CHAPTER-VI

DISCUSSION

6.1 Stressful Life Events: A Comparative Study Among the Two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

Vide Appendix-IV it is clear that the patients with bronchial asthma did not experience significantly higher number of total recent stressful life events when compared to their patient-controls. Likewise, neither the patients with peptic ulcer differed on total recent stressful life events from the patient-controls, nor from their counterparts with bronchial asthma.

Only one study by Goreczny et al. (1988) in the United States considered the total count of daily hassels in the case of asthmatic patients. They, in contrast to the finding of the present study, found greater frequency of daily hassels in the asthmatics when compared to the chronic obstructive pulmonary disease patients. It may be pointed out that the comparison patient-group in this study was different from the one considered in the present study. This inconsistency could possibly be due to the difference in the severity of the disease, a different type of control type. However, the study by Goreczny et al. (1988) suggests that, perhaps, the consideration of the daily hassels could be a better index of accumulating life stress than the ones based on the recall of
life events for one year or more. Moreover, there is a paucity of research on life events and bronchial asthma.

Unlike the asthmatic patients, a number of studies have been concerned with the total life events vis-a-vis peptic ulcer disease. Thomas et al. (1980) compared ulcer patients and equal number of matched normal controls on the total occurrence of life events. They however, did not find any significant difference on the total occurrence of life events between the patient and control groups.

Feldman et al. (1986) compared peptic ulcer patients with patients of Kidney/Gallstone and healthy controls on overall frequency of life events experienced during the past year. They also did not observe any significant difference on overall frequency of the occurrence of life events between the patient and control groups. Similar finding was reported by Gilligan et al. (1987). More recently, Dinan et al. (1991) also did not observe any significance difference on the total frequency of life event occurrence between peptic ulcer and irritable bowel syndrome patients. However, Banerjee and Vyas (1992) compared patients with peptic ulcer and normal controls. They found that patients with peptic ulcer reported significantly higher number of stressful life events in the preceding one year than the controls.

In a review of the literature dealing with other physical/psychophysiological disorders, Rabkin and Struening (1976) observed "no evidence of increased frequency of life events in a range of physical diseases." Sevenson and Theorell (1983) also did not find any significant difference
on total mean number of life events between the groups of hypotensives and hypertensives. Talley and Piper (1986) compared 68 dyspepsia patients and equal number of matched controls. They also did not observe any significant difference on total number of life events experienced during the past one year. Other investigators also uniformly agree that the number of positive and negative life events are not different in patients with functional dyspepsia when compared with healthy controls or patients with organic causes of abdominal pain (e.g., Hui, Shiu & Lam, 1990, & Stockton, Weinman, & McCall, 1985).

It appears that the consideration of an overall index of recent life events in the patients with psychophysiological disorders including bronchial asthma and peptic ulcer does not document any differential occurrence of total recent stressful life events. It implies that it would be worthwhile to attempt the identification of specific clustering of life events, if any, in a particular psychophysiological disorder, and to see whether such a clustering differs from one to another psychophysiological disorder by including patient-controls in the design of the study.

6.1.1 Frequency of Specific Life Event Occurrence among two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

Table 5.4 illustrates specific clusterings of life events for the patients with bronchial asthma as well as those
with peptic ulcer. The findings has been that the patients with bronchial asthma predominantly report events that can broadly be covered under personal, inter-personal and job-related conflicts including pending retirement. In contrast, the peptic ulcer patients predominantly experience events that were broadly related to financial problems, bereavement and change in eating habits. This implies that there is, to a large extent, a differential clustering of life events for these two patient groups i.e., bronchial asthma and peptic ulcer.

Only one Indian study by Ramachandran et al. (1977) compared patients of bronchial asthma with tuberculosis patients as well as normals. They found that asthmatic patients reported more parental loss, emotional problems, dependency, and difficulty in social relations than their counterparts with tuberculosis. The paucity of such comparative research on the identification of specific/unique clustering of life events (recent or remote) is obvious. As such, more research in this area is called for.

With regard to peptic ulcer, however, a number of studies have dealt with the issue of the clustering of life events. As early as 1937, Davies and Wilson pointed out that a specific clustering of life events precedes peptic ulcer disease. The most often life events pertained to work, financial difficulties and/or family illness. Later on, a number of studies revealed that a small but brief increase in acid secretion takes place during stressful situations. In
most instances these changes in gastric function occur soon after the inhibition of a specific emotion or stressful situation (e.g. Mahl, 1950, Mittelmann & Wolf, 1942, Szasz, Levin, Kirsher & Palmer, 1947). Thomas et al. (1980) have also observed significantly more life events related with financial and legal implications for such patients. Likewise, Gilligan et al. (1987) observed that duodenal ulcer patients had significantly more chronic life difficulties than those related to personal and family illness, death of a close family member and role change, etc. Earlier, Nasiry and Piper (1983) also arrived at similar conclusion. Some Indian investigators have also observed similar type of clustering of life events in ulcer patients. Khorana (1983) reported that marital problems, financial pressure and family problems were positively associated with ulceration (ulcerative colitis). Chakraborty et al. (1983) also reported similar findings. Ghosh (1989) found that peptic ulcer patients experienced more of intrafamilial, personal, interpersonal and job-related life events than the surgical/orthopaedic controls. However, in an earlier study, Dutta et al. (1976) did not observe any specific pattern of life events in peptic ulcer patients. It appears that the clustering of life events that precedes such an illness is more determined by remote than by recent life events and is also dependent of the nature/type of life events included in the scale as well as the socio-demographic characteristics of the patient groups (e.g., gender, marital status social class, etc.).
In other psychophysiological disorders, the clustering of life events has also been observed. For example, Hillevi, (1987) observed a set of interpersonal problems to be associated with psychosomatic symptoms in both boys and girls. In India, Bhargava et al. (1982) noticed in the coronary patients more major changes in work responsibility and death of close relatives as compared to normal controls. In the case of patients with essential hypertension, Ghosh (1989) also observed a specific clustering of life events that related primarily to personal, interpersonal, intrafamilial, job retirement and pending retirement. Misra (1989) also found that bereavement, conflicts at job and in married life coupled with change in social activities clustered to precede coronary heart disease (CHD).

