THEORETICAL ORIENTATION
ALEXITHYMIA

Alexithymia is a personality construct characterized by a difficulty in differentiating and describing subjective feelings, and by a cognitive style which is externally oriented rather than expressive of inner fantasies and drives (Nemiah, 1977).

The concept of alexithymia had to cover a lot of ground to acquire its current status. As early as 1948, Ruesch, labeled disturbance of verbal and symbolic expression in his psychosomatic patients as 'infantile personalities'.

MacLean (1949), developing his concept of the 'true brain', noted that many psychosomatic patients showed an apparent intellectual inability to verbalize emotional feelings. He speculated that instead of being relayed to the neocortex and finding expression in the symbolic use of words, these emotions found immediate expression through autonomic pathways and were being translated into a kind of 'organ languages'.

Freedman and Sweet (1954) referred to patients who could not describe their emotions as 'emotional illiterate'.

Nemiah and Sifneos (1976) examined transcribed interviews with 20 patients who had two psychosomatic illnesses and found that 16 of them showed "a marked difficulty in verbally expressing or describing their feelings and an absence or striking diminution of fantasy".
Almost simultaneously, Krystal and Raskin (1970) described similar characteristics in patients with severe posttraumatic states and with drug dependence.

Against this historical background, the clinical construct of alexithymia was more precisely defined by Nemiah at the 11th European Psychosomatic Research Conference held in Heidelberg in 1976.

**Clinical Features**

Alexithymia denotes a specific disturbance in an individual's psychic functioning that is manifested primarily in his or her communicative style. This communicative style is characterized by markedly reduced or absent symbolic thinking so that inner attitudes, feelings, wishes and drives are not revealed (Nemiah and Sifneos, 1976). Thinking is literal utilitarian and concerned with the minutiae of external events, a characteristic that Marty and de M'Uzan (1963) called “pensee operatoire” (operative thinking). Alexithymic individuals report few dreams and have a paucity of fantasies (Nemiah and Sifneos, 1976). When dreams are recalled they either contain explicit archaic mental content or are of the secondary process type and lack the colour, bizarreness, and symbolism characteristic of primary process dreams (Taylor 1987).

Alexithymic individuals show a striking difficulty in recognizing and describing their own feelings, and they have difficulty discriminating between emotional states and bodily sensations (Nemiah and Sifneos, 1976). They occasionally have outbursts of rage or tearfulness, but when questioned they are unable to elaborate about what they were feeling. Superficially, alexithymic individuals often seem well adapted and show a high degree of social conformity, but in McDougall's opinion (1974) this is a “pseudonormality” because on closer inspection they have little contact with their own psychic reality. Their constricted emotional functioning and inner psychic life are sometimes revealed by a stiffness of posture.
and lack of expressive facial movements. In their interpersonal relationships, there is impaired capacity for empathy, due to the difficulty in recognizing and using their own feelings as signals to themselves (Krystal 1979).

Unlike, the earlier assumption of a specific etiological relationship between alexithymia and psychosomatic illness, the later studies have not found a clear cut relationship (Smith, 1983). Weiner (1982) regards alexithymia as one of several possible “general onset situations or risk factors that seem to increase the susceptibility to disease which is specified by other variables”, Alexithymia is not an all or none phenomenon, and all people seem to have the capacity to shift at times to a communicative stage that is less symbolic. However, certain individuals manifest this as a predominant trait. This has led Freyberger (1977) to distinguish alexithymia into primary and secondary type. Primary alexithymia is a character trait. Sifneos (1988) believes it to be due to a structural neuroanatomical defect or a neurobiological deficiency in the form of biochemical or physiological abnormalities, due to hereditary factors, which interrupt the communication between limbic system and neocortex. Working on similar lines, TenHcuten et al. (1985) compared patients with cerebral commissurotomy with precision matched normals, on a 2-minute videotaped symbolic film to show higher psychosomatic personality structure in patients. Thus, they emphasized the involvement of hemispheric specificity and its deconnection in the primary alexithymics, Ross (1981) has emphasized the right hemisphere dominant functional anatomic organization components of language and behaviour due to which patients with right hemispheric damages cannot assess emotional priorities and have difficulties in emotional communication in the form of ‘aprosody’. Failure to regulate and modulate distressing emotions at the neocortical level, resulting in exacerbated physiological responses to stressful situations, predisposing the individuals for somatic diseases has thus, been propagated (Finn, Martin, Pihl, 1987).

The secondary alexithymia has its roots in psychological reactions to external stressful events. Krystal (1977) and Krystal, Giller and Cicchetti (1986) described

(a) Massive psychological trauma occurring at a critical period of infant development resulting in dealing with feelings and their verbal expressions, in alexithymic form.

(b) A major traumatic environmental assault on an adult, who knows how to deal with feelings but who has to undergo massive regression as a way of adjusting to or escaping from current trauma and as a result experiences a partial or total numbing or a constriction of his feelings. Such an adult attributes his survival to his ability to avoid thinking about his feelings and therefore maintains this defense strategy by exhibiting alexithymia.

(c) Psychodynamic factors such as an excessive use of defense mechanisms like repression, denial and regression, result in alexithymic behaviour.

Alexithymia was originally referred to as a personality trait of psychosomatic patients. However, empirical research showed it to lack specificity for psychosomatic patients (Smith, 1983). It was found to be even more prevalent in psychiatric than in psychosomatic patients (Rubino et al., 1991). Furthermore, there is some evidence that alexithymic features in some patients diagnosed as medically ill may decrease as their conditions improve i.e. alexithymia could be a state dependent secondary phenomenon (Keltikangas, 1987, Wise et al., 1990). However, theoretically (Taylor et al., 1992) as well as empirically (Salminen et al., 1994), it has been reported to be stable over time i.e. as a trait phenomenon. Vingerhoets et al. (1995) described the most silent features of alexithymia as:

i) A limited ability to describe emotions verbally.

ii) An impoverished dream and fantasy life.

iii) Concrete and mundane speech and thought, closely tied to external events.

iv) Description of physical symptoms rather than emotions.

v) Difficulty in recognizing affects or bodily sensations as signals of emotional distress.
Some controversy still persists whether to take it as a state or as a trait. The attempts to identify and quantify alexithymia have been based on the clinical and theoretical conceptions of the researcher, although using standardized personality measures (Taylor and Bagby, 1988).

Measurement

The various measure’s used to assess alexithymia could be classified as follows :-

1. Observer-rated questionnaires :-
   a) Beth Israel Hospital Psychosomatic Questionnaire (BIQ).
   b) Alexithymia Provoked Response Questionnaire.

2. Self – report measures :-
   a) MMPI – alexithymia scale.
   b) Schalling – Sifneos personality scale.
   c) Toronto alexithymia scale (TAS).

