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THEORETICAL FOUNDATIONS OF THE STUDY

2.1. Introduction:

A scientific analysis and capsule account of the relevant studies conducted by preinvestigators on the topic of research prepare the investigator to plan, proceed and operate the research under-study insightfully and systematically. In fact, a scientific review of the relevant literature lays the very foundation of the research gives a direction to the researcher in designing, developing and executing the research, and promotes a feeling of self-confidence. The investigator, therefore, made a conscious effort to make a review of the available relevant literature on the dependent and independent variables.

Stress, as such, has a wider application, deeper meaning, varied connotations, and multiple terminology. Consequently, a huge quantity of research is performed within the overlapping subjects of conflict, frustration, anxiety, defense, emotions etc. In view of stress being regarded as a common field to express even psychopathology and psychosomatic disorder, it involves medicine, psychiatry, physiology, psychology, sociology and anthropology; apart from engineering convention. Perception of the same object
by scientists of different disciplines obviously leads to inconsistent and universally unaccepted terminology.

Mirsky (1964, p. 535) in the Timberline Conference on Psychophysiologic Aspects of Cardiovascular Disease, stated, "I have heard a word used frequently in the last two and one half days which bothers me a good deal, and that is the word 'stress'. If one examines the literature dealing with 'stress' it becomes apparent that almost every energy transformation can be interpreted to be a stressful phenomenon.... I would suggest that we stop using the term 'stress' in a loose sense and instead refer to what we are dealing with a more specific term. Usually we are really talking about noxious stimuli...". Such a sad state of affairs contributes to the absence of universally accepted unifying system of concepts of stress.

In this study, we are concerned only with the psychological stress. Therefore, no attempt has been made to review the literature on biological stress, sociological stress or engineering conventions of stress. Further, since the present study is centred around the psychological stress reactions as a dependent variable of the achievement motivation and educational and occupational aspiration, the review of literature has been made to that effect and extent. In view of these delimitations, the studies on psychological stress stimulus, threat, threat appraisal,
coping process have been reviewed only to the extent they are relevant to the main theme of the study in some way or other.


In general, the studies on various aspects of psychological stress conducted by Janis (1958), Basowitz, Persky, Korchin and Grinker (1955), Grinker and Spiegel (1945), Bettelheim (1960), Elye (1956), Smelser (1963), Mechanic (1962), Cantril (1947), Lindemann (1944), Baker and Chapman (1962), Visotsky, Hamburg, Goss and Lebovists (1961), Hamburg, Hamburg and de Goza (1953), Lazarus (1966) and countless others have highlighted the dimensions and wider scope of psychological stress. 'Threat Appraisal and stress reactions' which have a direct relevance with the present study has been organized around (i) Stress Stimulus configuration, and (ii) Personality Factors, as their primary determinants.

2.2 Stress stimulus Configuration as determinant of Threat Appraisal:

For the convenience, clarification and configuration of the relevant studies, the review of literature
on psychological stress as dependent variable has been, therefore, presented under the following headings:

2.21 Studies on Threat Appraisal and Stress Reactions.

2.22 Indicators of Psychological Stress Reactions:
   2.221 Problems and Nature of Psychological stress Measurement.
   2.222 Negatively Toned Affects
   2.223 Motor Behaviour Stress Reaction
   2.224 Electro-physiological indicators of stress reaction.

2.3 Personality Factors as determinant of Threat Appraisal:
   Psychological Stress Reactions as related to:
   2.31 Threat and Motivation.
   2.32 Motivation and Coping Process.
   2.33 Threat Appraisal, Motivation and Level of Aspiration.

2.4 Recapitulation:
The literature on 'changes in the adequacy of cognitive functioning' dealing with the coping process as indicator of psychological stress reactions has been considered beyond the scope of this study.

2.2 Stress Stimulus Configuration as determinant of Threat Appraisal:
2.21 Studies on Threat Appraisal and Stress Reactions:

Lazarus (1966) conceives of three factors that contribute most to stimulus configuration in threat appraisal. They are (I) Relative balance of power between the harm-producing stimuli and counter-harm resources of the individual and environment, (II) the imminence of the anticipated confrontation, and (III) the ambiguity of the cues about whether there will be a harmful confrontation?

The review of studies on stimulus factors in threat appraisal has been organized around these determinants:

(I) Relative balance of power between harm-producing stimulus and the counter-harm resources:

(a) Role of objective danger in the production of Threat:

Studies conducted by Tompkins (1959) on the incidence of neurosis among pilots as a function of the danger of the flying job, by Grinker and Spiegel (1945) on the anticipations of danger of combat creating not only a sense of bereavement, but the anguish of bloody and painful death among the military personnel, by Janis (1958) on the threat of surgery creating preoperative fear as central indicator of stress among patients, by Danzing, Thayer and Galanter (1958) on the role in threat appraisal of harm potency of the anticipated stimulus conditions among flood affected disastrous people, by Berry, Silber and Block (1956) on the
emotional effects of mass killing of children, reveal the role of objective danger in the production of Threat as an intervening variable of psychological stress.

(b) **Role of individual's own resources in meeting the situation of helplessness:**

Mechanic (1962) refers to the power of the individual over the harm-producing condition as reversibility and reported that "the severity of stress and its duration are related to the individual's capacity or that of his group to reverse it". With a view to understand stress, he, therefore, points out that we must identify the means available to deal with the situation that has elicited the discomfort and the ability of the person or group to acquire and effectively use these means. Epstein (1962) took the GSR records of parachute jumpers before and after a jump, and reported that "the basal conductance is uniformly higher before than after a jump. This, of course, is not surprising, as subjects can be expected to be more tense before than after the jump. It also corresponds with our observation of a state of euphoria following a jump. Of greater interest is the observation that the difference in activation before and after a jump diminishes as a function of experience. The inexperienced jumper is in an extremely high state of activation before the jump and
in an extremely low state of activation after, while the most highly experienced jumpers are in a relatively moderate state of activation both before and after the jump". Basowitz et al. (1955) and Walk (1956) have also studied the condition of threat and stress reactions under the situation of parachute jumping. The latter assessed threat reaction to the jump with a self-rating scale and reported that the degree of fear induced by parachute training is in proportion to the trainee's estimate of the danger and his confidence in being able to perform adequately. .... Trainees who admitted high fear on the self-rating scale tended to be those who showed negative answers on questions about danger, and said they were more worried about injury in airborne training or in combat, and admitted less confidence in their ability to perform adequately in combat or in parachute jumping (Walk, 1956, p. 177).

Farber, Harlow and West (1957) and Betterheim (1960) studied the helplessness of the prisoners of war producing 'debility, dependency and dread' as key factors in their vulnerability. The former analyzed the reactions of prisoners to brain washing during the Korean war while the latter studied the systematic efforts of the SS concentration camp guards to convince the prisoner of his probable fate if he behaved in 'undesirable' ways. Pointing out
the helplessness of the prisoners derived from the extraordinary degree of control the captors had over other physical and social environment, Bettelheim remarks that, "This was so much so, that whether or not one survived may have depended on one's ability to arrange to preserve some areas of independent action, to keep control of some important aspects of one's life, in spite of an environment that seemed overwhelming and total. To survive, not as a shadow of the SS but as a man, one had to find some life experience that mattered, over which one was still in command" (Bettelheim, 1960, p. 147).

The theme of helplessness or lack of control in military combat situation has also been studied by Haggard (1949), Grinker and Spiegel (1945). Moore's (1958) study of a tornado and Janis' (1962) analysis of the effects of warnings of disaster as signs of anticipatory fear, observe that the presence of some highly regarded protection against the danger reduces the extent of threat by shifting the balance of power against harm in favour of counter-harm resources.

Visotsky, Hamburg, Goss, and Lebovits (1961), Alexander (1954), Walters and Marugg (1954) and I. Davis (1957) have made some interesting observations of victims of paralytic polio relevant to the problem of helplessness in the clinical setting whereas Wheaton (1953), Mayer (1956),
Bettelheim (1960) etc. studies the efforts at control over the situation in determining even the survival of the individual exposed to danger under the conditions of human isolation. In an experimental study, D'Amato and Gumenik (1960) reported that 'predictable punishment is less threatening than unpredictable punishment' whereas Pervin (1963) studied the efforts of different degrees of certainty and control under threat conditions using electric shock, and concludes that "complete predictability is more desirable in new and highly threatening situations, whereas some degree of unpredictability is desirable in repetitive, less threatening situations" (Pervin, 1963, p. 586).