In sum, the foregoing discussion highlights that it is more meaningful and clinically more useful to identify, to the extent possible, the peculiar clusters of stressful life events vis-a-vis various psychophysiological disorders so as to plan for efficacious intervention programmes covered under the areas of health psychology and behavioural medicine.

6.2 A Comparative Study of Negative and Positive Life Changes Among Two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

Another finding in the present study is that both the patient groups (bronchial asthma and peptic ulcer) reported higher negative life change score when compared to the patient
controls. However, there was no significant difference on negative life changes between the two patient groups (see Table 5.5). As far as positive life changes were concerned, there was no significant difference among the three patient groups (see Table 5.6).

With regard to bronchial asthma several investigators have suggested that the severity of asthma symptoms can be affected by emotions and life stress (e.g., Aitken et al., 1969, DeArujo et al., 1973, Miklich et al., 1973, Plutchik et al., 1978). Weiner (1977) also proposed that psychosocial factors may precipitate, exacerbate or maintain asthmatic illness in physiologically predisposed individuals. Douglas and Rayan (1986) found that high stress group experienced significantly more episodes and symptom days of this respiratory disorder. Teshima et al. (1986) argued that the stress from daily life events influences certain biochemical changes which cause bronchial asthma. Weiner (1987) argued that in addition to asthma triggered by allergens, other non-specific stimuli such as stress can induce asthmatic attack (See also Kieruff, 1984). Imandescu (1987) showed that more frequent psychic stresses have a triggering effect for allergic syndromes related to respiratory disease, Goreczny et al. (1988) found that both total and impact score on daily stress inventory related significantly to the severity of symptoms of asthma. However, Spittle and Sears (1984) found no relation between illness severity and psychosocial variables.
The role of stressful life events in peptic ulcer disease has been widely documented in the Western studies (e.g., Alp et al. 1970, Piper et al. 1978, Christodoulou et al. 1983). Keller et al. (1986) compared patients with gastrointestinal ulcer and myocardial infarction. He found that gastrointestinal patients reported more psychosocial stress whereas myocardial infarction patients experienced more exogenous stresses. Thus it seems that different types of stresses might be promoting different types of psychophysiological disorders. Feldman et al. (1986) compared patients with peptic ulcer, kidney/gallstones and normal healthy controls. They found that the frequency of life events perceived as negative was higher in peptic ulcer patients than both the control groups. Earlier, Verma et al. (1977) had shown that under negative stressful conditions peptic ulcer patients show increased blood level of acetycholine, histamine and plasma cholesterol which not only contribute, sustain but also enhance this disease. However, Piper et al. (1981) did not find any relationship between negative life events, amount of distress produced and degree of adaptation required and ulceration.

As is evident, all these studies were related to negative life events (Changes) but did not include positive life changes. Since positive life changes have not been observed to differ in three patient groups in the present study, it seems that consideration of such positive life changes and their possible impact vis-a-vis asthma/peptic ulcer, maynot be as fruitful as it was initially anticipated.
With regard to other physical/psychophysiological disorders similar findings have also been reported. Dohrenwend and Dohrenwend (1974) reported a positive and significant relationship between life stress and illness. Kijek (1982) found a similar relationship between life change/event and health status. Pefley (1986) studying 35 males and 35 females found that life events were more significantly related to illness (e.g., common cold, flu and other minor illness). Other studies have also found a significant relationship between life stress and illness for instance, cardiac death (Rahe and Lind, 1971), myocardial infarction (Edward, 1971) and major health problems, tuberculosis (Rabkin & Struening, 1976).

In India Lal, Ahuja and Madhukar (1982) observed hypertensive patients to have relatively higher mean distress ratings than the normals. Bandopadhyay et al. (1986) observed that two types of cancer patient groups showed a high degree of exposure to stressful life events prior to the onset of disease than their control counterparts. Srivastava and Broota (1987) reported that three groups of cancer patients (diagnosed, pre-diagnosed and treated) experienced greater stress than the normal controls. Earlier, Udupa (1980) also observed that stress plays an important role in the development and progress of carcinoma in various parts of the body. The preceding reference to the studies dealing with stressful life events vis-a-vis various psychophysiological/physical disorders attest to the gaps/paucity of relevant research in the area, particularly, with patient-controls.
6.3 Trait Anxiety: A Comparative Study of two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

This study further revealed that both the patient groups (asthmatic and peptic ulcer) reported higher trait anxiety when compared to the patient- controls. However, there was no significant difference on trait anxiety between the two patient groups (see Table 5.7). Such a finding is, by and large, consistent with the earlier research in different countries. For instance, the asthmatics, as a group, have been reported to be more anxious than the normals (Rees, 1956; Dekker et al. 1961, & Teiramaa, 1978). Further, Knapp et al. (1970) showed high anxiety as a major antecedent factor prior to onset of an asthmatic attack. Other investigators have also shown anxiety to be a chief characteristic of asthma patients (Mathe & Knapp, 1971, Biro & Seby, 1977, Lolas & VonRod, 1977). Moreover, Agle and Baum (1977) also observed that 22 out of 23 asthma patients displayed symptoms of anxiety which were sufficient to interfere with their rehabilitation. In addition, Erskine-Millis and Schonell (1981) argued 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. Recently, Frost (1990) also documented that the adolescents with more chronic and severe asthma experienced higher level of anxiety than their healthy counterparts. Some studies, however, did not observe such significant difference on anxiety for asthmatic patients vis-a-vis controls.
& Leigh, 1956, Rosenthal et al. 1973). Recently, Goreczny et al. (1988) also did not find any difference on trait anxiety (measured by the A-Trait scale of the STAI).