3. Projective techniques :-
   a) Thematic Apperception Test.
   b) Assigned verbal task.
   c) Verbal productivity in response to movie display.
   d) Rorschach test.
   e) Symbolic Archetypal Test.

4. Formal speech analysis

5. Gottschach – Gleser content analysis of verbal behaviour.

6. Analysis of neurophysiological correlates of alexithymia.
Reviews have revealed that TAS meets the requirements of a test suitable for clinical and research purposes and comparatively has an advantage over other measures (Taylor and Bagby 1988; Sriram 1989).

Alexithymia is a multidimensional construct and factor analysis of TAS revealed four independent factors (Kirmayer and Robbins, 1993).

Factor 1: Difficulty identifying feelings and bodily sensations.
Factor 2: Externally oriented thinking.
Factor 3: Difficulty in expressing feelings and Reticence.
Factor 4: Reduced daydreaming.

However, later investigators speculated that factor 4 would be confounded by social desirability response bias; and that daydreaming above may not capture adequately the capacity for imaginal activities. The four factor structure on further analysis yielded a two factor solution (Bagby et al., 1994).

Factor 1: Ability to distinguish between feelings and bodily sensations associated with emotional arousal, and the ability to describe feelings to others.
Factor 2: Externally oriented thinking.

A complete new revision / construction of TAS, has resulted in a three factor structure (Bagby et al. 1994).

Factor 1: Difficulty identifying feelings.
Factor 2: Difficulty describing feelings.
Factor 3: Externally oriented thinking.
Etiological Theories:

The etiological explanations of alexithymia are largely theoretical and speculative. However, theoretical speculations have led to testable hypotheses which have further served to validate the concept itself. Multiple factors may play a role in the development of such a complex phenomenon.

A. Psychoanalytic Theories:

Nemiah (1975, 1977) and Sifneos (1977) have emphasized conflict-defense model of neuroticism and use of defense mechanisms like denial, repression, and isolation.

McDougall (1982) and Taylor (1977) trace its origin from disturbed mother-infant relationship leading to a confusion about one's body, its limits and the right to a separate psychic existence. They state that there is an inability to form internal representation for instinctual impulses; it is "an uncommonly strong defense against primitive terrors" (McDougall 1982). In the face of inner conflict or outer stress, the affect is rapidly ejected or split off from the psyche, with no psychic elaboration. Thus, mechanism of splitting and projective identification predominate.

Krystal (1979, 1982) attributed alexithymia to an arrest in affect development following infantile psychic trauma or to a regression in the affective – cognitive function after catastrophic trauma in adult life. This is consistent with the Kleinian concept of fixations at or regressions to the paranoid – schizoid position of mental functioning in which the capacity to form symbols is absent, since this ego function is linked with the later depressive position.

Rickles (1986) related it to individuals impaired capacity for play and symbolization and thus to the early development disturbances interfering with the creation of a transitional object non-symbolic communication style, language is used to create impenetrable barriers that seal off meaningful mental contents and destroy the links with other people (Taylor and Doody, 1985).
Some alexithymic patients extensively use projective identification to discharge unbearable mental states onto others, (McDougall, 1982). But, patients who are more severely alexithymic may have experienced disturbances during the autistic phase of development.

B. Socio-cultural factors:

Social learning and cultural determinants are important in the genesis of alexithymia. People in developed countries show greater differentiation of emotional states than people in developing countries; and some languages impose restraints on the expression of emotions (Leff, 1973). Alexithymia has been related to social origin and degree of psychological sophistication of the patient (Lesser et al, 1979; Pierloot and Vinch, 1977). Borenes et al. (1977) used extensive interviews and psychological tests on psychosomatic patients. Both the verbal behaviour in the interview and responses on tests of the patients were correlated with social class. Patients of lower socioeconomic status used fewer affect words and had fewer fantasies. Income, education and occupational status have been found to be inversely related to alexithymia (Kauhanen et al., 1993, Pasini et al., 1992, Wise, 1990).

C. Genetic and biological theories:

Strong hereditary component was proposed in a study of 33 mono and dizygotic twin pairs (Heiberg and Heiberg, 1978). Deficits in straital modulation of input from limbic system to the neocortex (i.e. cognitive processing of emotions) have been hypothesized (Nemiah et al., 1977). Flannery and Taylor (1981) postulated that left cerebral dominance may account for the concrete thinking and paucity of fantasies. Alexithymic patients have diminished dream recall on studies of awakening from REM sleep. Similarly, "functional commissurotomy" with consequent inaccessibility of emotions, from right hemisphere to be verbalized through left hemisphere, are implicated (TenHouten et al., 1987). Right cerebral dysfunction has been proposed by Fricchone and Howanitz (1985) and by, Cole and Bakan (1985) working on patients with motor aprosodia and on conjugate
lateral eye movement, respectively. However, the research on the neurophysiology of alexithymia is still at the preliminary stage. The role of right cerebral hemisphere in fantasy and emotional expression has been well noted (Ross 1981).

**SOMATOFORM DISORDERS**

Somatization is the expression of emotional discomfort and psychosocial stress in the physical language of bodily symptoms (Barskey and Klerman, 1983).

Lipowsky (1988) defines it as "the manifestation of psychological difficulty or distress through somatic symptoms, a tendency to experience and communicate somatic distress and symptoms unaccounted for by pathological findings, to attribute them to physical illness and to seek medical help. It encompasses a wide spectrum of symptoms referred to various organs".

The presence of physical symptoms that suggest general medical conditions are present, but they are not fully explained by general medical conditions, by the direct effects of a substance, or by another mental disorder. Yet symptoms cause clinically significant distress or impairment in social, occupational, or other areas of functioning (DSM – IV, American Psychiatric Association, 1994).

Somatizing patients have been recognized by physicians for centuries. They have been given a variety of overlapping labels, notably "hysteria", "hypochondriasis" and "melancholia" which were used more or less interchangeably until the end of the 18th century Sydenham's Dissertation represents a landmark in the evolution of medical thought about them. He offered a holistic conception of hysteria – hypochondriasis by proposing that it involved "the disturbance and inconsistency both of the mind and body" due to a disorder of the animal spirits. Its victims suffered from a wide range of physical symptoms, which could imitate many diseases (Boss, 1979).
The concept gained uncommon prominence in the 2nd half of the 19th century, due to the work of Briquet, Charcot, Janet, Freud, and others (Lipowski, 1988).

The term 'somatization' was first used by Steckel (1943) who defined it as "a bodily disorder that arises as the expression of a deep-rooted neurosis, especially of a disease of the conscious". He regarded it as identical to Freuds' concept of conversion.