On the strength of the findings on the studies that deal with the balance of power between the harm producing stimulus and the counter-harm resources, it may be concluded that "the individual is threatened to the extend that his resources for avoiding or overcoming the harmful circumstances are weaker than the potency of the harmful stimulus. Under conditions of helplessness or lack of control, the balance of power is shifted in favour of the harmful stimulus, increasing the likelihood of threat" (Lazarus, 1966, p. 101).
(c) **Role of Environmental counter-harm Resources in reducing the likelihood of threat appraisal:**

Grinker and Spiegel (1945, p. 22) studied the role of environmental counterharm resources in a military combat situation and indicated that any sign of failure or limitation acknowledged by the individual on the part of any of these external supports alarmingly increased the threat as the ability to survive depended upon the proper functioning of the rest of his crew and his plane. On the contrary, the presence of high degrees of skill on the part of others in an interdependent situation was assuring and served to reduce threat. This finding has been supported by Lindemann (1944, 1960) and Mechanic (1962, p. 145) and Friedman, Chodoff, Mason and Hamburg (1963) in situations of threat connected with bereavement, examination, and the imminent loss of a child suffering from cancer in clinical setting respectively.

The observations of both Mechanic (1962) and of Friedman et.al. (1963) make it clear that 'environmental supports are a complex affair, and that well-intentioned behaviour does not necessarily help, but may even greatly enhance the threat or weaken the resources of the individual to muster it' (Lazarus, 1966, p. 105); however, threat is less in the presence of effective counter-harm resources than it is without them (Visotsky, 1961, p. 440). Further,
acquaintance with the component or constituent parts of
the environmental resources correspondingly inputs vigour
and vigilence in the individual. Janis (1962) cites the
work of Hudson (1954) and Neusch and Prestwood (1949) on
the role of other significant persons as under:

"When a person knows that authority figures, friends,
or members of his family are nearby, he feels assured and
his vigilence reactions tend to be lower than if he knows
such persons are absent. But the net effect of the actual
presence of a significant person depends partly on what
that person says and how he says it" (Janis, 1962, p. 77).
However, it is certain that when the counter-harm resources
in the environment appear to be inoperative or inadequate,
threat will be greater" (Lazarus, 1966, p. 106). In studies
conducted in experimental settings, Zuckerman, Albright,
Marks and Miller (1962), Visotsky et al. (1961), Stevenson
and Odom (1962), and Hill and Stevenson (1964) have compared
the role of social deprivation versus general stimulus or
sensory deprivation. Loss of sensory input has been held
as the cause of disturbed reactions; however, Zuckerman
et al. (1962) and Stevenson and Odom (1962) emphasized the
effect of the social isolation. Rather, Hill and Stevenson
(1964), S. Schachter (1959), A. Davis (1944) and Lazarus
(1966) have claimed the role of interpersonal relationship
in reducing threat. Lazarus (1966, p. 108) has specifically
pointed out that "often, individuals exposed to threatening situations will make efforts to increase interpersonal contacts in an attempt to mobilize social resources against threat".

The review of studies on stimulus configuration in threat appraisal reveals that the balance of power between and the harm-producing stimulus and counter-harm resources of the individual is a key factor in avoiding or weakening the harmful confrontation of threat. The likelihood of threat appraisal correspondingly increases with the relative perception of the potency of the anticipated harm. Similarly, an inverse relationship also exists between threat appraisal and individual's resources. The more effective are the resources for controlling the harmful confrontation, the lesser is the likelihood of threat appraisal.

(II) The imminence of the anticipated confrontation with harm:

The imminence of anticipated confrontation with harm takes into consideration the proximity and recency as potential factors of threat. Both, the potency of the agent of harm and the imminence of the harm function simultaneously, and are interdependent factors. When the potency for harm is great, nearness of the confrontation increases the threat to the maximum provided by the strength of the
motive to be thwarted" (Lazarus, 1966, p. 111), Fackett and Weisman (1962), Weisman and Hackett (1961) have reported that the presence of certain diseases put the individuals with the imminent prospect of confrontation of death. In observations on parachute jumpers, Epstein et al. (1962) demonstrated that as the danger became closer at hand, threat usually increased approaching the maximum, permitted by the strength of the motive or motives to be thwarted. However, the actual harmful confrontation was a constant danger. Mechanic's (1962) studies of graduate students anticipating crucial examinations and subsequently the results provide further evidence on the factor of imminence as a determinant of degree of threat reports. "As the examinations approached and as a student anxiety increased, various changes occurred in behaviour ........ When the examinations are nearly upon the student, anxiety is very high, even for those rated as low anxiety persons, although students do fluctuate between confidence and anxiety..... The anxiety over the results increased to its most intense point during the day of the final faculty meeting, especially during the hours of meeting in the late afternoon. As tension and anxiety mounted, students found themselves incapacitated for work" (Mechanic, 1966, np. 142, 144, 172).
Brown, Donald, R. (1967) discussed student stress and institutional environment and pointed out that student stress originates directly from the incongruity between their desire and expectations. Tobias, Sigmond and Abramson Theodore (1971) and Vollmer, Fred and Almas, Rigmor (1974) studied the interaction of students with scholastic instructions. The former investigators made interactional of anxiety, stress response mode and familiarity of course-contest on achievement from Programmed instructions and found significant interaction among facilitating anxiety and other variables. They also found that debilitating anxiety interacted with stress on easy material; however, no interaction with other materials on complex, technical content, was obtained. The results were interpreted in terms of achievement motivation. The latter group of investigators studied achievement motivator as a determinant of threat arousal construct in examination, add and found that success in terms of examination result did not affect motivation scores, whereas failure led to higher scores on hope of success among males but not for females. The effect of stress resulting from academic failure has been studied by Gibby R.C. Jr. Gibby, R.G. Jr. (1967).

Ammann, Rene (1970) studied the influence of psychological stress on test results and found that slight test anxiety in the absence of psychological stress improved
the scores of below average Ss. The under-current effect of achievement motivation has been recorded as a potential determinant of this improvement. Kjerulff, Kristens and Wiggins, Nancy, H. (1976) observed two categories of graduate students when they made a factor analysis of (Ss' x responses x situations) on the study designed to investigate the coping process. They found that one category of students was progressing well in graduate school and responded to all types of stressful situations with anxiety while the other category who were less competent responded by blaming themselves for academic failure situations; however, blaming others for interpersonal failure. German G. Allen and Assael, M.I. (1971) studied achievement stress and psychiatric disorders among students in Uganda and analyzed possible etiological factors in the production of psychiatric disorders apparently precipitated by study stress. The results reveal that developing societies place a disproportionate emphasis on academic education and achievement causing major stress situations for individual students. The symptom patterns resemble those of the brain "syndrome with the addition of subjective and objective depression. Coburn, David and Jovaisas, Al. V. (1975) conducted a study on first year medical students with a view to record their perceived sources of stress. They demonstrated that academic factors were viewed as the most stressful, and social factor as the least stressful. Among anticipated
sources of stress, those dealing with perceived failure were highly stressful, and those dealing with sexual aspects of the doctor-patient relationship were much less so. Factor analysis revealed a multidimensional characteristic sources of stress. This result conforms with that of Vollmer, Fred and Almes, Rigmor (1974) to the extent that fear of failure in academic achievement is a potential source of stress; and this has a direct bearing upon the achievement motivation of the student. (Abaramson, Theodore, 1971; Vollmer, Fred and Almer Rigmor 1974; Kjerulff, Kristen, et al. 1976; Mechanic 1962, Coburn, David et al. 1975).

Gorcor, F.D., Matova, M.A., and Rozemblat, B. Sh. (1971) evaluated the nature of the mental states in man during complex conditions of activity by a simultaneous recording of GSR, EKG and EEG, and demonstrated that introduction of stressful changes led to different reactions in different Ss; however, the performance changes coincided with changes in the electrophysiological measures taken. Rusinova, V. (1974) observed differences in the effect of mental stress on performances of healthy and neurotic individuals in terms of pulse rate measure on tests of continuous discrimination, memory tasks, logical thinking etc. as dependent variables, and found that neurotics experienced greater stress than normals; however, reward motivation improved performance of normals and impaired the performance
of neurotics. Further, difference between neurotics and normals on the memory task suggested that neurotics should work under less stress on work with a lesser memory requirement. Hogan, Martin, J. (1971) studied the effects of anxiety, stress, task difficulty and stage of learning on performance in paired associate learning whereas Renner, John and Renner, Vivian (1972) worked on the effects of stress on group versus individual problem solving. In another study, Hochmen, Sidney, H. (1976) recorded the effects of stress on stroop colour word performance and found that stress affected performance differentially depending upon the nature of the incongruous stimuli. This result was found to be consistent with the earlier finding. Bracco, Howard, F. (1973) also found consistent result by investigating the physiological, cognitive and affective responses to film induced stress. By taking into account the repression sensitization dimension, Bouscsein, Wolfram and Frye Marianne (1974) studied the physiological and psychological effects of stress due to failure in terms of heart rate, respiratory rate, GSR and skin temperature, and found that all Ss in the failure stress group differed in physiological and psychological measures from the neutral group thereby refuting the notion that in comparable situations, repressors are less affected in their physiological responses than sensitizers. Sandman, Curt, A. (1975) studied the
physiological responses in terms of galvanic skin potential (GSP), GSR, heart rate and respiration rate under escape and non-escape conditions of stress of field independent and field dependent Ss categorized into four groups in accordance with their level of trait anxiety and observed most noticeable change for tonic GSP, nonspecific GSR and heart rate. Field independent Ss differentiated the conditions physiologically and behaviourally to a greater extent than field dependent Ss which reveals that the former group of Ss were more dependent upon physiological cues to evaluate their perception and emotions than field dependent Ss. Hocking F. (1976) studied the significance for psychopathology of extreme environmental stress by describing some of the immediate and long term effects of a number of situations involving severe to extreme stress, and observed the possibility of causing permanent psychologic disability and thereby affecting the constitutional factors, patterns of child-rearing and preexisting personality characteristics depending upon the resistance for prolonged extreme stress.