Some studies in India have also dealt with this issue. Ramachandran and Thiruvengadam (1975) observed anxiety to be more predominant in extrinsic asthmatics than the normals. Indira and Murthy (1977) and Shanmugam (1979) also showed that bronchial asthma patients, as a group, were high on neuroticism. They further argued that such patients are likely to show the pattern of those neurotic disorders coming under dysthemia as proposed by Eysenck (1963). In continuation Sreedhar (1978) also argued that since anxiety is one of the core symptoms of dysthemics, the raised level of anxiety in asthmatics could normally be attributed to dysthetic nature of bronchial asthma. Agarwal and Sethi (1978) also observed asthmatic to be more anxious than the normals. Nigam et al. (1979) assessed anxiety and extraversion in asthmatic children and three comparable groups. They found asthmatic children to be highly anxious. Sharma and Nand Kumar (1980) compared asthmatics and normals on a number of self-report and projective tests. They observed asthmatic patients to be more anxious and inhibited than the controls.

In other group of studies investigators have considered patient-controls as comparable group. Singh et al. (1977) examined 20 asthmatic, 20 normals and 20 physically sick
children. They also found that the asthmatics reported significantly more anxiety than the normals. However, these differences did not emerge in comparison to physically ill children. Likewise, Ramachandran et al. (1977) showed that asthmatic patients manifested excessive anxiety and neurotic traits than those with tuberculosis and normals. They opined that precipitating variables of asthmatic attacks, were emotional factors followed by allergens, and infections in that order. Shanmugam and Kaliappan (1982b) compared four groups, namely, asthmatics, ulcer patients, neurotics and normals. They found a trait anxiety continuum with normal controls at the lowest end, followed by ulcer patients, asthmatics at the middle and anxiety neurotics are at the extreme end of this continuum. Nigam et al. (1983) also compared 35 asthmatics, 30 cases of functional disorders, 35 cases of somatic illness and 35 normals. All of the patients and normals were children. They found that asthmatic patients had relatively higher trait anxiety not only as compared to the normals but also from the patients with somatic illnesses. Similarly, Sreedhar (1989a) noticed that asthmatic patients reported higher anxiety than the general out-patients, but the asthmatics did not differ significantly from their neurotic-patient counterparts.

In the case of development of peptic ulcer, trait anxiety has also been identified as one of the causative factors (Thrope and Katz, 1961). Moreover, Rutter (1963) opined that anxiety had a better predictive value in the
outcome of peptic ulcer than the physical or social factors. Alp et al. (1970) also found the patients of gastric ulcer to have an anxiety-prone personality, while no such personality pattern was observed in the control group from non-clinical set-up. Magni and his colleagues (Magni et al. 1982, & Magni et al. 1984) studied duodenal ulcer patients. They identified certain physiological features in these patients which most frequently characterize high degree of trait anxiety. Likewise, McIntosh et al. (1983) observed that female gastric and duodenal ulcer patients were more anxious than the community controls. Talley et al. (1986) observed higher anxiety in duodenal ulcer patients than the community controls. Magni et al. (1986a) cluster analyzed 79 duodenal ulcer patients and thus separated them into three homogenous sub-groups. These sub-groups were named as dependent and anxious (n=32) neurotic and anxious (n=31) and balanced personality (n=16). Thus the majority of these patients reported anxiety/neuroticism as major component of their personality. Magni et al. (1986b) also observed higher anxiety in the gastric ulcer patients than in controls. Considering patients as one of the comparable groups, Sjodin and Svedlund (1985) found that majority of the patients with irritable bowel syndrome and peptic ulcer had symptoms relating to anxiety, and both these groups reported significantly higher trait anxiety than the community controls. Langeluddecke et al. (1987) reported no significant difference on trait anxiety between CHD patients and ulcer
patients (duodenal and peptic ulcer). They also reported that only gastric ulcer patients had significantly higher trait anxiety than the community controls.

Some researchers in India have also addressed themselves to the relationship or role of anxiety in peptic ulcer disease. Sharma and Rao (1974) showed that peptic ulcer patients have considerable amount of anxiety when compared with healthy controls. Dutta (1978) also observed that ulcer patients manifested a higher degree of anxiety and neuroticism as compared to the control group. In a comparative study of 50 male peptic ulcer patients and equal number of normal controls, Jiloha and Vij (1989) also confirmed peptic ulcer patients to be higher on neuroticism. As quoted earlier Shanmugam and Kaliappan (1982b) had shown that though peptic ulcer patients had higher trait anxiety than the normals but they had less trait anxiety as compared to the asthmatics. This is consistent with the findings of this study. Sreedhar (1989b) compared 50 peptic ulcer patients, 50 hospitalized general out patients, 50 neurotics and 102 normals. This study revealed that regardless of gender, peptic ulcer patients had significantly higher trait anxiety than the hospital out patients and normal controls. He further observed that peptic ulcer patients did not differ significantly on trait anxiety from their neurotic counterparts. Since the level of anxiety observed in the peptic ulcer patients was found to be significantly higher
than that observed in the other out patients, Sreedhar (1989b) argued that the raised level of anxiety in peptic ulcer patients is not incidental to their disease condition. More recently, Chaudhury et al. (1992) also reported that duodenal ulcer patients are significantly more anxious than the hospitalized patients with dyspepsia and normal controls and significantly less anxious than the neurotics.