The disorder was known as 'Briquets syndrome' until the publication of DSM-III (APA, 1980) where it become known as somatization disorder.

The current diagnostic criterion, namely ICD-10 (WHO, 1992) and DSM-IV (APA, 1994) have classified a group of disorders under the section of somatoform disorders. These are marked by experiences of psychological distress (unconsciously) as somatic symptoms, regarding them as indicative of physical illness, and seeking repeated medical care for it. Psychological factors and conflicts are important in initiating, exacerbating and maintaining this disturbance (Guggenheim and Smith, 1995). The focus is on the mind-body interface, with three essential components (Lipowsky, 1986)

a) The experiential i.e. pain or other bodily sensations.
b) The cognitive i.e. interpretation and attribution of the experiences.
c) The behavioural i.e. the actions and communications, both verbal and nonverbal that follow the appraisal.

It is assumed that this tendency becomes manifest in response to psychosocial stress brought about by life events and situations that are personally stressful to the individual. The somatizing persons do not recognize and may explicitly draw, a causal link between their distress and its presumed source. They respond primarily in a somatic rather
than a psychological mode and tend to regard their symptoms as indicative of physical illness and hence in need of medical attention.

It must be emphasised that the tendency to experience and communicate distress in a somatic rather than a psychological mode is widespread in many societies (Kirmayer, 1984) and as such is not abnormal or illness. It becomes a problem when somatic distress and symptoms are attributed to physical illness and medical diagnosis, and treatment are repeatedly sought inspite of persistent reassurances by various doctors (Lipowsky, 1988).

Somatoform disorders are subclassified into the following types :- (DSM-IV, APA, 1994).

(a) **Somatization Disorder**: It is a polysymptomatic disorder that begins before the age of 30 years, extends over a period of years, and is characterized by a combination of pain, gastrointestinal, sexual and pseudoneurological symptoms.

(b) **Undifferentiated Somatoform Disorder**: It is characterized by unexplained physical complaints, lasting for at least 6 months, that are below the threshold for a diagnosis of somatization disorder.

(c) **Pain Disorder**: It has pain as the predominant focus of clinical attention; with psychological factors being judged important in its onset, severity, exacerbation or maintenance.

(d) **Hypochondriasis**: It has preoccupation with fear of having or the idea that one has a serious disease based on the person's misinterpretation of bodily symptoms or bodily functions.

(e) **Body Dysmorphic Disorder**: It is the preoccupation with an imagined or exaggerated deficit in physical appearance.

(f) **Conversion Disorder**: It involves unexplained symptoms or deficits affecting voluntary motor or sensory function that suggest a neurological or other general
medical conditions. Psychological factors are judged to be associated with the symptoms or deficits.

The ICD-10 (WHO, 1992) classificatory system does not include Conversion Disorder and Body Dysmorphic Disorder. It has an additional category of Somatoform Autonomic Disorder wherein the symptoms are restricted to the autonomic nervous system.

Etiological Factors:

The theories implicating psychosocial mechanisms have dominated the etiological explanations for somatisation. The diversity of clinical manifestations of associations suggests a multifactorial causation.

A. Predisposing factors implicated include:-

i) **Genetic:** Antisocial personality traits or the female expression of genetic tendency of antisocial personality have been implicated. General genetic predisposition also is suggested (Kellner, 1986, Shapiro and Rosenfeld. 1986).

ii) **Developmental learning:** Learning to focus attention on somatic perceptions, to interpret them as threatening, to express them verbally or non-verbally, and to use such communications as idioms of psychological distress and needs has been proposed. This is found to take place within the family context (Hartvig and Sterner, 1985, Kriechman 1987). The family reflects, in part, the linguistic habits, such as using body language for all distress, and illness-related beliefs and practices of the social class and culture to which it belongs. Research suggests that the child exposed to much physical illness and pain behaviour in other family members is at risk for somatization as an adult (Kriechman, 1987, Kellner, 1986). Identification and modeling seem to be involved. A child who learns that being ill or complaining of physical symptoms is likely to be rewarded by
increased attention or by avoidance of conflicts or by avoidance of some obligations, may be predisposed to develop somatization as a coping strategy in later life (Mechanic, 1980).

iii) **Socio-cultural:** A tendency to express emotional distress and discomfort in bodily terms is stronger among people of less education and lower socio-economic status, particularly among ethnic groups that discourage the expression of emotions, and in rural dwellers (Fernando, 1975, and Barsky and Klerman, 1983, Mechanic, 1986). Kirmayer (1984) reports that somatization is a world wide phenomenon but is more prevalent in cultures in which expression of emotional distress in psychological terms is traditionally inhibited i.e. in much of non-western world.

iv) **Personality:** Some personality variables that have been implicated are a perceptual cognitive style of sensitization or augmentation. (Barsky and Klerman, 1983); introspectiveness (Hansell and Mechanic, 1985); and neuroticism (Costa, 1985). The latter encompasses traits like self-consciousness, vulnerability to stress, inability to inhibit cravings and tendency to experience anxiety, hostility and depression.

v) **Iatrogenic factors:** Latrogenic factors in the form of endless investigations, ambiguous diagnostic statements and unnecessary treatment may have the same effect (Lipowski 1988).

B. **Precipitation Factors:** Some precipitating factors have also been implicated in the etiology of somatisation. Life events and situations that are personally stressful because of their subjective meaning of loss or threat can be participants of somatization. Bereavement, physical illness/injury, breakup of a relationship, witnessing death, are other common precipitants. (Kellner, 1986). But these are more significant in patients with recent onset, and in those who seek medical help more infrequently (Robinson and Grabfield, 1986).
C. **Maintaining Factors:** In addition to the pre-disposing factors which continue to maintain the illness, the additional factors leading to the continuation or maintenance of these symptoms are factors like:

i) **Somatization as a mode of coping** with life's vicissitudes, psychological needs, conflicts, feelings of anger and guilt, and low self esteem (Lipowski, 1988).

ii) By adopting a **sick role**, the somatizers seek to gain attention and support, by being allowed to avoid social and family obligations and demands (Mechanic, 1986).

iii) **Responses of family members and doctors** may act as a reinforcer for the somatizing tendency and help to maintain it indefinitely (Turk et al., 1987).

iv) The style, with respect to **locus of control**, that is preferred within the context of the ethnic group identity has also been implicated.

v) **Iatrogenic factors** in the form of endless investigations, ambiguous diagnostic statements, and unnecessary treatment may have a maintaining effect (Lipowski, 1988)

**Prevalence**

The reported prevalence ranges from 1 person per 1000 to 4 persons per 1000. Since the patients believe themselves to be medically ill, they may be reporting more to the physicians (Guggenhein and Smith, 1995). It has been suggested that the incidence of somatization disorder in general practice is as high as 40% (Hilkwitch, 1985) or even 60% (Katon, Ries and Klienman, 1984).