It is evident from the above research findings that time and degree of threat are interdependent. Lazarus (1966, p. 116) has vividly pointed out this interdependence that 'imminence increases threat, and threat also increases imminence'. However, under strong threat,
imminence of the confrontation appears closer than under weak threat. Motive strength, thus, plays vital role in determining the nature, kind and degree of stress.

(III) The ambiguity of the stimulus cues:

Frenkel-Brunswik (1949) has considered 'intolerance of ambiguity' as a threat producing trait of personality. Lazarus (1966) interprets that "ambiguity concerning the significance of a stimulus configuration will usually intensify threat because it limits the individuals sense of control or increases his sense of helplessness over the danger. But this occurs only when there are other grounds, either situational or characterological, for being threatened". Withey (1962) and Janis (1962) have also interpreted the significance of ambiguous information. Janis (1962) states that "unambiguous information about impending dangers will evoke marked changes in the level of fear, and there will be little or no assimilation; but the more ambiguous the cues, the more likely that they will be assimilated into the pre-existing psychological set" (Janis, 1962, p. 70). Dibner (1958) reported positive relationship between objectively assessed stimulus ambiguity and with four of the five anxiety measures excluding the Gt.., indicating thereby that greater degree of ambiguity was associated with larger threat reactions; however,
ambiguity as rated subjectively by the subjects correlated positively with GSR as indicator of physiological stress reaction.

It is evident from these findings that an ambiguity adds further to the threat since it deprives the Ss of cues about the onward action.

2.22 REVIEW OF LITERATURE ON PSYCHOLOGICAL STRESS MEASUREMENT:

2.22.1 Problems and Nature of Psychological Stress Measurement:

Mechanic (1975) discussed some of the problems involved in the measurement of psychological stress and social readjustment. Pointing out the limitations of rating scale as one of the measures of stress, he discussed such others problems as ambiguity of items, the confounding of independent and dependent variables and lack of item specification involved in the standardization of an instrument. Mochizuki, T. (1969) made an experimental study of individual differences in reaction to psychological stress, and highlighted the problems of measurement of individual differences. Neidig, Peter, H. (1971) studied the controls for demand characteristics applied to psychological stress assessment research.
Thiesen, J. Warren, Forpus, Ronald, H. and Spaner, Fred, E. (1964) devised an objective method of assessing a stress syndrome related to achievement motivation whereas Ashton, Heather, Savage, R.D., Thompson, J.W.S., Watson, D.W. (1972) discovered a method for measuring human behavioural and physiological responses at different stress levels in a driving simulator. Furntratt, E. (1968) developed a questionnaire for the assessment of emotional reactions in social stress situations, whereas Fisch Rudolf and Schmalt, Heinz Dieter (1970) made a comparative study of T.T and questionnaire as measures of achievement motivation. In the latter study, poor correlations were found between TAT and Achievement Anxiety Text (AAT), Test Anxiety Questionnaire (TAQ) and Ehler’s Achievement Questionnaire (EAQ). A factor analysis yielded seven factors labeled as resistance to humiliating, vulgar, conceited, insulting by othersome, aggressive and impolite behaviour. Patkai, Paula (1974) presented a review of current methods of studying psychological stress in contrived settings. On the stimulus side, has classified the types of stressors on the criteria of stimulus characteristics or kind of threat involved whereas on the response side, various indicators of stress have been discussed, including measures of changes in affective state, adaptive functioning and psychological arousal. Owens, Kenneth, J. (1971)
studied the effect of UCS temporal uncertainty on heart rate and pain psychophysiology and demonstrated lower heart rate of the male engineering students in anticipation of a temporally uncertain UCS than of a temporally certain one whereas Doudewyns, Patrick, A. (1976) compared the effects of stress versus relaxation instruction on the finger temperature response and showed a decrease in finger temperature under stress conditions while an increase under relaxation. Further, he did not find any significant correlation between finger rate and other psychological measures; however, it was found to be correlated with self-reports of arousal (an automated "Fear Thermometer"). Heart rate response as an index of real and imagined stress has also been tried out by Lyman, Roger, C. (1971). Fridge, P.M., Jons, Y.T., and Leak, D. (1970) presented a taxonomic study of physiological responses to a psychological stress in which he examined the relevance of plasma cortisol concentration, systolic and diastolic blood pressure, heart rate, urine volume and excretion of adrenaline and non-adrenaline as physiological indicators of psychological stress under conditions of a variation in height and weight phenotypes. The investigators concluded that factors related to physique appears to modify some physiological responses of psychological stress, while personality does not appear to be a determining factor of the parameters.
of body-build. They singled out that the most important is the degree of muscularity, and this could be assigned to the first latent vector obtained from the principal coordinate analysis. High components of muscularity have been found to be associated with relatively high non-adrenaline levels and low plasma cortisol levels in response to psychological stress. While discussing social data and working on mental sumsthan while discussing about the future, the investigator remarked that multiple criteria for identification of optimal adjustment may be more valid than the use of a single measure).

Richard, Wayne, C. (1971) developed an approach to the study of personality integration and autonomic responsivity in which heart rate, skin temperature and GSR were the indicators of psychological stress. The results indicate that (a) the low group showed greater reaction as measured by skin temperature change, (b) the average group more quickly reached peak RT in the mental arithmetic task, (c) the mental arithmetic task elicited shorter FTS than others stimuli, (d) skin temperature was the slowest and most reliable modality to responses, and (e) greater heart rate changes occurred while discussing social data and working on mental sumsthan. While discussing about the future, the investigator remarked that multiple criteria for
identification of optimal adjustment may be more valid than the use of a single measure.

(b) **INDICATORS OF PSYCHOLOGICAL STRESS REACTIONS**

With a view to pin-point the studies, and thereby enhance their relevance, the psychological stress reactions have been categorized in terms of its indicators (Horvath, 1959; Lazarus, 1966). Psychological stress reactions can be analyzed qualitatively as well as quantitatively. The qualitative responses of threat primarily deal with coping process, whereas the quantitative stress reactions signify degree of threat. Lazarus (1966, pp. 7-8) has analyzed the latter as mentioned below. The review of relevant studies in this section therefore would be presented under the captions as under:

2.222 **Negatively toned affects:**

2.223 **Motor behaviour reactions:**

2.224 **Electro-physiological indicators of stress:**

2.224 **Negatively toned affects:**

Psychological stress responses have been represented by such disturbed affects as fear, anxiety, anger, depression, guilt, conflict, frustration (Lazarus, 1966, pp. 2,7). Amount of threat, therefore, has been expressed in terms of these
negatively toned affects. Degree of affect is a response indexing degree of threat (Lazarus, 1966, p. 326). Mild threat indicates weaker affect while severe threat expresses stronger affect. Multidimensional (Nowlis and Nowlish, 1956; Clyde, 1963; Jacobs, Capek and Meehan, 1959; Zuckerman, Lubin, Vogel and Valerius, 1964) or unidimensional scales have been used to measure threat appraisal.

Anxiety scales have been by far the most frequently measures of negatively toned affects. Manifest Anxiety Scale by Taylor (1953), a children's version by Castaneda, Mc Candless and Palermo (1956); Scales by Bending (1956); Cattell and Scheier (1960), Dixon, de Monchaux and Sandler (1957), Endler, Hunt and Rosenstein (1962), Freeman (1953), Lykken (1957), Perlman (1958), Sarason, Davidson, Light-hall and Waite (1958), Sarason and Handler (1952), Welsh (1952, 1956) etc. have developed anxiety measures for measuring various aspects of anxiety.

