease (CHD). They found that hostility score was the highest in patients with gastric ulcer, followed by duodenal ulcer and the lowest in CHD group. However, these differences did not approach statistical significance.

Recently, Sahar and Kureshi (1990) conducted an inter-regional study of the relationship between repression sensitization and peptic ulcer. They studied both male and female 100 peptic ulcer patients from Srinagar and 100 from Aligarh. They argued that persons who have learnt to react to
frustration with 'anger-in' (repression) would be more likely to suffer from peptic ulcer. The defensive strategies for such "inhibitors" or suppressors have earlier been found to include denial, repression, inability to express the feelings of anxiety. In contrast, in the case of facilitators or sensitizers, intellectualization, sharpening and expression are used as means for reducing negative emotions by way of approaching it. Sensitization is seen as a better protection than repression (Byrne, 1964). Sahar and Kureshi (1990) found that male patients on the whole, irrespective of their regional status, were more repressed or inhibited, whereas female patients were more sensitized or facilitated. They have used these findings to interpret the greater incidence of peptic ulcer in males attributing it to their greater 'swallowing-in' reaction to frustrating conditions. With regard to the finding that females tend to be sensitizers in greater measure, they relate this observation with less proneness in females to gastrointestinal disorder. They argued that probably sensitization tends to act as antedote to negative emotions (like anxiety, anger, etc.). They concluded that males' repression seemed to be at the root of their greater susceptibility to peptic ulcer.

Overview

Studies reviewed in this chapter highlight the association not only of life stress but also of negative emotion anxiety and
anger with psychophysiological disorders including bronchial asthma and peptic ulcer on diverse groups of patients from different countries.


Another group of studies have also concentrated on the total frequency of life event occurrence and specific clustering of events in peptic ulcer patients. All these studies taken together did not find any significant difference
between the patient and control groups in terms of occurrence of life events (Dinan et al. 1991, Gilligan et al. 1987, Piper et al. 1978, Piper et al. 1981, Thomas et al. 1980). However, a specific clustering of life events in peptic ulcer patients has also been reported in some Western studies (Davies & Wilson, 1937, Feldman et al. 1986, Gilligan et al. 1987, Nasiry & Piper, 1983, Thomas et al. 1980). A striking fact which emerges from this review is that the identification of the specific clustering of life events in asthmatic patients in different age groups has been, by and large neglected. This in contrast to the identification of specific clustering of events not only in peptic ulcer disease as indicated earlier but also with regard to clustering of life events leading to the onset of other psychophysiological disorders like general psychosomatic symptoms (Hillevi, 1987) coronary patients (Bhargava, Sharma & Agarwal, 1982), myocardial infarction and angina pectoris (Misra, 1989). All these studies taken together point out that since a specific clustering of life events occur, it implies that instead of considering the total number of occurrence of life events (recent or remote) it might be fruitful to identify such clustering of life events vis-a-vis different psychophysiological disorders including bronchial asthma and peptic ulcer.

The investigators have also attempted to determine the personality profiles of patients with various psychophysiological disorders and found higher measures of
anxiety, neuroticism and hypochondriasis in dyspepsia (Talley, Phillips, Bruce, Twomey, Zinmeister, & Melton, 1990), higher maladjustment in cardiac and gastritis patients (Khan & Husain, 1990) and psychotism in coronary heart disease patients (Langeluddecke et al. 1987). The personality pattern in asthmatic and peptic ulcer patients has also been studied by several investigators. The most frequent researched dimension of personality has been neuroticism. For instance asthmatic patients have been shown to possess a neurotic type personality (e.g., Agarwal & Sethi, 1978, Neuhaus, 1958, Schatia, 1941, Sharma & Nand Kumar, 1980). Likewise, peptic ulcer patients are also higher on neuroticism than their normal counterparts (Christodoulou, et al. 1983, Dutta, 1978, Langeluddecke et al. 1987, Magni et al. 1982, Magni et al. 1984). It seems that most of the studies agree that patients of bronchial asthma as well as peptic ulcer are high on neuroticism.