In a recent study in a general hospital setting in India, 644 consecutive patients were screened and 9.32% were found to be in this category (Chawdhry, Bhatia and Aggarwal, 1997). Somatisation disorder patients have been reported to be predominantly females, (mean age of 31 years) and coming from lower income and poor education level families (Hariharan, Ramakrishnan, et al., 1993). The prevalence rate has been estimated to be
0.5% but the true rate is closer to 1% (Bhui and Hotop, 1997); and is 8.2% in primary care (Kroenke et al., 1997).

Barsky and Klerman (1983) reviewed the literature and defined four alternative conceptualizations of somatisation / hypochondriasis.

1. As a psychiatric disorder because it fulfills the four major characteristics of a disorder, namely
   (i) physical symptoms disproportionate to organic disease
   (ii) a fear of disease and conviction that one is sick
   (iii) a preoccupation with one's body
   (iv) persistent and unsatisfactory pursuit of medical care.

2. As a result of intrapsychic and unconscious emotional forces. Psycho dynamically it can be understood in one of two ways:
   i) As an alternative channel through which sexual, aggressive, or oral drives are deflected.
   ii) As an ego defense against guilt or low self esteem.

Freud suggested that when sexual libido is withdrawn from external objects, it can be reinvested in the self as narcissistic libido. Initially libidinal catharsis is through narcissistic fantasies, but it eventually overflows into actual somatic changes resulting into somatization.

Brown and Vaillant (1981) emphasized the transformation of aggressive and hostile wishes which originated in past rejections, losses, loneliness, is to be expressed in the present by belabouring and reproaching other people for the physical suffering of the patient. Help and concern are solicited, but them thwarted and rejected as ineffective.
The pregenital wishes (the oral and dependency drives) for caring, nurturance, attention, sympathy and physical contact are gratified by the care-taking elicited for the somatic symptoms and suffering. (Altman, 1975).

Sullivan (1953) and McCranie (1979) saw somatization as a defense against unbearably low self esteem and feelings of worthlessness, inadequacy and defect. It is argued that it is more tolerable to feel something is wrong with body than with the self. Pain can also function as atonement, expiration and deserved punishment for the sense of self as evil and sinful (Lipsitt 1970)

3. **As a perceptual or cognitive abnormality**: This can be due to three types of misperceptions.

i) Patients may amplify and augment normal bodily sensations: The normal body sensations are viewed as more noxious and more intense by a somatiser than a normal (Barsky, 1979, Petrie, 1978)

ii) Patients may misinterpret their normal bodily sensations: The normal bodily sensations and physiological functions, the trivial symptoms of everyday life, and the somatic symptoms of emotional arousal are interpreted as threatening by misattributing them to a serious disease process. (Pennebaker and Skelton, 1978 Valins and Wisbett, 1971)

iii) Alexithymia: Patients might be suffering from alexithymia and being unable to express inner drives and wishes may be focusing on the physical somatic phenomenon, (Nemiah, 1977)

iv) As a learned social behaviour: Patients may exhibit illness behaviour, acting as if hearing a patient were others sole avocation and their full time vocation. (Wooley, Blackwell and Winget, 1978). The bodily symptoms are a nonverbal interpersonal communication (Szasz 1961). The sick role becomes a source of sympathy, encouragement, attention, support, and concrete assistance. It is not deliberate feigning of illness, malingering or simulation of symptoms. It is assumed as an
accident, injury or medical illness, or is modeled from others. It then gets positively reinforced and maintained by supportive, nurturant and encouraging responses of family and friends. It is reinforced to chronicity by successful avoidance of adverse consequences, such as unpleasant duties and obligations (Wooley, Blackwell and Winget, 1978).

SOCIAL SUPPORT

Stress is an integral part of life but it has a greater impact on those individuals who have limited as opposed to adequate sources of social support. The purpose of support is beneficial and its absence itself is a source of stress (Sharma and Ram, 1987).

Work on the nature of health protective effects of social support gained impetus by the work of two epidemiologists, Cassel, (1974), and Cobb (1976). They were concerned with understanding why some people were able to withstand stressful life experiences well, while others seemed less able to mobilize the resources necessary for health adaptation and consequently developed symptoms of illness or maladjustment.

Cassel (1974) opines that social support consists of feedback conveyed in signs and signals from primary group members that correct deviations from norms at the behavioural, cognitive and emotional levels.

Cobb (1976) defines it as “information that one belongs to a socially coherent community and that one is loved and esteemed”. Cobb’s formulation emphasizes that support is in the mind of the beholder, while Cassel’s account stresses the feedback expressed in actual primary group transactions. House (1981) regards it as an interpersonal transaction involving concern and information about oneself and the environment, while
Kaplan et al. (1977) referred to it as an internal state of met needs, or to the availability of psychosocial resources.

Thus, "social support is the existence or availability of people on whom a person can rely, people who let us know that they care about, value and love" (Sarason, 1981).

The meaning of the term social support seems to be grasped intuitively, but the sheer number of divergent definitions proposed in the literature, reveals its ambiguity. Despite the lack of agreement about its operationalization, the notion of 'social support' as determinant of mental and physical well being has received widespread acceptance. To this effect two hypotheses have been developed namely, the direct effect and the buffering effect of social support (Cohen and Wills, 1985).

Direct effect implies that social support enhances health and well-being irrespective of stress level. Such a direct benefit could occur as a result of the perception that others will provide aid or help. A strong direct relationship between the presence of supportive ties, or the perception of such ties, and a stress free functioning has been reported to constitute the direct effect.

Kiritz and Moos (1974) concluded that the social stimuli associated with the relationship dimensions of support, cohesion and affiliation generally have positive effects, particularly in enhancing normal development and reducing recovery time from illness.

Direct relationship between support and adjustment have been recorded, specifically between psychosomatic symptomatology, life stress and family or workplace support on the one hand; on the other and the paucity of confiding social relationships and expression of neurotic symptomatology (Holahan and Moos, 1981).
Buffering effect implies that social support exerts its beneficial effects in the presence of stress by protecting people from the pathogenic effects of stress. Kobasa and Pucetti (1983) reported that support from the boss, buffered the effect of crucial life events on illness symptoms while support from the family did not. La Rocco et al (1980) found that social support moderated the effects of stressors on health outcomes such as depression and somatic complaints. Social support cushions the impact of stressful life events (Kobasa and Pucetti, 1983).