Though anxiety has been singled out as an unusual kind of intervening variable in psychological stress indicator, because of its motivating behaviour, "it is not at all clear whether anxiety is the only affect that serves as a drive or motivator, or whether other affects do the same thing". (Lazarus, 1966, p. 71). euphoria of the hypomania as a defense against depressive affect, reaction formation against anger, and such other indicators as guilt,
fear, disgust, frustration can all function as intervening variables.

By employing one or more of these measures, psychological stress reactions has been measured either in terms of threat appraisal or coping process. In the review of relevant literature that deal with different aspects of content understudy, the measurement aspect of the negatively toned affects measured in terms of amount of anxiety, frustration, conflict, disgust, depression, fear or anger as intervening variables, has been already described.

2.223 Motor behavioural indicators of psychological stress reactions:

Motor behavioural indicators comprising of expressive and instrumental acts have been employed by numerous investigators as indicants of emotional states.

Panek and Martin (1959), Boring (1950), Schlosberg (1954), Kuesch (1953), Hargreaves, Stark Weather and Balcker (1965), Singer and Antrobus (1964) have used various forms of eye-movements, body language and spectral voice qualities for measuring the expressive aspect of motor behaviour reactions.

Though importance of expressive acts in communicating motor behaviour reactions has been widely recognized, very little attempt has been made to scale down the degree of threat by means of systematic measurement. The literature cited above rather illustrate the role of expressive act as a potential source of communicating emotions qualitatively and not quantifying it. (Lazarus, 1966, 347)

The instrumental aspect of an act refers to goals that the individuals seeks to accomplish by the act. Injury to someone of an attitude, escape from harm obtaining warmth, ingestion of food and even gestures are some of the instrumental act that indicate motor behaviour reactions. Lazarus (1966, p. 348) points out that instrumental motor behaviour acts communicate emotion by virtue of the directionality or goal orientation of the behaviour. Wahl (1961, 1963), Tiron and Foley (1947), Ekman (1964) have done some noteworthy studies. However, these studies also suffer from the same limitations as those on expressive acts. Systematic measurement of psychological stress by the
application of standardized scales indicating the degree of threat appraisal has been rather very discouraging.

2.224 **Electro-physiological indicators of Psychological stress reactions:**

Lazarus (1966, p. 366) considers arousal or activation of emotion as the quantitative dimension of threat. The mechanism of arousal can be evidenced anatomically as well as functionally. The reticular arousal system (RAS) is anatomically responsible for the arousal of emotion. Injury to the reticular formation induces somnolence, while electrical or chemical excitation of RAS results in arousal. "The arousal is seen physiologically in the blockage of alpha rhythms in the EEG, the appearance of the beta rhythms, and the autonomic and humoral activity that is typically found in emotional states". (Lazarus, 1966, p. 366).

The functional relationship has been established between mental states and the EEG and autonomic response pattern. When a person is attentive in mental efforts, beta wave patterns on the EEG Predominate while under relaxed conditions, the alpha waves (Berger, 1930). The same blocking of the alpha EEG pattern and the increase in beta rhythms have been observed in anxiety state (Friedl, 1954, Cohn, 1949, Kennard, 1953).
The electrical and chemical excitation of RAS is indicated by ECG, autonomic biochemical reactions, as well as behaviourally (Lazarus, 1966, p. 367).

The measurement of threat by means of physiological reactions has been widely studied in terms of arousal of RAS by such responses whose initial antecedent is threat. Wenger (1962), and Lacey, et al. (1963) are of the opinion that any number of physical assaults can produce alteration in ANS activity, thereby bringing about a corresponding change in temperature and humidity, muscular movement and exertion diurnal variation, and hunger and food.

The status of literature on electro-physiological indicators of psychological stress reactions has been rightly pointed out by Lazarus (1966, p. 369) who remarks that:

"In psychological stress research, two large classes of physiological responses have been widely employed. One consists of ANS reactions and the other involves secretion of the adrenal glands. There is a very large psychophysiological literature dealing with what is known about the mechanisms by which these responses are activated and the technology of measurement. It has been well presented in such sources as Arnold (1960), Berlyne (1960), Irady (1962), Lunkenstein, King and Drolette (1957), Lacey (1959),
Lindsley (1951), Malmo (1959), Roessler and Greenfield (1962) and Selye (1956).

Increased technological sophistication in the electro-physiological measurement of autonomic activity has given tremendous impetus to research by employing polygraph records as measure of EEG, GSR, Heart rate, diastolic and systolic blood pressure, blood volume, finger temperature, respiration rate and amplitude, salivary output, pupillary responses, palmar sweating etc. as autonomic indicators. Investigations cited earlier under the captions of 'Threat Appraisal' and "Coping Process" have been conducted under different threat arousal conditions and the psychological stress reactions as responses to different stress-stimuli have been measured by employing one or more of the electro-physiological indicators wherever data have been quantified. Each one of these physiological measures represents different aspects of psychological stress reactions. On the strength of research findings by Lacey, Fagan, Lay and Moss (1963), Weiner, Singer and Reisen (1962), Selye (1956), Lacey and Lacey (1958), Engel (1960), Engel and Bickfold (1961) on the nature of stress-stimulus and individual response, Lazarus (1966, p. 390) specifically comments that, "We should not readily expect high agreement among indicators, since each type of indicator reflects a specific kind of
transaction between and the individual and the situation". The generalization on the nature of stress-stimulus and individual response specificity. The arousal of autonomic nervous system, therefore, functions on a law governed by stimulus specifically and which consequently brings out behavioural changes because of reactions in adrenal glands and other metabolic changes which are represented by electrophysiological indicators as measures of psychological stress reactions characterized by individual response specificity.

2.3 Personality factors as determinant of threat appraisal:

Threat appraisal has been primarily affected by three main classes of factors governing the psychological structure of the individual. They are: (1) Motivational Characteristics of the individual, (ii) Belief systems concerning transactions with the environment, and (iii) Intellectual resources, education and sophistication. On a criterion of relevance, review of studies on personality factors as determinant of threat appraisal has been restricted to only first factor.

2.31 Motive strength and threat appraisal:

The degree of threat is regulated by the strength of the motive or motives whose gratification is endangered.
"The upper limits of the degree of threat are set by the strength of the motive engaged" (Lazarus, 1966, p. 121). He found a linear relationship between the strength of motive and the degree of threat.

(1) **Laboratory experimentation on threat and motivations:**

Mahl (1949) studied the secretion of hydrochloric acid (HCL) in the stomach under chronic threat on the assumption that it was a causal factor in the etiology of gastric ulcers. He trained eight medical college students to swallow a stomach tube which permitted measurement of HCL secretion, and obtained a number of measures of stomach acid content under different conditions of threat of examination and non-threat. On the strength of result, he reported that six of eight Ss showed an increase in stomach HCL as measured prior to the examinations. One of the two Ss who did not show any increase in stomach-acid content did not appraise the examination as a threat because of his pre-professional selection while the other has been described as content with "the gentlemen's grade of C." The absence of threat in the last case derives from weak motivation to achieve academically.

Vogel, Raymond and Lazarus (1959) studied the physiological stress reaction as a function of intrinsic motivation of under two experimental threat conditions i.e. thwarting of
either achievement or affiliation goals. On the strength of a number of behavioural and self-report measures, two smaller extreme groups were formed on the criteria of achievement and affiliation motivations, namely: i) Very high in achievement motivation but low in affiliation ($H_{ach} - L_{af}$) and (ii) Very high in affiliation but low in achievement ($L_{ach} - H_{af}$). Psychological stress reactions were measured in terms of skin conductance, blood pressure, and pulse rate. The results reveal that the ($H_{ach} - L_{af}$) group was disturbed most by achievement related threat stimuli whereas ($L_{ach} - H_{af}$) was disturbed most by affiliation.

ii) Studies on threat and individual difference in motivation:

The variations in the motivation of individuals to avoid the threat of death have been studied by Feifel (1959), Shneidman (1963), Diggory and Rothman (1961) and Bromberg and Schilder (1933). Grinker and Spiegel (1945) studied the motivational conflict underlying combat neurosis whereas Forchin and Ruff (1962) described the motive strength as personality characteristics of the American astronauts, and concluded that the possibility of failure in the performance to which the astronaut was committed was even more important than death. They reported that, "Actually, the focal threat during the flight, as well as at other times during training,
lay in the possibility of failure. These are ambitious men with strong needs for achievement and considerate pride; that the mission might fail, particularly through some act of the astronaut, was a real threat and more central in consciousness than the realization that they might be harmed or die in the failure" (Korchin and Ruff, 1962, p. 12).