Some other studies have also tried to explain as to how trait anxiety acts as a contributor to peptic ulcer disease. Peters and Richardson (1983), in a case controlled study, observed that excessive acid secretion which contributes to ulceration is further increased with the emotion of anxiety. Noyes (1986) theorized that trait anxiety could exhibit effects on gastrointestinal function via direct neural interaction with central control mechanism or via humoral modulation e.g., catecholamine.

The role or association of anxiety has also been considered in other physical/psychophysiological disorders such as, hyperthyroidism, hypertension, chronic pain, angina pectoris, cardiac arrhythmia, chronic obstructive lung disease, embolism, hypoglycemia, pernicious anemia and dyspepsia (e.g., Miller, 1965, Whitehead et al. 1977, Schuckit, 1983, James et al. 1986, Talley et al. 1986, Mersky, 1980, Garron & Leavitt, 1983, Romano & Turner, 1985). Kinder et al. (1986) 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 investigators have also explored association of anxiety in other psychophysiological disorders. As compared to controls, relatively higher trait anxiety was found in amenorrhoea, psychosomatic and CHD patients (e.g., Ansari et al. 1979, Bhargava et al. 1980, Chattopadhyay et al. 1979, Chaudhuri, 1977, Katiyar et al. 1989, Shanmugam & Kalippan, 1982b).

All such research, however, does not permit cause-effect generalization since such studies do not clarify as whether high trait anxiety in a person is an antecedent of psychophysiological disorders like bronchial asthma or peptic ulcer or it is a concomitant of that disease itself. Even if trait anxiety turns out to be both a predisposing as well as concomitant variables, it might be useful to identify how much of it is an antecedent and how much of it is a concomitant of the disease.

6.4 Trait Anger: A Comparative Study of Two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

In this study the concept of trait anger has been operationalized as "the disposition to perceive a wide range of situations as annoying or frustrating, and the tendency to respond to such situations with more frequent elevations in state anger."
It was seen that asthmatic patients reported significantly higher trait anger than the surgical/orthopaedic controls. However, peptic ulcer patients did not differ significantly on trait anger from the patient-controls. Further, the two patient groups (bronchial asthma and peptic ulcer) did not differ significantly on trait anger between themselves (see Table 5.8).

As early as 1956, Ibor reported that the asthmatics, as a group, manifested significantly more anger than the normals. Similar findings were also reported by VonRod et al. (1979) and Zimet et al. (1979). Teiramaa (1979) studied various groups of psychosomatic patients including the group having bronchial asthma. They concluded that asthmatic attacks were related to anger. Later, Matus (1981) argued that a variety of psychological conditions including anger may provoke asthma attacks. A psychological stimulant acting as a precipitant can affect changes in respiration, and may also act as an agent that elicits respiratory distress. Northup and Weiner (1984) compared hospitalized asthmatic in patients and non-complicated asthma patients. They observed that 67% of the hospitalized asthmatic cases implicated anger which aggravated asthmatic attacks. Earlier, Knapp (1969) reported similar findings with regard to aggression vis-a-vis bronchial asthma.

In Indian set up, Ramachandran et al. (1977) identified certain emotional factors in asthmatic patients and tuberculosis patients and normals. They observed that
asthmatic patients specifically manifested excessive anger and had more tension than the other two groups.

As indicated earlier, 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 or peptic ulcer. Hasenbring (1987) compared patients with gastric and duodenal ulcer vis-a-vis normal controls. He found that these patients showed more anger as specific response pattern to frustration than their normal counterparts. It may however, be noted that the two ulcer groups did not report different levels of trait anger.

Some researchers have also examined the role of trait anger in other psychophysiological disorders. Siegel (1984) examined the relation between anger and cardiovascular risk among 213 adolescents. He observed an association of multidimensional nature of anger with indices of cardiovascular risk. Deshields (1986) compared a group of hypertensives to a chronic patient (diabetes) and a non-patient control groups. Only hypertensive patients reported higher score on trait anger in comparison to non-patient control group. Anthony (1989) examined the association between anger/hostility and chest pain in 542 CHD patients (both male and female). He observed that a large proportion of patients had higher anger/hostility scores.
6.5 Anger Expression (Anger-in, Anger-out, Anger-Control and Anger Expression): A Comparative Study of two Patient Groups (Bronchial Asthma and Peptic Ulcer) and Surgical/Orthopaedic-Controls

6.5.1 Anger-in Among Patient Groups

Anger-in is defined as, "individual differences in the frequency that angry feelings are held in or suppressed."

The present study revealed that both the patient groups (bronchial asthma and peptic ulcer) reported higher anger-in than the patient-controls. There was, however, no significant difference on anger-in between the two patient groups (See Table 5.9).

These findings with bronchial asthma are consistent with earlier related research in different settings. For instance, Alock (1960) studied 100 children of age group 7-11 years. He found repression of anger as one of the major factors in the predisposition of asthma. Hollaender et al. (1983) and Florin et al. (1985) observed that in frustrating situations the asthmatics showed fewer facial expression than the controls, although the heart rate increase indicated that they were physiologically more aroused. It appears that they tend to suppress anger.