Though, social support has been implicated heavily in the etiology of both physical and psychological illness, yet, Cohen and Syme (1985) and Coyne and Downey (1991) argued that the direct and buffering effect models did not significantly increase the understanding of how social support prevented illness or enhanced health.

It is important to understand the distinction between the number of relationships a person has, and the person's perception of the supportive value of those social interactions. The former is the social network, while latter is the perceived social support.

The benefits of social relationships and the supportive quality of a relationship, as evaluated by the person is the perceived social support. The size of network, frequency of contacts among members and their emotional valence comprise the social network. Whether the behaviour is constructive, destructive, supportive, friendly, intimate, confidential or tolerant, are the focus in the social networking (Greenblatt et al., 1982) Anson (1980) found that women between the ages 18-55 years, living with their parents, their children or relatives were healthier than those who were living alone or who were heading the families. Antonovksy (1979) investigated the relationship between psychological well being and social characteristics in a comparable sample, and made a case for frequency of interactions, and the affective support and reciprocal support.
Different types of support have been cited in the literature. Varied dimensions of social support such as affirmation or tangible assistance have different relationship with physical and psychological illness adjustment (Woods et al., 1989). Some important types are:

(a) **Emotional support**: It refers to esteem support, ventilation or confidence in a relationship. It fosters feelings of comfort, of being admired and respected by others, and it affirms the confidence that they are available to provide care and security when needed.

Studies of social support typically show a large difference in symptomatology between persons who have no such relationship and persons who have at least one such relationship (Cohen and Wills, 1985)

(b) **Instrumental support**: It is a measure of the available aid, tangible support or material support; and may involve direct aid or provisions of services.

Dunkel-Schetter (1984) reported that higher levels of tangible aid, material aid and material assistance from the family were related to higher self-esteem, better mood and improved physical recovery.

(c) **Information support**: It includes giving information and advice which could help a person solve a problem and providing feedback about how a person is doing.

Dunkel-Schetter (1984) found that in cancer patients informational support and advice were important and helpful. The failure of health care provider to give anticipated informational support was detrimental to health.
Most other typologies of social support appear to be derivates of this tripartite classification (Cohen and Wills, 1985, Thoites, 1985).

The social support measured for the purpose of present study would collect information regarding the availability, adequacy, and satisfaction of perceived social support.

LIFE EVENTS

In 1956, Hans Selye articulated his concept of stress as the "general adaptation syndrome", a set of non specific physiological reactions to various noxious environmental agents. This popularized the concept of stress in the scientific vocabulary of medicine. Stress occurs when there is a substantial imbalance between environmental demands and response capabilities of the focal organism i.e., overload or underload of demands resulting in a disequilibrium in the individuals life is stressful.

Stress has been used to refer to both a stimulus and a response. The term "stress" will be used here as a stimulus to refer to an external event or happening, either actual or anticipated, that on common sense grounds, can cause emotional / physical disturbance to many people.

Stress is anything which causes alteration of the psychological homeostatic process (Selye,1970). Holmes and Rahe (1967) defined stress “as a stimulus event. Lazarus and Folkman (1984) described stress as a specific stimulus-response transaction which threatens an individual. In this model, the stress experienced is not in a situation or in a person, but in a transaction between the two; depending on how the person appraises it and adapts to it.

A life event occurs when there are some environmental changes but the individual is unable to change with them. Stressful life events are events that are likely to produce
emotional disturbances in many people due to their demands of readjustment in a person's normal routine.

Adolf Meyer was the first one to introduce the concept of the "life chart" a recording of significant biographical and medical events in a person's life. Wolff (1977) introduced the term "life stress" by which he meant "the responses of people to noxious stimulation and ego threats". Hinkle (1973) recognized that similar life events do not lead to symptoms in all people. He pointed out the need to take account of person variables along with situation variables (i.e. life events) to study the impact.

Thus, an event may need to be analyzed at four levels before it is deemed as stressful.

i) Types of event: It would be significant to know the total amount of change an event brings in a person's life (Holmes and Rahe, 1967). Further, symptoms and maladjustment are more related to negative, i.e. unwanted and undesirable; than to positive change i.e. wanted and desirable (Coyne and Downey, 1991). The degree to which they are predictable and controllable will determine the degree of stress related to it (Sarason, Sarason and Johnson, 1980). The events may be normative i.e. specific to the developmental cycle, or non-normative i.e. unexpected or catastrophic (Rao, 1997).

ii) Magnitude of event: The number of events in recent past, their intensity and chronicity will also affect their impact on the individual. Minor irritants i.e., daily hassles if chronic may have cumulative effect on health outcome (Rao, 1997). Thus, the magnitude of stress-arousal needs to be optimally weighted and combined (Sarason, Sarason and Johnson, 1980; Bhatti and Channabasavanna, 1985).
iii) **Timing of event:** Recent events are more stressful than the remote events. Acute and severe events create greater risk of depression than do chronic stressors (Coyne and Downey, 1991; McGonagle and Kessler, 1990)

iv) **Meaning of event:** The appraisal of the events by the individual is more significant than the event per se (Gadzella, 1994). Some events may be over-appraised in that the individual attaches more significance to them than they really merit. Other events may be under appraised, with the individual failing to appreciate their present and future implications. Further appraisal of one’s coping resources to deal with the events will be important. (Martin and Oborne, 1993).

It has been contested that mere exposure to stressful life events is not in itself a sufficient trigger for the onset of psychiatric illness. There are several intervening variables which greatly modify the effect of stressful life events on the individual. Robkin and Struening (1976) and Williams et al. (1981) have described them while others have seconded them (Coyne and Downey, 1991; Dalgard et al., 1995) These include:-

a) Characteristics of the stressful situation
b) Individual and psychological attributes
c) Characteristics of the social support systems available to the individual, which act as buffers.

Various types of stressful life events have been described in literature. Some of them are as follows:-

1. **Undesirable life change:** Holmes and Masuda (1974) emphasized the element of undesirable change in stressful life events. The events like loss of a loved one, a job or status (Paykel et al., 1975) diminished income or failing health (Holmes and
Masuda, 1974) are universally undesirable. The type of stress that is elicited by these types of events has been referred to as acute stress (McGonagle and Kessler, 1990) and the circumstances themselves, as major life events (Dohrenwend and Dohrenwend, 1974, Anderson, 1991).

2. Recurring life events: Kessler et al. (1985) distinguished between acute disruptive life events (undesirable life changes) and events that occur repeatedly and do not connote change. These types of stressors, which consist of everyday experiences such as minor annoyances or irritations, unpleasant encounters, or repetitive conflicts have also been referred to as daily hassles. (Lazarus and Folkman, 1984, Anderson, 1991). People who experience recurring role related hassles may be at risk for becoming angry, guilt ridden, frustrated, and depressed (Anderson, 1991).