Motivational effect as an important determinant of individual differences on the production of threat has been studied in a number of settings. Bettelheim (1960) estimated the role of motivational variable in the concentration Camp whereas Haggard (1949) discussed the effect of motivational pattern on the production of threat in military settings. The former compared the differences between middle class prisoners and criminals, and pointed out that the former was least able to withstand the initial shock of imprisonment". Their self-esteem had rested on the status and respect that came with their positions, depended on their jobs, on being head of the family, or similar external factors. In contrast, the criminal group was least affected by the shock imprisonment." However, "whether and how much the initial shock (of imprisonment) was experienced as severe trauma depended on the individual's personality" (Bettelheim, 1960, pp. 119, 120-121, 123). The validity of the inferences made by Bettelheim's (1960) study has been
commented upon by Biderman (1965) on the grounds of methodological shortcomings. Haggard (1949) discussed the relationship between the motive strength and threat reactions, and pointed out that: "Generally speaking, motivation initiates, directs and sustains an individual's behaviour, and is a critical factor in his adjustment to emotional stress. If a person is required to perform a certain task, it is important to know both whether his motivations for doing it are strong and enduring. It is also important to know the quality or nature of his motivational pattern" (Haggard, 1949, p. 450).

McReynolds (1962) in psychopathological setting while Visotsky et al. (1962), Hamburg, Hamburg and de Goza (1953) and Wright, Wright and Dembo (1948) in clinical settings studied the role of motivational variable on the production of threat reactions. McReynolds (1962) has reported differences in motivational variables accounting for depressive as opposed to schizophrenic threat reactions; and interpreted the results as a consequence of difference in central life goal in terms of an unassimilable experiences between schizophrenic and depressive patients threatening the psychological structure. He remarked, "The motivation of the schizophrenic to avoid failure or punishment has been widely documented in a number of laboratories. The depressive person's motivation, on the other hand, would be primarily
around attainment, and his major symptom; guilt, would reflect a felt failure of attainment" (Mc Reynolds, 1962, pp. 18-19). Mc Reynolds (1962) considers motivations as a key variable in the determination of different kinds of threat reactions; especially the psychopathological patterns of depression and schizophrenia. Studies by Decker (1960), Becker, Spielberger, and Parker (1962), Mabel B. Cohen et al. (1954) and Garmezy (1967) support Mc Reynolds's analysis of motivational differences between manic-depressive psychopathological groups as having primary concerns around the problem of achievement.

Studies conducted by Visotsky et al. (1961) on paralytic polio victims, Hamburg, Hamburg, and de Goza (1953) on severely burned patients, and Wright, Wright, and Dembo (1948) on injured persons provide the importance of motivational factor in threat appraisal in clinical setting. Hamburg, Hamburg, and de Goza (1953, p. 19) have estimated that, "the intensity of threat is directly proportional to the need which the patient has for the function that he feels is jeopardized". This conclusion reveals thwarting of the central life goal as a motivational variable which leads to the production of threat. Shock of diagnosis, anxiety over illness and survival, helplessness, total dependency, fear of being isolated, fear of failure of equipment on which life depends, fear of rejection by
significant others, guilt feeling, and belief that illness is a punishment (Lazarus, 1966, p. 129); Hamburg et al., 1953, p. 19; Wright et al., 1948, p. 19) are some of the sources of threat.

Zuckerman (1964) demonstrated perceptual isolation as a stress situation, and inferred that, "the S's personal "sets" expectations, attitudes, motives etc. may be a major factor in determining isolation endurance since perceptual isolation is often regarded as a 'Challenge'. These sets may account for sex differences in endurance in favour of men, and the finding that S's motivated by a preestablished endurance goal will stay in isolation longer than S's without such a goal. (1964, p. 272). Flaherty, Flim, Hanty, and Steinkamp (1960) reported on the behaviour of Ss in simulated orbital flights of thirty-six hours' duration in the USAF school of aviation Medicine Space Cabin Simulator, and pointed out the personal feelings of inadequacy and excessive preoccupation with failure as predominant features. Analyzing the clinical report of one of the two subjects, the investigators indicated that there seems to be a strong motivation on the part of the subject to succeed coupled with beliefs about his own inadequacy and expectation that he would be humiliated by the situation. The threats appraised in this situation are at least twofold. One is the prospect of humiliating failure; the other is the actual danger assumed to exist because of lack of confidence in the personnel's
ability to cope with emergencies. Lazarus pointed out that the threats are understood at least partly in motivational terms. (Lazarus, 1966, p. 131).

Stating the concept of psychological harm as motive thwarting, Grinker and Spiegel (1945, p. 353) remark that, "combat experiences of sufficient intensity can not be measured or averaged because they are not of objective, even though they seem so real at the moment. What is traumatic to one may be innocuous to another. The personal meaning of stress is ultimately more important than its superficial appearance, and cannot be judged by a medical Officer unless he uncovers this meaning by careful individual studies".

The individual difference in meaningfulness of the psychological harm as motive thwarting as conveyed by the stimulus Configuration has also been highlighted by Perry, Silber, and Bloch (1956, p. 23) who specifically pointed out that, "meaning of a particular event may differ importantly for some purposes, from one person to another, depending upon the situation in which it occurs". Cofer and Appley (1964), Pascal (1951), Mechanic (1962), and Lazarus (1966) have also emphasized that degree of harm depends upon the strength of the motive, and the thwarting of motive determines the psychological stress. Lazarus (1966, p. 57) observes that, 'The more severe and basic is the harm conveyed by the
stimulus, the more universal is likely to be the stress reaction".

Grinker and Spiegel (1945) studied the conflicts of motives during prolonged exposure to combat flying. The conflicting motive given predominant importance by them comes from powerful interpersonal ties that become established among the men in airplane crew. Any failure to perform in accordance with social expectation endangers these relationships. The basic threat-inducing conflict of the airman is sustained by equally powerful motivational forces, one pushing for escape from the physical danger, the other pushing him to remain in the situation to finish out his tour of duty. The investigators remarked, "How intense this internal conflict can be is attested by the statements of many combat crew members that they suffer more when they are on the ground and their crew is flying without them on a combat mission than they do when they are flying. Since their motivation is based principally on their identification with their combat unit and their loyalty to their friends such conflict is inevitable (Grinker and Spiegel, 1945, pp. 35-36).

In essence, motive strength of an individual or of a society plays a crucial role in achieving the central goal of life or the norms of a group. To the extent the motive of the individual or of a groups is thwarted, to that extent
a threat is generated in the individual or among the members of the group. Further, the greater the motive strength, the stronger the threat generated. In this regard, individual differences in motivational patterns and motive strength account for the variations in the nature, kind and degree of threat. The most important role of intrinsic motivation is to establish a basis for discriminating between situations that are threatening and those that are not" (Lazarus, 1966, p. 133).

The observations on results conducted by investigators mentioned above on different settings and threat producing situations reveal that motivation constitutes significant variable of personality in producing threat. The individual differences as reflected through the index of motive strength determine the production of threat to the extent the motive of the individual as a central goal of life is thwarted.

(III) Cross cultural studies on threat and motivation:

The horizon of studies on motivational variables as a determinant of threat appraisal has been extended to cross-cultural observations also. The social values, the cultural norms and community goals of different social groups cause differences in the motive systems of their members. Employing the peculiar cultural trait of 'Shame of failure'
of the Japanese to which they are very sensitive, Benedict (1946) made a comparative study of the motive strength of the Japanese and American school children on the rationale that competition that might lead to failure is avoided in Japan, and when it occurs with Japanese school children, it often leads to deterioration of performance whereas in the American Society, competition stimulates them to do their best work. Consequently, preservation of the name, at any cost is the index of strong motivation among the Japanese, and which makes him especially vulnerable to threats concerning injury to his name, whereas the Americans by contrast is relatively lesser sensitive about 'clearing his name' of imputations of failure and inadequacy. Such a motivational variation between the Japanese and Americans has been remarkably contrasted by Benedict.

Westerners are likely to feel, it is a sign of strength to revel against conventions and seize happiness in spite of obstacles. But the strong, according to Japanese verdict are those who disregarded personal happiness and fulfill their obligations. Strength of character, they think, is shown in conforming, not in rebelling". (Benedict, 1946, p. 207).

L. Takeo Doi (1962, 1963) has also observed that mutual dependency is a characteristic cultural trait of the Japanese but not of Americans. "Japanese should be much
more willing than Americans to deal with threats by openly seeking social support and approvals, and they are more likely than Americans to admit distress over social approval or rejections" (Lazarus, 1966, p. 133). Since cultural variation largely accounts for sentimental operations, the stimuli producing threat are regulated by the motivational variation as observed by the community norms and social goals. In another study, Averill, James, R., Opton, Edward, M. Jr. and Lazarus, Richards, S. (1969) presented a contrastive study of American and Japanese Ss who watched a subincision film, and demonstrated that with the exception of differences in skin conductance and tendency of Japanese Ss to respond physiologically at the same level through out in contrast to American counter-parts, they discovered similarities between culture in terms of expressive reactions and interpersonal relations in stress.