Other investigators have studied the role or association of hostility in asthmatic patients. Straker and Tamerin (1974) observed that asthmatic children have difficulty in showing anger or hostility and thus tended to replace these emotions with abnormal respiratory pattern.
In India Sharma and Nand Kumar (1980) compared asthmatic patients with normals, and found these patients to be covertly aggressive thereby implying that the suppression of anger/aggression/hostility is a characteristic of patients having bronchial asthma.

Some studies have been concerned with the role of anger-in vis-a-vis peptic ulcer disease. Funkenstein et al. (1957) argued that persons who have learnt to react to frustration with "anger-in" would be more likely to suffer from peptic ulcer. Walker et al. (1988) compared, on MMPI profile, 101 peptic ulcer patients, 32 patients with kidney/gallstones and 20 healthy controls. They sorted the patients and controls into four categories (normal, neurotic, personality disorder, or severely disturbed) on the MMPI. Their analysis revealed that severely disturbed peptic ulcer patients suffered from extreme inadequacy and inability to express anger and hostility in an adaptive manner.

In an inter-regional study of the relationship between repression- sensitization and peptic ulcer, Sahar and Kureshi (1990) examined 100 (male and female) peptic ulcer patients from Sirinagar and 100 from Aligarh. They found that persons, particularly males, who have learned to react to frustration with anger-in (repression) would be more susceptible to peptic ulcer disease.

Similar findings have also been reported in the case of other physical/psychophysiological disorders. Abernethy (1986) studied 130 black male bus drivers, half of whom were
hypertensives and half normotensives. It was observed that hypertensives experienced greater conflict around anger expression. In contrast, normotensives expressed their anger immediately and frequently or allowed the situation to determine the form of anger management. Boutelle et al. (1987) also found that hypertension can result from inhibition of feelings of anger. Other studies have also shown that suppression of anger is associated with greater reactivity (Funkenstein, King & Drolette, 1954, Holroyed & Gorkin, 1983, McDougall, Demborski & Krantz, 1981), which in turn can aggravate the disease.

Some researchers have also dealt with the role of hostility vis-a-vis psychophysiological disorder. Such studies also confirm that the tendency to "bottle up" inhibit or excessive control of aggression, is characteristic of psychophysiological disorders (see Henryk & Rees, 1973, Demborski et al., 1985).

In India, Indira and Murthy (1977, 1979) also noted the psychosomatics to be highly intropunitive than their normal and neurotic counterparts. Seth and Seth (1979) also observed that coronary heart patients were more intropunitive as compare to normals. Barnes and Pai (1983) also found psychosomatic children to be significantly higher on intropunitive tendencies than the children with hysterical reactions.
6.5.2 Anger-out Among Patient Groups

Another finding has been that surgical/orthopaedic-controls reported higher anger-out than both the patient groups (bronchial asthma and peptic ulcer). There was, however, no significant difference on anger-out between the two patient groups (see Table 5.9). Anger-out is defined as individual differences in the frequency that state-anger is expressed in aggressive behaviour directed toward other people or objects in the environment. This means that patients with bronchial asthma and peptic ulcer do not express their anger toward other people or object in the environment.

Marx et al. (1986) studied asthmatic children as well as their mothers. In contrast to the earlier studies, (e.g., Hollaender et al. 1983, Florin et al. 1985) they did not observe any deficit of emotional expression in asthmatic children. However, asthmatic children showed more expression of anger/aggression than the controls. Chiari et al. (1987) also found asthmatic children to be 'acting-out' their anger since, majority of their responses could be assigned to action category only. This finding is not supportive of one observed in the present study.

6.5.3 Anger-Control Among Patient Groups

Anger-control has been defined as, individual differences in the frequency that individuals attempt to control the outward expression of angry feelings.
This study revealed that both the patient groups (bronchial asthma and peptic ulcer) reported lower anger control than the patient controls. Stated otherwise, patients with these two psychophysiological disorders had less control over their angry feelings than their patient-control counterparts (See Table, 5.10). So far no study has been concerned with the dimension of anger-control vis-a-vis bronchial asthma or peptic ulcer. Likewise, this dimension of anger expression has not been included in studies dealing with other psychophysiological disorders. In any case, the present study highlights that both the patient groups (bronchial asthma and peptic ulcer) had lower frequency with which they attempt to control expression of anger than the patient-control. Such findings if replicated on such patients in different settings have strong implications for developing anger-control interventions.

6.5.4 Anger Expression (AX/EX) Among Patient Groups

Total anger expression (AX/EX) comprises the responses to the 24 items of the AX/In, AX/Out and AX/Con scales, and provides a general index of the frequency that anger is expressed, regardless of the direction of expression. Thus, AX/EX score is a composite score and is computed by subtracting the AX/Con score from the total of the AX/In and AX/Out scores and adding a constant of 16, which precludes the possibility of a negative AX/EX score.
Vide Table 5.1, it was seen that both the patient groups (bronchial asthma and peptic ulcer) reported significantly higher over-all anger expression than the patient-controls. There was, however, no significant difference on AX/EX between the two patient groups. In other words, the patient groups were almost similar on the frequency of anger expression regardless of direction of expression, but had relatively higher anger expression (regardless of direction of anger expression) than the surgical/orthopaedic controls.