3. Continuous life events: These types of events consist of the constant ongoing situations (Kessler, 1983), and have also been referred to as chronic stressors (McGonagle and Kessler, 1990, Anderson, 1991). These include environmental factors like pollution, noise, crowding, poverty, discrimination (Anderson, 1991) and personal stresses i.e. chronic illness, financial problems, serious marital difficulties, and other interpersonal conflicts (McGonagle and Kessler, 1990).

Life events seem to play a predisposing role in the onset of depression but a precipitating role in most other illnesses (concept of brought-forward time). Individual's perception and appraisal of the life event determines its stressfulness (Rao, 1997).

Psychosocial stresses form an inseparable part of life and up to a degree may be essential for adequate personality development. However if these stresses become too severe, too numerous they may affect the psychic equilibrium producing maladaptive patterns and possibly mental disorders (Sharma and Ram, 1987).
Holmes and Rahe, (1967) explored the relationship between stressful life events and physical illness. Unlike the earlier belief that stressful events are undesirable or threatening, they believed that changes in personal relationships, work, finance, etc can be stressful even when they are welcome events.

Clinical observations have long suggested that personal experiences often precede illness and psychological maladjustment. Significant among them are events involving losses, sudden environmental changes, threats to and loss of control on one's own life, personal failures or successes. (Sarason, Sarason, Johnson and Siegel, 1978). Dohrenwend (1973), while relating stress to the state of anxiety, reported, that stressful life events played a role in the etiology of various somatic and psychiatric disorders.

Norman, Mcfarlane and Streiner(1985) concluded that stressful life events, although not related to specific disorders, appeared to increase one's overall susceptibility to illness, and are related to both physical and mental health (Thoits, 1983).

Steptoe (1991) noted in a review that a variety of experimental, clinical and epidemiological research strategies provide evidence, linking stressful life events to illness and health; but it accounts for a modest 9 % of the variance.

For the purpose of the current study an analysis would be made regarding the number of events in the recent past, whether they are desirable, undesirable or ambiguous; and whether they are personal or impersonal. The level of desirability would be based on individuals personal perception as well as by the culturally valid norms.
COPING

Coping with stress is a universal phenomenon. Individuals do not passively experience hardships and difficulties; they actively try to manage them. The existence of stress as measured through stressful life events becomes less important if it is not reviewed as to how the individual appraises it and copes with it (Lazarus, 1993). There is a steady and ever increasing interest in coping, to analyze how people manage their lives despite adversity, thus providing a frame for analyzing behaviour (Weber, 1997).

Coping has been defined as an individual's cognitive and behavioural efforts to manage (reduce, minimize, master and/or tolerate) specific internal as well as external demands that are appraised as taxing or exceeding the person's resources (Folkman and Lazarus, 1980). Coping is, thus, the active role that individual plays in constructing his or her psychological world and in utilizing resources to manage stress or to modify problematic aspects of the environment (Daka, Varma and Malhotra, 1995).

There has been debate with regard to the nature of coping. Some researchers have postulated the existence of coping styles which are consistent across situations, whereas others view it as different coping strategies that are situation specific.

Coping style is a stable predisposition, to respond to stress in particular ways, irrespective of the situation (Carver et al., 1989). It is the cross situational stability in people's responses to stress (Amirkhan, 1991). This is because “Coping is personality in action under stress” (Bolger, 1990).

Despite evidence for the existence of stable coping styles that are determined by personal factors, people were found to be more variable than consistent in their coping patterns (Folkman and Lazarus, 1985). Coping strategy is in relation to the special demands...
of specific situations. In their dynamic transactional model of the stress process, Lazarus and Folkman (1984) explained that coping responses constitute a process that is likely to vary with situations, as a function of the stage of encounter being faced.

Situational determinants of coping include the domain and type of stress faced, the distress experienced and the appraisal of the stressor. Terry (1994) provided evidence of situational factors influencing coping while Forsythe and Compas (1987) found the evidence to be equivocal. Aldwin (1991) reported that perceptions of event controllability were linked to situational coping responses. Problem focused coping strategies were favoured in situations appraised as controllable (Terry, 1994, Mehta, 1989).

Under ordinary circumstances, successful coping responses include a variety of behaviours directed towards the stressors at hand. Pearlin and Schooler (1978) distinguished three major types of coping responses which are distinct from each other by nature of the function they perform. They are:

1. Responses that change the situation out of which the strainful experiences arise.
2. Responses that control the meaning of the stressful experience after it has occurred but before the emergence of stress.
3. Responses that function to control the stress after it has emerged. Responses that modify the situation are aimed at altering and eliminating the very source of the strain. This method is not commonly used in general population.

In situations where coping does not succeed in changing the stressful event attempts are made to suffer the stressful impact of the problem by coping responses that function to control the meaning of the problem. By cognitively neutralizing a threat, it is possible to avoid stress that might otherwise result or arise.
Lastly, coping function is said to exist for the management of the stress than for its elimination. Some examples that potentially function in this manner are: try not to worry, because time itself will solve that problem; accept hardship because it is meant to be; avoid confrontation; take the bad with the good; just relax and difficulties will become less; everything works out for the best.

Biliings and Moos (1981) provided a framework for operationally defining coping responses. Coping has been considered to have two components, namely, the methods used and the focus of the coping responses.

Eight types of potential coping responses, each defined by a particular combination of method and focus of coping emerge. In terms of methods, the individual can utilize either an active response to solve the stressor or choose to avoid the stressor. The focus of the coping response may be directed at the problem itself (Problem oriented) or on the emotional consequence of the stressor (Emotion oriented).

A problem focused coping response refers to activities through which problems are directly confronted. Emotion focused coping refers to activities that reduce the degree of emotional distress that occur during period of upset.
Stone and Neale (1984) delineated eight categories of coping strategies. They reported that in responding to a stressful situation people employed one strategy in 50% of the problems they faced but for the rest of the problems they used two or more strategies.

Frequency use of various coping strategies in adults were as follows:

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct action</td>
<td>46%</td>
</tr>
<tr>
<td>Acceptance</td>
<td>30%</td>
</tr>
<tr>
<td>Distraction</td>
<td>27%</td>
</tr>
<tr>
<td>Situation redefinition</td>
<td>25%</td>
</tr>
<tr>
<td>Catharsis</td>
<td>25%</td>
</tr>
<tr>
<td>Relaxation</td>
<td>17%</td>
</tr>
<tr>
<td>Social Support</td>
<td>15%</td>
</tr>
<tr>
<td>Religious strategies</td>
<td>6%</td>
</tr>
</tbody>
</table>

"If there is a consensus in the coping literature, it is the important distinction between emotion focused and problem-focused coping" (Endler and Parker, 1990). This is the common categorization of coping.