2.32 MOTIVATION AND COPING PROCESS:

The specific nature of motivation of an individual determines largely the nature of threatening or non-threatening stimuli as well as of the coping process. Some of the action tendencies of an individual are responsive to a certain type of stress stimulus configuration, and in a specific way; and not to others. Situational constraints or internalized social values might be playing vital role in the operation
of the specific action tendencies. The pattern of motivation determines the production of not only the threat, but also the additional threat mounted by the expression of coping impulses.

(I) Impact of internalized values on coping process:

Buss and Brock (1963) demonstrated the effect of internalized values in the inhibition of expression of action tendencies and in the production of guilt. College students were required to administer electric shock under two experimental conditions, i.e. (i) half of the Ss read a contrived article indicating that shock was harmful, while (ii) the other half read an article which stated that shock was a beneficial experience. The main objective of the investigators was to evaluate the way guilt affects recall. The researchers observed significantly less recall of the negative communication that shock was harmful than of the positive one. They accounted for the results in terms of repression of statement as a defense mechanism in the process of selective recall as an index of threat. They remarked that, "The main finding of this experience was a clear repression effect; recall of the negative communication was significantly poorer than recall of the positive communication .... Selective forgetting occurred only when subjects carried out behaviour relevant to the opposed attitude" (Buss
and Brock, 1963, p. 349). This result indicates the role of internalized moral values on the defective process of repression or suppression of disagreeable experience or guilt. Selective recall is a screening process in which the guilt prone syllables have been blocked while the non-guilt prone ones have been released. The conscious efforts to avoid thinking about a disagreeable experience is an index of motive strength of the individual which operates on internalized value system.

Weatherley (1961, 1962, 1963) conducted a series of experiments to show that the expression of aggression, acquired primarily from the attitudes and behaviour patterns of the mother, is presumably related to internalized values.

In his first study, Weatherley has shown that Ss high on a measure of anti-semitism more readily displaced aggression to Jews under the conditions of attack and threat than those low in anti-semitism. He pointed out that "Individuals very low in anti-semitism have a specific tendency to avoid expressing aroused aggression towards Jews. . . . . They showed a definite inhibition of post-arousal fantasy aggression with respect to Jewish named characters (1961, pp. 456-467). Lazarus interprets that, "by phrasing the absence of aggression towards Jews as inhibition of aggression, Weatherley (1961) is implying an internalized
value against attacking Jews, while the origins of such an internal moral structure are not clear, the findings qualify as illustrations of motivational factors within the psychological structure that influence appraisal and coping since internalized values can be classified as motivational properties of the individual". (1961, p. 214).

Weatherby's (1962) second study deals with the expression of aggression as measured by TAT stories following exposure to insulting and depreciating comments by the experimenter at the time of taking the paper-pencil task by Ss. Data were collected from two groups of Ss whose mothers were (i) very permissive, and (ii) non-permissive toward aggression. The investigator observed, "That the low MP (maternal permissiveness) subjects showed no such increase in aggression; on the other hand, may be taken as as indication of inhibiting influences operating in these subjects. The data imply that relatively non-permissive maternal attitudes toward childhood aggression are associated with the development of relatively strong internal restrains against expressing aggression" (Weatherley, 1962, p. 4).

In his third study, Weatherley (1963) found that stern maternal discipline toward childhood aggression is associated with a high degree of anti-semitism among women. It is, thus, inferred that displacement of aggression is
also stimulated by non-permissive attitudes on the part of the mother to the child's aggression. Lazarus (1966, p. 214) poses a question as to "Why it results sometimes in the inhibition of aggression (Weatherley, 1962), and at other times in displacement (Weatherley, 1963) is not clear. The difference may lie in the locus of the constraints, internal or external".

Kaufmann and Feshbach (1963) also conducted a study on displacement of aggression under insulting and non-insulting experimental conditions over highly punitive and low punitive Ss, and pointed out the importance of pre-dispositional variables in mediating displacement effects. The investigators observed that, "The effect of aggressive instigation is seen to be strikingly dependent upon initial level of punitiveness toward the juvenile delinquent. Subjects who prior to exposure to peer opinion were in favour of severe punishment for the delinquent, were significantly more punitive toward him after being severely criticized by E than were a comparable group of Ss who were initially opposed to severe punishment. These results are consistent with Berkowitz's (1959) findings and point to the importance of predispositional variables in mediating displacement effects" (Kaufmann and Feshbach, 1963, p. 440).
The effect of predispositional variables on displacement of aggression has been critically summarized by Kaufmann and Feshbash who commented that:

In evaluating the role of predispositional variables, Lindzey (1950), Weatherley (1961), and Berkowitz (1959) have subjected high and low prejudiced individuals to anger-arousing conditions. While the results of these studies are not completely consistent, the last cited experiment in particular suggests that high prejudiced individuals are more likely to displace aggression than individuals low in social prejudice. One might expect, on an analogous basis, that people who already hold punitive attitudes toward juvenile delinquents are more likely to displace aggression to delinquents than those less punitive. There are at least two considerations which lead to this hypothesis. First, an already negative attitude facilitates the transfer of additional negative responses. Secondly, individuals who hold punitive attitudes towards delinquents probably differ in personality structure from people who are rehabilitation rather than punishment-oriented; e.g. one would expect the former to be more authoritarian and characteristically to use displacement as a mode of defense" (Kaufmann and Feshbach, 1963, pp. 428-429).

Milgram (1965) experimentally demonstrated the effect of group pressure on conforming behaviour as internalized values in constraining aggression; and pointed out that conformity need not always involve negative consequences; but it has the capacity of group pressure to produce constructive behaviour. He designed an experiment with a view to "Create a situation in which undesirable behaviour occurs with regularity, and then to see whether group-pressure can be applied effectively in the direction of a valued behaviour outcome" (Milgram, 1963, p. 3).
The Ss were required to give increasingly more severe punishment ranging from 'slight shock' with the voltage level from 15 volts through 'severe shock' with the voltage terminating to 450 volts. Three-fold results were obtained:

1) Group pressure promoted positive values as well.
2) The internal constraints as part of internalized values operated against the unlimited influence of group pressure. It is, thus, evident that the Ss were caught between two conflicting pressures engendered by the experimental situation - pressure for obedience from the authority figure (飞船) and the pressure from peers (the confederates serving as 'teachers' along with the S).
3) The internalized value of not making another person suffer was found stronger than the value of obedience to or co-operation with the experiments.

II - Affiliation and approval motivation:

Gordon and Cohn (1963) conducted a study on two groups of nursery school children who were exposed to a doll-interview situation in which frustration was experienced vicariously, and measured the amount of aggression expressed by Ss under the experimental conditions of affiliation and non-affiliation motivation. The investigators reported that the amount of aggression depends on
the strength of affiliation motivation. Under the non-affiliative condition, the children expressed significantly more aggression concerning the doll frustration than when affiliation motivation was presumably aroused. They remarked that, "Non-permissiveness for aggression in a nursery group produces a decrease in aggressive behaviour relative to that shown by children permitted to behave aggressively. This points up an alternative means of reducing aggressive behaviour, through the evocation of a conflicting motive. This finding suggests that aggressive drive may not be as imperious and prepotent a determinant of behaviour as is commonly thought". (Gordon and Cohn, 1963, p. 305).

Commenting upon the above result, Lazarus remarks that "With affiliation motivation strong, the additional threat of social disapproval of attack as a means of coping is greater and will tend to inhibit its expression. The study is note worthy because instead of manipulating the external constraints, Gordon and Cohn aroused an internal motive that served the same function. But in such a situation, the social norm must be critical of aggression if the internal motive is to have inhibitory power. Both the existence of such constraints and the relevant motivations are necessary to produce this inhibitory effect". (Lazarus, 1966, p. 218).

Under the conditions of threat, approval motivation as a personality trait results in the inhibition of aggression.
(Cohn and Crowne, 1964). They remark that, "The results of investigations into the relationship between need for approval and perceptual defense support the proposition that defensiveness is a salient component underlying the motive for approval, and further more, that this defensiveness is in part unconscious. Basic to this defensiveness and sacrifice of self-directedness in search of favourable evaluation from others appears to be a need to protect and enhance vulnerable self-esteem. In his attempts to gain affirmation and confirmation of worthiness as protection against alienation and social rejection, the approval-seeking person seems to employ repressive defenses" (Conn and Crowne, 1964, pp. 163-164). In another study on euphoria which they consider as an alternative cognition to hospitality, they found that approval-oriented Ss exhibited significantly more euphoria in the experimental condition than did the Ss assumed to be low in need for approval (Conn and Crowne, 1964, p. 177).