A study of anger expression and its various dimension/components reveals that there is an almost identical trend in both the patient groups regarding suppression (AX/In), expression (AX/Out) and control (AX/Con) of their angry feelings. The patients with these two psychophysiological disorders (bronchial asthma and peptic ulcer) reported more suppression and relatively less expression and also less control over their angry feelings than their surgical/orthopaedic counterparts, the latter reported relatively higher expression as well as control of angry feelings. This evidence of higher overall anger expression (AX/EX) in the patient groups is mainly due to the greater suppression of angry feelings and lower expression as well as lower control over angry feelings. In view of this, that the higher suppression of anger which was evident in both the patient groups may have greater role in the etiology of bronchial asthma and peptic ulcer.
No study, so far, has been directly concerned with the overall anger expression vis-a-vis bronchial asthma and peptic ulcer. However, the investigators have attempted to study the role of hostility and/or aggression vis-a-vis bronchial asthma and peptic ulcer. With regard to aggression, Weiss (1966) studied 17 male and 15 female asthmatic children. He found a significant positive relation between aggression and bronchial asthma. He did not include control group in his research design. However, Weiner (1977) compared asthmatic patients with non-asthmatics and found the asthmatics to be more aggressive than their counterparts.

Hostility has also been found to be associated with asthma. In an earlier study Barendrgt (1957) compared patients with asthma and peptic ulcer. He found that asthmatic patients showed more evidence of hostility and impulsive behaviour than the ulcer patients. This is unlike the present study where these two patient groups did not differ on anger (T-anger, AX/EX, AX/In, AX/Out, AX/Con). More recently, Frost (1990) compared mild, moderate and severe adolescent asthmatics (both male and female) with their non-asthmatic counterparts. He found that asthmatics with more chronic and severe asthma experienced relatively higher level of hostility.

Some researchers have studied the role of aggression of hostility in ulcer patients only. Keltikangas-Jarvinen (1987) concluded that duodenal ulcer patients were highly disposed to
Type-A behaviour pattern which is also characterized by hostility/aggression. Earlier, Sjodin and Svedlund (1985) had compared patients with peptic ulcer, irritable bowel syndrome and normal controls. This comparative study revealed that hostile feelings were significantly higher among female peptic ulcer and irritable bowel syndrome patients than the controls. Langeluddecke et al. (1987) compared on hostility the patients with gastric ulcer, duodenal ulcer, CHD and normal controls. They found that hostility score was highest in patients with gastric ulcer, followed by duodenal ulcer, CHD and normals in that order. However, these differences did not approach statistical significance.

It may be pointed out that anger as an emotion has not been so far favoured by researchers, focus rather has been on hostility and aggression. In the present study, the evidence showed both higher trait anxiety and anger in the patient groups which is not incidental to disease status since the control group comprised patients with surgical/orthopaedic problems. The findings suggest that these negative emotions do have a role in these psychophysiological disorders although the exact nature of the role cannot be pinpointed. Anger has a more or less outspoken role in the etiology behind various other disease e.g., hypertension and coronary heart disease (Diamond, 1982, Mathew, Glass, Rosenmann & Bortner, 1977, Williams, Haney, Lee, Kong, Blumenthal & Whalen, 1980) and also depression (Novaco, 1977). Anger has also been suggested
as part of etiology behind cancer (Greer & Morris, 1975). Research in these and other fields would probably benefit a great deal from empirically derived taxonomy of the various circumstances known to provoke anger in both clinical and non-clinical samples (Torestad, 1990).

6.6 **Life Changes (negative and positive), Anxiety and Anger Measures as Discriminators of two Patient groups**

(Bronchial asthma or Peptic ulcer) and their surgical/orthopaedic-controls

Stepwise multiple discriminant analysis indicated that only four of the nine variables emerged as significant discriminators among the two patient groups (bronchial asthma or peptic ulcer) and surgical/orthopaedic-controls. These four discriminating variables in the order of their importance are: (i) Trait Anxiety, (ii) Anger-Control, (iii) Anger-Out, (iv) Negative Life Changes (See Table 5.16).

Vide Table 5.5, 5.7, 5.10, 5.11 it can be seen that higher trait anxiety and larger negative life changes impact, lesser anger control and anger-out discriminated significantly both the patient groups from the patient-controls. However, these discriminating variables did not differentiate between the two patient groups which is consistent with the findings reported in the earlier section. It may also be pointed out that variables like positive life changes, anger-in which entered later into the equation cannot be termed as unimportant. This is borne out by the findings with regard to anger-in reported in the earlier section. It may be possible
that these variables which were entered later in the computation might have correlated, at least with previously entered variables (trait anxiety, anger-control, anger-out and negative life changes). This could be a reason why little additional unique discriminatory information was provided by variables like anger-in and positive life changes. It seems that trait anxiety, anger-control, anger-out and negative life changes optimally distinguished or discriminated either of the patient groups from the control (patient) group.