Although both types of coping represent efforts to manage demands that are appraised, as taxing one's resources, emotion focused coping is directed toward regulating affect surrounding a stressful experience, i.e., the behaviours are directed at reducing the distress. The problem focused coping involves direct efforts to modify the problem causing the distress i.e. the behaviours are directed at solving or managing the stressful situation (Lazarus and Folkman 1984). In most situations, a combination of both these types are used, rather than any one of them to the exclusion of the other.
Another frequently used type of coping behaviour is the use of social support in order to deal with stressful situations. The support seeking coping strategy serves both problem and emotion focused functions to the extent that others can provide emotional and practical or informational support (Lazarus, 1993).

Another conceptual approach has been to divide coping into approach versus avoidant activities. (Suls and Fletcher, 1985; Roth and Cohen, 1986). These are types of cognitive and emotional activities that are oriented either towards or away from threat. Approach strategies allow for appropriate action and for ventilation of affect. Avoidant strategies, on the other hand, seem useful in reducing stress by postponement and inaction and by finding ways to avoid thinking about the problem. Billings and Moos (1981) proposed a typology consisting of active behavioural, avoidance and active cognitive style.

Coping responses were strongly associated with whether the situation was primarily work related or interpersonal stressor; problem focused being used for former and emotion focused for the latter or for episodes in the personal domain (Folkman and Lazarus, 1980, O' Brien and Delongis, 1996). Higgins and Endler (1995) examining the interactions between stressful life events and coping to physical and psychological distress reported emotion oriented coping to be significantly predictive of distress. Distraction was significantly positively correlated with psychiatric symptoms and somatization. Rao (1997) in her reviews reports that having a larger coping repertoire is significantly correlated with mental health indices such as reduced psychological distress, greater subjective well being and better adjustment. Coping behaviour associated with psychological distress were mainly emotion focused such as blame self, others and fate; hope a miracle will happen; pace up and down; see movies more than usual; read novels and magazines and sleep more to avoid thinking about the problem.
For the purpose of the current study, an assessment of the commonly used coping methods by the subjects will be made. The methods would be categorized as under as given by (Daka, Varma, Malhotra, 1995):

(i) **Cognitive positive**: When beneficial for the subject e.g., go over problem and try to understand it.

(ii) **Cognitive negative**: When it is not beneficial to subjects e.g., view future as bleak.

(iii) **Problem solving**: Make a plan of action and follow it e.g., talk to family members, come up with different solutions.

(iv) **Distraction**: Behaviours appear to serve the purpose of shifting the individuals attention from stress e.g., get away from things.

(v) **Magical thinking**: Wish that one can change what has happened e.g., by wearing a lucky charm.

(vi) **Avoidance**: Tries to avoid rather than face the situation, e.g., try to forget the situation.

(vii) **Help seeking**: Seeking advice e.g., reassurance and emotional support.

(viii) **Religious**: Involve in religious activities e.g., praying to God.

(ix) **External attribution**: Attributing suffering to outside agency e.g., blaming fate, blaming others.

The total number of coping mechanisms used would also be assessed.

**FAMILY FUNCTIONING**

There is ample evidence for the important role that family plays in the physical and mental health of its members. Family should be viewed as the primary unit of health care (Turk, Flor and Rudy, 1987). Research suggests that 70-90% of all illness episodes are handled outside the formal health care system and self treatment within the family provides a substantial proportion of health care throughout the life cycle (Reiss, 1982). There is also
evidence that how a person defines his other symptoms is largely based upon the consultation with family members (Turk and Kerns, 1985). Illness prevention, illness acquisition and illness treatment behaviors are all associated with family modeling and family functioning.

In the pre-research stage prior to about 1850, according to Christensen (1964) most of the thinking about the family was a reflection of "traditional beliefs, religious pronouncements, moralistic exhortations, poetic fantasies, and philosophical speculations. In the second phase, influenced by Darwinism family was understood only though gradual evolucinary changes.

The family system is an inter-actional system that evolves through the developmental cycle of the family; the history of the families; or orientation of the spouses. Various patterns of interactions between the components of the new marital family system create the dynamics from which the structural aspects of the family emerge. (Bhatti, Shah, and Kumar, 1998).

There are two major schools of thought regarding the family functioning.

a) **Structural Model**: - (Minuchin et al., 1978). By this new point, the family is seen as an open, sociocultural system in transformation i.e., it progresses through developmental states. The individual is regarded in this social context as he interacts with this environment, changing in its structure and consequently in its demands. There are boundaries between the family subsystems; which are the " rules defining who participates and how". Problems arise when the boundaries of intergenerational subsystems become stronger than the generational boundaries. There are two extremes of boundaries within which the system functions. This is the continuum of enmeshment – disengagement.
The enmeshed family is overly tight, with little or no autonomy for its members. If "closeness" of the system is threatened, members respond rapidly and defensively. Behavior change or reaction to stress in one member reverberate throughout the system. The heightened sense of belongingness comes at the cost of individual interdependence. In disengaged families, member's function autonomously with little loyalty and distorted sense of independence in the family. There is no support nor interdependence in the family. Parents abdicate their authority and other members tend to operate within their own separate little domains; stresses in one member do not affect the others (Minuchin, 1974).

Extensive work in this approach has been conducted to show the effect of family functioning on the genesis of psychosomatic illness in children and adolescents (Minuchin et al., 1978) and in asthma, anorexia, somatisation and other illnesses (Liebman et al., 1976). More commonly, these disorders are in enmeshed families, or are found when the child becomes the conflict detouring mechanism for family stresses. (Minuchin et al., 1978).

This theory has become the base for successful family therapies of a variety of disorders (Steinglass, 1995).

b) **Circumflex Model (Olson, 1994):** - In this model, over 50 theoretical concepts with different orientations have been rendered to extensive theoretical analysis to be clustered into two dimensions of

i) Cohesion, and

ii) Adaptability

Cohesion is a measure of the emotional bonding between family members on the one hand and the degree of individual autonomy experienced on the other hand. It is the degree of connectedness and separateness in the activities done; and is closely related to the enmeshment-disengagement continuum. Adaptability is a measure of the family's coping skills and stress management. It is the flexibility of family to adapt to external or internal demands. The family adaptability may be chaotic, flexible, standard, or rigid.
In a chaotic family, stress initiates a change which is not goal directed. Due to excessive flexibility and dependency on family members, the homeostasis cannot be maintained. Flexible families are balanced as there is some inner control but there is room for change. Standard families are also balanced between the control and independence. Rigid families are marked by their dominated characteristics. They are resistant to any change and thus have poor adaptability.