Actually the study by Conn and Crowne (1964) is a part of a larger Project described by Crowne and Marlowe (1964) who worked on the approval motive under the assumption that the tendency to solicit approval is not in full awareness of the individual. The study reveals three-fold results:
1) The style of life of the high approval-oriented Ss takes place on a low level of awareness, making the reactions defensive rather than merely exploitative.

2) The approval motive underlies and accounts for a host of social behaviours including defensiveness, and is associated with a negative self-evaluation.

3) A process of appraisal is inherent (Crowne and Marlowe, 1964, p. 190).

Accepting the findings of Crowne and Marlowe (1964), Lazarus points out that the individual selects a coping strategy on the basis of having evaluated what is called for in the situation, what is necessary to preserve the self. And one of the crucial underlying features of the personality that displays this pattern is a strong approval motive coupled with a gender belief system concerning his vulnerability to disapproval" (Lazarus, 1966 p. 223). The studies conducted by Crowne and Marlowe (1964) provide strong support for the fact that pattern of motivation is an important factor in the choice of coping process. Hetherington and Wray (1964) conducted a study under the assumption that "in situations where aggression is disapproved, strong needs for social approval will result in the inhibition of its expression, but alcohol will release such disapproved impulses". The Ss
were categorized into (i) High-aggressive and low-aggressive groups on the strength of scores on a standardized paper-pencil scale of aggression, and (ii) high and low in the need for social acceptance on the basis of scores on a social acceptance scale. Under two experimental conditions i.e. an alcoholic and non-alcoholic, amount of aggression was measured from a series of photographed cartoons on a scale ranging from extremely unfunny to extremely funny. Their results reveal that high aggressive \( H_{na} \) Ss who were sober, and had a high need for social approval \( H_{nsa} \) rated the aggressive cartoons much less favourably than such Ss did after a drink of alcohol. Their non-alcoholic ratings were actually like those of Ss low in aggressive need \( L_{na} \). The alcohol had no effect on the ratings of Ss with \( L_{na} \). Similarly, Ss \( H_{na} \) but \( L_{nsa} \) were also unaffected by the alcohol. Interpreting their results, the investigators remarked that:

"NSA (need for social acceptance) tends to inhibit the expression of aggressive preferences. However, under the influence of alcohol, the inhibition is sufficiently attenuated to permit expression of the aggressive need. Whether increased aggressive preferences are based on a perceived reduction of the probability of censure in the situation or on a decrease in the salience of NSA under a alcohol remains unknown. Low NA (need aggression) Ss apparently have little impetus to express aggression under either of the experimental conditions. High NA-Low NSA seem minimally motivated to restrict socially disapproved responses at any time. Therefore, the disinhibiting effect of the alcohol has little influence upon their aggressive humour preferences" (Weatherington and Wray, 1964, p. 688).
The effect of motives or internalized values in determining the expression of coping process has also been identified by Berkowitz who pointed out that, "He may also inhibit his hostile tendencies because of his own attitudes or general reactions to such behaviour. Guilt feeling would arise if he were aware that he had violated his strong internal standards of conduct condemning aggressive behaviour, and he attempts to avoid this guilt arousal (Berkowitz, 1962, p. 90).

Anxiety, motivation and threat:

Hokanson (1961) studied the tendency to aggression anxiety for which Ss were divided into High and Low groups on the strength of amount of hostility based on Siegal's Manifest Hostility Scale (1956) which measures the trait of hostility, the disposition to react readily with hostile feelings and behaviour. Ss were exposed to threat of painful and non-painful situations. Electro-physiological records were obtained as measures of the amount of psychological stress reaction. The investigator reported that Ss with high test hostility were found to be significantly more disturbed than those with low hostility. Interpreting the result, the researcher remarked:

"Assuming that the high test hostility Ss generally have a relatively strong degree of aggressive motivation, or at least a great readiness to express strong anger, the
results suggest that they may become so strongly hostile when aroused that aggression anxiety results which inhibits overt hostility. An alternative explanation derived from the Sears, et al. (1953) hypothesis states that intense punishment for hostile behaviour results in aggression and anxiety. According to this view, the aggression anxiety developed in the high test hostility Ss during the course of their socialization is frustrating and makes them feel angry; a state they describe on psychometric test. However, this anxiety also inhibits the expression of overt hostility" (Hokanson, 1961, p. 37).

The threat reaction can also be predicted by such personality dispositions as arousal of greater hostility and inhibition of hostility (Hokanson, 1961) because of its damaging social consequences. Any way, the tendency to exhibit aggression in response to threat may be considered as a dispositional attribute of an individual.

Numerous researches have been conducted on ego-strength and ego-control as component part of motivational variables, and their effect upon threat appraisal and coping process has been investigated; and a linear relationship has been observed. (Kruger, 1954; Misch, 1954; Hurwitz, 1954; Murphy, L.B., 1962; Block and Martin, 1955; Barker, Dembo and Lewin, 1944; Livson and Mussen, 1957; Block and Block, 1952; Grinker and Spiegel, 1945; Haggard, 1949; Silber, Hamburg, Coetho, Murphy, Rosenberg and Perlin, 1961; Cynthia, Wild, 1965).

Findings arrived at by different investigators reveal that internalized moral standards function like
external situation constraints in inhibiting the expression
of aggression, and among all the personality variables, the
nature, kind and degree of motivation, whether n Ach or
n Aff, or n Approve play vital role in determining the threat
appraisal and nature of coping process.

2.33 Threat Appraisal, Motivation and
Level of Aspiration:

Considerable attention has been given on the concept
of self by adherants in modern personality theory (Rogers,
1951; Smygg and Combs, 1949; Lecky, 1945; Maslow, 1954;
Hilgard, 1949; Hebb, 1960; McKee, 1959). Harvey, Kelley
and Shapiro, (1947) found the increase in the level of
tension as assessed by certain defensive activity as a
consequence of realization of flower rating by others.
They observed that both the degree of negativeness of the
evaluation and devaluation by an acquainted person than by
a stranger are rather more threatening to the self.
Gerard (1961) has experimentally manipulated the degree of
discrepancy between self-appraisal and his relative standing
in a matched group and found that self-evaluation was
threatened, and even altered by false knowledge of result.
Further, level of aspiration was also changed as a result
of false information. Gerard's assumption was that the
greater the discrepancy between a self-evaluation and one
produced by norms of task performance, the more tension
or threat should occur, and the greater should be the con-
sequent change in self-evaluation in order to reduce the
tension. It has been pointed out that the individuals
who depended more on other's evaluation was found more
likely to change his self-evaluation if he expected his
score to be made public. (Gerard, 1961). However, it
is evident from both the studies conducted by Harvey et al.
(1947) and Gerard (1961) that "changes in self-evaluation
are interpreted as based on threats to the self, although
the results could just as easily be conceptualized in
purely motivational terms". (Lazarus, 1966, p. 63).

Feather (1963) conducted a study in which he
investigated the level of aspiration as related to threat
appraisal. A group of male Ss were required to make estimates of their probable success in an anagram task.
The actual probabilities of success varied from 20 to 50 or 80 chances. The investigator found that the subjects'
probability of estimates of success varied in close relation to both the stimulus variables: i.e. (1) anagram puzzles of different lengths, and (ii) knowledge of results. He observed that as the anagram became shorter, and as the probabilities announced by the experimenters became greater, the subject himself estimated higher probabilities of success.
With a view to predict the probabilities of success, Alpert and Haber (1960) used their 'Achievement Anxiety Test' which supposedly measure 'debilitating anxiety' as well as 'facilitating anxiety'. They found that Ss with high debilitating anxiety scores gave lower estimates of the probability of success, while those scoring high in facilitating anxiety gave high probability estimates. It is, therefore, concluded that some kind of anxiety reactions are correlated with pessimistic estimates of task performance, while others had to optimistic aspiration levels.


Millimet, C. Raymond and Gardner, Dennis, F. (1972) studied the relationship between trait anxiety and psychological stress whereas Manuck, Stephen, B., Henrichsen, James, J. and Ross, Elizabeth, C. (1975) worked on the relationship between measures of life stress locus of control and anxiety. On the strength of data obtained on Jacob's life change Inventory (Category A), Lotter's Internal-External Control Scale and the Trait Anxiety
Inventory, the investigators reported that highly stressed Ss displayed greater trait anxiety than Ss of low stress. They, further, pointed out that highly stressed internals did not differ from highly stressed externals on either anxiety measures while externals of low stress reported significantly more trait anxiety than internals of low stress. Cattell, R.B. and Barlett, Harold, W. (1971) developed an R-d technique for the separate measurement of anxiety as a state and as a trait and to test the hypothesis that anxiety and stress are distinct state patterns. Epstein, Seymour (1971) employed heart rate, skin conductance and intensity ratings as measures during experimentally induced anxiety.