While no study in India has been concerned with these discriminators vis-a-vis bronchial asthma or peptic ulcer, very few studies in other countries have looked at the issue from this angle, particularly considering anger as a negative emotion. Magni et al. (1986a) cluster analyzed 79 duodenal ulcer patients from Italy, and divided them in three homogenous subgroups namely (i) dependent and anxious (n=32), (ii) neurotic and anxious (n=31), and (iii) balanced personality (n=16). Stepwise discriminant analysis showed a significant differentiation among these subgroups. On Q4 factor of MMPI low score of which indicates relaxed and tranquillity whereas high score characterizes tense, anxious and frustrated, the sub-groups (i) and (ii) reported higher mean score and was found to be one of the most predictive variables. Thus it can be concluded that anxiety/neuroticism is one of the basic personality traits of the duodenal ulcer patients. In this study, anxiety also turned out to be a basic trait of both bronchial asthma and peptic ulcer patients.
Feldman et al. (1986) compared patients with peptic ulcer, kidney/gallstones and healthy controls. They found high ranking of negative impact of life events, compared to total frequency of events. When stepwise discriminant analysis was performed to determine which subset of variables discriminated peptic ulcer patients from controls (patient and normals). In continuation Walker et al. (1988) carried out another stepwise discriminant analysis by excluding variables included in Feldman et al. (1986) study and adding five new variables such as serum pepsinogen I (PGI), smoking amount, log (1+alcohol intake) log (1+asprin intake), and number of relatives with PUD (peptic ulcer disease). Their findings showed that combination of ten variables optimally distinguished peptic ulcer patients from controls. These ten variables were: depression, negative impact of life events, number of relatives with PUD, serum PGI, masculinity/faminity, dependency, ego strength, social introversion, crisis support and total frequency of life events. However, most of the discrimination resulted from four variables namely, negative perception of life events, depression, number of relatives with PUD and serum pepsinogen I. The findings of the present study partially fit the theoretical model of Walker et al. (1988) presented in Chapter 2. (p. 19) since anxiety as a stable personality trait and negative life events emerged as having crucial role in disease like peptic ulcer, and also extend this model to include bronchial asthma as well. Additionally, the findings with anger as a negative personality disposition suggest its inclusion in this model
within the rectangle dealing with emotional distress which at present includes only depression/anxiety.

**Conclusion**

The major conclusions of this study are:

(i) There were no significant differences among the three patient groups on the total number of life events experienced by them during the past one year. However, specific clusterings of life events preceded bronchial asthma and peptic ulcer. The cluster of life events for the patients with bronchial asthma was broadly covered under personal, interpersonal and job related conflicts. In addition, the asthmatic patients were also more bothered by retirement/pending retirement. Likewise, for the patients with peptic ulcer the corresponding cluster of life events comprised of life events related to financial problems, bereavement and change in eating habits. However, no such clustering of life events was evident in surgical/orthopaedic-controls.

(ii) The patients with bronchial asthma as well as peptic ulcer reported greater negative impact of life events than their surgical/orthopaedic-control counterparts. However, no significant difference was observed between these two patient groups (bronchial asthma and peptic ulcer) on the negative impact of life events.
(iii) Higher anxiety emerged as a stable personality trait of both the patient groups (bronchial asthma and peptic ulcer) when compared to surgical/orthopaedic patients.

(iv) Higher suppression of anger (AX/In) and also higher overall anger expression (AX/EX) characterized the two patient groups (bronchial asthma and peptic ulcer) when compared to their patient- controls. This implies an important role for the negative emotion of anger as well as the etiology of the patients with these two psychophysiological disorders.

(v) Anger-out and Anger-control were observed to be higher in control group than the patients with psychophysiological disorders. This implied that the relative lesser use of these modes of coping with the experience of anger by the patients with bronchial asthma or peptic ulcer might be contributory factors to these disease. Further, trait anger observed in patients with bronchial asthma shows that this personality trait also forms a part of the profile of such patients.

(vi) The significant discrimination among the two patient groups (bronchial asthma or peptic ulcer) and surgical/orthopaedic-controls was mainly on account of trait anxiety, anger-control (AX/Con), anger-out and negative life changes in that order.

Clinical Implications

The present study suggests implications for designing important intervention programme for patients with two psychophysiological disorders (bronchial asthma & peptic
Since researches, including the present study, have evinced high stress, anxiety and anger in patients of bronchial asthma and peptic ulcer, therapists of various persuasions agree in the most general terms that reducing stress, anxiety and anger is the best way to alleviate the suffering from bronchial asthma or peptic ulcer. In the recent years the field of stress management has developed as a part of the increased emphasis on stress and health. The approaches under the rubric of stress management are:

A. **Stress Management**

(i) **Arousal Reduction**

Arousal reduction includes training in muscle relaxation, sometimes, assisted by bio-feedback. Teaching people to relax deeply and to apply these skills to real life stressors can be helpful in lowering their stress levels.

(ii) **Cognitive Restructuring**

The focus here is on altering people's belief system and improving the clarity of their logical interpretations of experience on the assumption that our intellectual capacities can affect how we feel and behave. This includes what can simply be called the provision of information to reduce uncertainty and enhance people's sense of control.
(iii) **Behavioural Skills Training**

Because it is natural to feel overwhelmed if one lacks the skills to execute a challenging task, stress management often includes instruction and practice in necessary skills as well as general issues like time management and effective setting of priorities.

**Environmental Change Approaches**

The work of community psychologists is relevant in this approach. Whereas the individual strategies described earlier aim at helping the individuals deal with a particular environment, one can also take the position that sometimes the environment is the problem and that change is best directed to altering it. Of course, stressed individuals themselves can sometimes make environmental changes if they can employ some of the individual techniques. There needs to be no sharp separation between these two general stress management approaches.

**B. Management of Anxiety and Anger**

Suinn and Bloom (1978) used anxiety management training (AMT) in the successful modification of Type-A behaviour pattern. AMT is typically conducted in three stages. In the first stage, clients are taught deep-muscle relaxation. In the second stage, anxiety-provoking images are aroused through imagery. At this time, clients are taught to identify the
physiological cues accompanying these images. In the third stage, clients again practice in learning to recognize physical cues and engage in relaxation as coping response.

Moon and Eisler (1983) used comparison groups of social skills training, stress inoculation and problem solving and a minimal attention group in male and female students who reported themselves high responders to anger stimuli. All treatment groups showed a decrease in the cognitive component of anger compared to the control group. Hart (1984) using Suinn's (1974) anger management techniques showed significant decrease on all of the post-test measures of anger, hostility and the Type-A behaviour pattern in male and female students.