As can be seen from the preceding review, anxiety has also been shown as an inherent part of other physical/psychophysiological disorders such as irritable bowel syndrome (Latimer, 1983, Sreedhar, 1979), irritable colon syndrome (Hislop, 1971), ulcerative colitis (Liedtke, Freyberger & Zept, 1977), dyspepsia (Talley et al. 1986), coronary heart disease patients (Bhargava, Sharma & Agarwal, 1980, Katiyar et al. 1989, Meltzer, 1973, Miller, 1965, Pestonjee & Bagchi, 1978; Pestonjee & Bagchi, 1979) and also in chronic pain (Garron & Leavitt, 1983, Kinder et al. 1986, Mersky, 1980,

As pointed out earlier, the role of anger as a negative emotion vis-a-vis various psychophysiological disorders including bronchial asthma and peptic ulcer has not been investigated to the desired extent. However, certain studies have concentrated on the role of hostility and aggression in bronchial asthma (Barendrgt 1957, Frost, 1990, Straker & Tamerin, 1974, Weiner, 1977, Weiss, 1966). Likewise, role of hostility and aggression in peptic ulcer has also been studied by other investigators (Keltikangas-Jarvinen, 1987, Langeluddecke et al. 1987, Peters & Richardson, 1983).

However, some studies, using different assessment techniques revealed that asthmatic patients manifested more anger than their control counterparts (Thiruvengadam &
Zackria, 1977, Vonrod et al. 1979, Zimet et al. 1979). Other investigators have also observed greater suppression of anger in asthmatic patients (Alock, 1960, Florin et al. 1985, Hollaender & Florin, 1983, Sharma & Nand Kumar, 1980). Two studies, however, reported more expression than suppression of anger in asthmatic patients (Chiari et al. 1987, Marx et al. 1986). This highlights the inconsistency in the general trend of results.

Studies on ulcer patients also show that these patients reported more anger than their comparable counterparts (Hasenbring, 1987, Oken, 1985). The evidence of suppression of anger in peptic ulcer patients has also been reported in some other studies (Funkenstein, et al. 1957, Sahar & Kureshi, 1990, Walker et al. 1988).

With regard to the paucity of related studies on the role of anger in such disorders, one reason is that researchers used the concept of hostility, anger and aggression synonymously. However, fully standardized measures of Trait anger and anger Expression were not available. However, the recent development of State-Trait Anger Expression Inventory: STAXI (Spielberger, 1988) and its Hindi version (Krishna, 1988 and Rana, 1991) has stimulated research in this area in the West as well in India.

Viewed as a whole the following issues/gaps emerge in this area of research:

(i) Most of the studies have been conducted in the Western set-up, and their findings cannot be safely generalized to the
oriental set-up.

(ii) Most of the studies did not have patient controls.

(iii) None of the studies have so far considered together the role of variables of life stress, anxiety and anger.

(iv) None of the studies have made comparative study of two patient groups (bronchial asthma and peptic ulcer) with patient controls on these selected variables.

(v) A few multivariate attempts have been made to see the joint effect of the selected variables.

The review further highlights the obvious gaps in such research in the case of studies on asthma and peptic ulcer in India.

In view of the objectives of the study, the research gaps which have pinpointed and the general trend of findings, following hypotheses were framed:

### 3.10 Hypotheses

1(a) Patients with bronchial asthma or peptic ulcer would report more number of stressful life events during the last one year than their surgical/orthopaedic counterparts.

1(b) Patients with peptic ulcer would report more number of stressful life events during past one year than their counterparts with bronchial asthma.

II. There would be a disease-specific (bronchial asthma or peptic ulcer) clustering of life events during the past one
year as distinguished from their surgical/orthopaedic-control counterparts.

**III(a)** Patients with bronchial asthma or peptic ulcer would report more negative life changes than their surgical/orthopaedic counterparts. However, there would be no difference on positive life changes.

**III(b)** Patients with peptic ulcer would report more negative life changes than their counterparts with bronchial asthma.

**IV(a)** Patients with bronchial asthma or peptic ulcer would report more trait anxiety than their surgical/orthopaedic counterparts.

**IV(b)** Patients with peptic ulcer would report more trait anxiety than their bronchial asthma counterparts.

**V(a)** Patients with bronchial asthma or peptic ulcer would report more trait anger than their surgical/orthopaedic-control counterparts.

**V(b)** Patients with bronchial asthma would report more trait-anger than their counterparts with peptic ulcer.

**VI(a)** Patients with bronchial asthma or peptic ulcer would report suppression of anger (Anger-in), less expression of anger (Anger-out), less control of anger (Anger-control) and more overall anger expression (AX/EX) than their surgical/orthopaedic counterparts.
VI(b) Patients with peptic ulcer would report more suppression of anger, less expression of anger and less overall anger than their bronchial asthmatic counterparts.

VII. A subset of life stress, anxiety and anger measures would be a significant discriminator among the three patient groups (bronchial asthma or peptic ulcer and their surgical/orthopaedic control counterparts).