These two dimensions have been few of the most frequently studied dimensions in family research (Dundas, 1994). This has lead to the development of Family Adaptability and Cohesion Evaluation Scale (FACES) with its various versions FACES-I, II, III, IV (Olsen et al., 1992). FACES measures an individual family members perception of family cohesion and adaptability. It provides scores for seven subscales of adaptability and nine subscales of cohesion.

In India, the family measures specific to our culture have been developed. These are Family Interaction Pattern Scale (Bhatti et al., 1986) and Family Typology Scale (Bhatti et al., 1985).

As per Family Typology Scale, families are conceived as being of four types.

(i) Normal Cohesive Type: This family strives for the real self by virtue of its acceptance of the normative system of the society in totality. The members are held together by mutual attraction, belongingness and work for the common objectives of the family.

(ii) Egoistic Type: The family as a whole works for family self without any consideration to the actual normative pattern of the society. Family standards are the most
important consideration and any sacrifice can be made to maintain the family image and social prestige of the family.

(iii) **Altruistic Type**: In this type of family, the entire family works for the social self forgetting the real and family self. There is extreme cohesiveness, high mutual trust and firm interpersonal commitment with marked emotional warmth.

(iv) **Anomic type**: In this, individual self is given the highest importance by the family as such. Individualism, rarely influenced by family, is the way of life. Style of interaction and personal convictions are idiosyncratic.

Bharat (1996) concluded that "conflicting findings on family structure and psychiatric illness led to the re-examination of the family's interaction patterns and family self". In this conceptualization, the family is treated as a whole and not merely in terms of its subsystems.

Family Interaction Pattern Scale (Bhatti et al., 1986) is based on the epigenetic theory. According to this theory there is an orderly development in the life of the family. The scale thus gives importance to the evolution of family, the time scale, type of systems, dominant characteristics and, the environmental inputs in the context of the family. It has six subscales pertaining to the following:

(a) **Leadership**: This is concerned with the leadership pattern in the family. The power structure in terms of leader, his role performance, his acceptance and following in the family. Whether he the nominal or functional or instrumental or expressive leader. Also whether the decision making process is goal oriented or not, whether the decisions generate a following or opposition in the family, are all assessed.

(b) **Role**: This refers to the habitual patterns in family through which various functions are carried out. There is emphasis on role allocation, role acceptance, role
accountability, and role implementation. These are seen within the 'necessary family functions' i.e. the instrumental and affective functions.

(c) **Communication:** This assesses the patterns of communication i.e., whether it is one way or two way; direct or indirect; clear or masked; verbal or nonverbal; and ambiguous. Switchboard phenomenon in family communication is also measured.

(d) **Reinforcement:** Whether reinforcement is social, verbal or physical. It's consistency and predominant type i.e., whether it is positive or negative, are all significant and are assessed.

(e) **Cohesiveness:** The degree of emotional bonding and concern between the family members. Whether the members are connected or separated; the degree to which they shall share feelings, the mutual support, appreciative interactions are all assessed while measuring cohesiveness.

(f) **Social Support:** The financial / material support and the emotional support, that the family needs, and the degree to which it receives when needed and asked for from the relatives, the friends, and the larger social organizations are all assessed. Whether the family is socially isolated or belongingness is present are important.

In the present study assessment of family functioning would be done using the Family Interaction Pattern Scale

**VERBAL FLUENCY**

Verbal fluency is the measure of the spontaneous flow of speech. It is representative of the speed and ease of verbal production.

Following brain injury, many patients experience changes in the speed and ease of verbal production. Greatly reduced verbal productivity accompanies most aphasic disabilities, but it does not necessarily signify the presence of aphasia (Luria, 1973).
Impaired verbal fluency is also associated with frontal lobe damage, particularly the left frontal lobe anterior to Broca's area (Deutsch-Lezak, 1983).

Fluency of speech is typically measured by the quantity of words produced, usually within a restricted category or to a stimulus, and usually within a time limit. Almost any test format that provides the opportunity for unrestricted speech will test its fluency (Walsh, 1994). Individuals with impaired verbal fluency have impoverishment of spontaneous speech and a reduction in the conversational replies which often shrink to passive responses to questions. These responses may have an echolalic quality. Commonly used methods for measurement of verbal fluency as reported by Deutsch – Lezak (1983) include tests in which the subject is required to generate words according to an initial letter in which the subject thus needs a strategy for guiding his search for words for best performance. The test may require use of same initial consonant or variations on a theme or naming items in a category. Some famous tests are:

(i) **Word naming:** One of the earliest tests which requires the subject to say as many words as possible in one minute (Terman and Merrill, 1973, standardization of Stanford –Binet Test)

(ii) **Controlled Oral Word Association Test:** Consists of three associative word – naming trials of one minute each employing letters “FAS” or “CFL” or “PRW”. Norms are available for the sum of the three sets, adjusted for age, sex and education (Benton et al., 1983). These have proven to be sensitive indicators of brain dysfunction especially of the frontal lobe origin (Miller, 1984).

(iii) **Set Test:** In this, the subject is asked to name as many items as he can from the four successive categories, namely colours, animals, fruits and towns. He names items in the first category until he recalls ten items or can remember no more, at which the next category is announced (Isaacs and Kennie, 1973). The association of alexithymia with impaired verbal and non-verbal recognition of
naming emotional stimuli have been consistently reported (Lane et al., 1996; Parker et al., 1993). Vingerhoets et al. (1995) postulated that highly alexithymic subjects prefer a pragmatic and practical love style than the use of much verbal expressions.

Lamberty and Holt (1995) studied alexithymia and specific domain of cognitive functions using neuropsychological battery of tests. Modest but consistent correlations were noted with measures of developmental verbal ability. These relationships were absent in other variables. Authors suggested that poorly developed verbal ability may relate to presence of primary alexithymia, irrespective of secondary etiological factors. The deficits may be in not just emotional feelings vocabulary, but may include limitations in general verbal fluency.

While verbal fluency deficits in brain dysfunction is a proven fact (Walsh, 1994), some tests analyzing alexithymia using measures of verbal productivity have reported incidental findings of low verbal productivity. Using TAT to analyze affective content (affect word count) and potential expression of different affects (affect variability or affect vocabulary score) to determine alexithymia, Taylor and Doody (1985) reported decreased verbal output as well, i.e. the length of stories was significantly shorter.

Further, patients who had undergone cerebral commissurotomy have been reported to have alexithymia characteristics (Ten Houten et al., 1987).

Keeping in view the above, a strong case for exploration of any relationship between verbal fluency and alexithymia is indicated. For this purpose two tests namely word naming and the set test would be utilized in the present study.