The identified risk factors in psychophysiological disorders can be modified using a variety of psychological techniques, most notably health education. However, no single technique has been shown consistently to be superior, and at this stage such techniques will prove as successful in clinical population.

Behavioural interventions aimed at curing asthma or improving pulmonary functioning has had disappointing results (Rakos et al. 1985). More promising, has been the approach of teaching patients skills to prevent the occurrence of asthmatic attacks, including appropriate use of inhalation equipment (Reene & Creer, 1976). Later, Fireman et al. (1981) investigated the possibility of reducing the severity and number of asthmatic attack, absence from school and admission
into hospital, through teaching self management skills to parents and children. Creer, Reene and Chai (1982) suggested a self-management model for asthma which is made up of four main components: (i) self-observation—for example, in relation to asthmatic attacks, (ii) self-instruction—for example, how to behave during asthmatic attack, (iii) decision making skills such as what medication to take, how to cope with peer pressure to smoke, and (iv) self-induced stimulus of or response change—for example, how to avoid or leave smoke filled rooms. Creer et al. (1982) concluded that there appears to be a role for the psychologist in altering asthma-related behaviours and suggested the combination of an educational and behavioural approach as being particularly hopeful.

The evidence for stress having an aetiological role in the development of peptic ulcer disease is surprisingly rather patchy, but certainly enough to justify some form of psychological intervention, particularly with individuals experiencing stress concurrently with ulceration. Some first intervention studies examined biofeedback as a technique to teach subjects to reduce acid secretion and gastric motiling. Welgan (1974) was successful in reducing the acid concentration and volume of secretion as compared to base line in patients of duodenal ulcer providing visual and auditory feedback of stomach PH levels. Similar findings were observed by Whitehead, Renault and Goldiamond (1975) with healthy subjects. Beaty (1976) taught three patients with frequent ulcer pain to relax using forehead EMG biofeedback combined
with home relaxation practice. All the three reported no pain or medication use at the therapy completion or six months follow-up, although ulcer healing was not verified by X-Ray or endoscopy. Using a similar combination Aleo and Nicassio (1978) reported that by the end of the twelve week intervention, three of four subjects were free of pain with radiographically confirmed ulcer healing. Fourth subject reported less ulcer pain than previously, and ulcer was reduced in size. However, both the studies did not use any control groups and comprised of small number of patients.

A rather more modern evidence on this account is provided by Brooks and Richardson (1980). They randomly allocated 22 subjects with radiologically confirmed duodenal ulcer patients to either intensive psychological intervention group and assertion training, or placebo treatment group. All the subjects received antacid medication. The subjects in active therapy experienced significantly fewer days of symptomatic pain and consumed less medication and also fewer patients of this group had recurrence than the placebo group. Sjodin (1983) compared the efficacy of medical treatment alone or combined with dynamic psychotherapy on 103 subjects diagnosed as having peptic ulcer disease. Subjects were allocated to two intervention groups randomly. On the basis of rater's score it was observed that the abdominal pain had reduced significantly more in the psychotherapy group.

The findings of all these studies suggest that it is the secondary preventive nature of the interventions that is
most effective, with fewer remission and long term relief from symptoms, even after medication is stopped. Because of this, psychological therapy may prove a cost-effective and valuable adjunct or alternative to medical treatment. In view of the foregoing discussion, it seems desirable to develop disease-specific interventions for Indian patients and later to test their relative efficacy.

**Suggestions**

In the backdrop of the present study, some suggestions for future research are given below:

1. Specific/differential clusterings of life events in different psychophysiological disorders should be identified. Such an information will assist in developing strategies of health promoting behaviours in such patients.

2. In addition to monitoring stressors associated with daily hassels, the role of various situational mediators such as available social support needs to be further analyzed vis-a-vis various psychophysiological disorders (Evans, Palsanu & D'Souza, 1983).

3. The epidemiological studies related to the incidence of psychophysiological disorders are also needed. These studies can consider socio-demographic variables like rural-urban, habitat, gender, social class, age, education, profession, family set up, along with the psychosocial variables that contribute to the onset of such disorders.
4. Prospective studies are needed to ascertain whether psychological factors are of aetiological significance in psychophysiological disorders or are the result of what is often a chronic and disabling illness.

5. Researches are needed to identify the role of other psychological factors (such as locus of control, depression hardiness, type-A behaviour) vis-a-vis different types of psychophysiological disorders.

6. Some studies have indicated that conflicts over expressing of anger have as strong an effect as other widely acknowledged risk factors of psychophysiological disorders. However, the mechanism of such relationships remains to be established (see Boutelle et al. 1987, Deanne 1986, Florin et al. 1985, McDougal et al. 1981).

7. The future psychological research in psychophysiological disorders needs to employ a multi-dimensional stress model, encompassing both environmental variables (stressors) and person-specific psychological and social variables (Walker et al. 1988).

8. Future research studies in this area might examine the effects of stress with measures other than self-report instruments as primary variables. For instance, physiological data pertaining to different psychophysiological disorders might be used in an attempt to identify the patient's response to stress and to try to elucidate the stress-
psychophysiological disorder relation along with what role, if any, anxiety may play.

9. Cigarette smoking is a powerful risk factor for occurrence of peptic ulcer. Researches are needed to study the association between stress and peptic ulcer disease and whether this association is partially or entirely mediated by stress-induced increase in cigarette consumption (Friedman, Seiglaub & Seltzer, 1974).