Schmeidler, Gertrude, R., Iris, Ginsberg, Stanley and Lukomik Mary (1965) and Centi Paul (1969) discussed the influence of motivation, anxiety and stress in a difficult task and observed motivation as most critical factor of anxiety and stress during performance. Ingram, Douglas, H. (1974) studied the healthy and neurotic components of goal setting behaviour and located five areas in which achievement motivation is subject to neurotic distortion: (a) goal setting is initiated and sustained by unconscious conflicts; (b) goal-directed behaviour is inflexible and not adapted to real needs; (c) reactions to success or failure seem paradoxical; (d) goals are set for others
rather than for one-self and there is a general externalization of goal setting; and (e) the entire sequence of goal setting and goal directed behaviour repeats itself identifying with relatively minor elaborations and substitutions.

Mahone (1960) undertook a research on career goals and found that failure motivated college students make unrealistic vocational choices while success motivated students make realistic choices. Atkinson and Liwin's (1960) Test Anxiety was conceived as a motive to avoid failure while n Ach as a motive to approach success.

Success motivated Ss were defined as those high on n Ach and low on Test Anxiety whereas failure threatened Ss were defined as those high on Test Anxiety and low on n Ach. (Atkinson and Liwin, 1960). Kipnis, Dorothy, M. (1974) related the concepts of inner and other-direction discussed by D. Riesman et al. (1953) to sex differences in correlates and antecedents of achievement motivation and behaviour.

Data supported the conclusions that the contemporary American males are other-directed in achievement fantasy and action whereas those American females who participate in career and professional achievement setting as adults are inner-directed.
Inkson, J.H. (1971) tested the theory of achievement motivation in vocational choices and found that persons with high \( n \) Ach were relatively more attracted to moderate than to high or low probability occupations, and had a particular liking for business and engineering occupations and evaluated prospective occupations relatively more in terms of intrinsic work content than extrinsic rewards; however, their results varied in different social class groups in a way which indicated that \( n \) Ach only affects occupational values strongly when it conflicts with values characteristic of S's social class.

Beavers, Elizabeth, C. (1970) studied the effects of certain anxiety producing techniques on achievement testing and motivation in high school geometry classes whereas Atwal Mohinder S. (1971) recorded the effect of written suggestions on achievement and aspirations at different anxiety levels. A comparative study of test anxiety and educational as well as occupation aspirations has been made by Littig, Lawrence, W. (1970) who reported that anxiety is seen as affecting occupational achievements but not aspirations. Raynor, Goel, C. (1970) established the relationship between achievement motivation, future orientation and academic performance. Their data reveal that: (a) Ss high in \( n \) Ach and low in test anxiety received higher grades when they conceived a good grade in particular
college course to be related to their own future career success (high perceived instrumentation-High PI) than when they did not (Low PI), and (b) the differences in grades between those high and low in PI was larger for the high n Ach-high test anxiety group (H n Ach H Ta).

When the average of grades for a semester and its rating of PI were considered, both motive groups tended to receive higher and anxiety group was found only within high PI. The expected superiority in grades of the high n Ach - low test anxiety group (H n Ach - L Ta) was found only within high PI in the first study.

2.4 RECAPTULATION

A resume of the review of relevant studies on psychological stress as related to motivation, aspirations and other variables reveals the nature, direction and magnitude of research conducted in the field. Though there exists a rich literature on psychological stress, achievement motivation and aspiration, hardly any research from the points of view of (1) design of research and interactions under-study, (2) psychological constructs included, and (3) techniques of measurement of psychological stress reactions employed, has become to the notice of the investigator.
From the theoretical studies reviewed above, we may conclude the existing status of relevant research as under:

1) That, huge as well as rich literature is available within the overlapping subjects of conflict, frustration, anxiety, defense, emotions and disaster under the rubric of stress; primarily described as biological, sociological and psychological.

2) That, stress has been considered as an interdisciplinary concept. Consequently, it has been mostly studied by psychopathologists, psychiatrists, physiologists, medical practitioners, sociologists, anthropologists.

3) That, stress as such is relatively a new word in the vocabulary of psychologists. Grace Heider has pointed out that word first appeared in the index of the Psychological Abstracts in 1944. However, the issues encompassed by this word are very old ones and have been considered under the rubric of emotion.

4) That, in available literature, psychological stress has been analyzed in terms of 'threat appraisal and coping process'. Threat has been considered as an intervening variable occurring between the stress stimulus and stress reactions. The anticipation of threat as a harm thwarting to the motive of the individual and the subsequent coping process adapted by the individual depend largely upon the
cognitive style of the individual. Thus, the threat appraisal and coping process as evoked by the stress stimulus configuration determine the nature, kind and magnitude of psychological stress reactions. Since threat appraisal and coping process are primary components of psychological research, investigators have centred their studies predominantly over these two aspects. The stress stimulus configurations producing threat in different settings and situations, and thereafter determining the coping process in accordance with the cognitive determinants as well as the psychological stress reactions of an individual as produced by the threat anticipating harm, and as indicated either by negatively toned affects, or motor behaviour reactions, or some of the electrophysiological indicators, have been the primary concerns of the investigators. Among all the indicators, anxiety as an index of negatively toned affects and EEG, GSR, blood pressure, blood volume, respiration rate, heart rate, pupillary change, finger temperature, salivary out-put, palmer sweating as electro-physiological measures of psychological stress produced by activation or arousal in autonomic nervous system or change in metabolic process because threat producing stimuli, have been widely accepted by investigators to measure psychological stress reactions. The findings in general highlight the importance of
stimulus-specificity and individual response-specificity which have a greater relevance with our study; so far as the extreme levels of $nAch$ and levels of educational and vocational aspirations characterized by (uninduced) stress-stimulus specificity of this study are concerned, whereas various parameters i.e. anxiety, frustration, motor behaviour reactions, and $EEG$, $EMG$ and $EKG$ as electro-physiological indicators of psychological stress reactions under study characterized by individual response specificity in general are concerned on a reciprocal relationship basis.

5) that, literature dealing with psychological stress reactions as related to other psychological constructs have been found rather very meagre. Psychological stress reactions as related to motivation have been studied by a few investigators, but there exists hardly any study that directly establishes relationship with achievement motivation, though some investigations have been conducted establishing the relationship between $n$ affiliation and $n$ approval. Almost all research findings on motivation in relation with psychological stress have unidirectionally inferred that motivation is not only a determinant of psychological stress reaction; it is rather a drive to activate and arouse the threat as key to psychological stress, and to help the individual to manipulate his coping process. Thus, motivation is one of the primary and
predominating determinants of psychological stress reactions. It has, therefore, been found to be highly correlated with different parameters of psychological stress reactions.

So far as psychological stress reactions as related to level of aspiration is concerned, only two studies have come to the notice of the investigator; however, no study was available that exactly deals with the relationship between psychological stress reactions and educational and occupational aspirations.

The resume of review of relevant literature vividly points out the lack of significant basal and supportive research for the present study. The nature, direction and magnitude of research-resume further indicate the gulf that exists in literature on the relationship between psychological stress reactions and n Ach and aspiration. The need, importance, scope and significance of the present study is, therefore, quite evident from the review of existing literature on the topic understudy.

6) that, psychological stress has been mostly studied either in terms of stress-stimulus or stress-reactions. The stress stimulus has been exposed in terms of threat invariably either by induced anticipatory harm, and thereby generating fear, anger etc. under certain conditions, or by self-generated anticipatory harm leading to thwarting of
motives, and thereby producing fear, anger etc. Numerous studies on stress-stimulus variables presented in different settings and situations to produce threat under the conditions mentioned above, and stress-reactions as dependent variable indicated by various parameters discussed earlier, have been undertaken. However, except a few studies (Mechanics, 1962; Brown, Donald, R., 1967; Abramson, Theodore, 1971; Vollmer, Fred and Almas, Rigmor, 1974; Kjerulff, Kristens and Wiggins, Nancy, H. 1976; David and Jovaisas, Al. V. 1975; Coburn, David et al. 1975; German, G. Allen and Assael, N.I. 1971; Boucsein, Wolfram and Frye, Marianne, 1974 etc.) which appear to be most relevant to the present study from the points of view of kind of sample; and nature of self-generated anticipatory harm producing threat.

In the present study, extreme groups on \( \alpha \) Ach and educational and occupational aspiration as independent variables assume of self generated anticipatory harm producing internal threat as stress-stimuli while psychological stress reaction as dependent variable have been measured in terms of its different parameters. We assume that a highly achievement motivated pupil would generate automatically a greater internal threat by the anticipation of harm leading to thwarting of motives in different fields of his competitive life situation as compared to a pupil
with extremely low achievement motivation. Similarly, an individual having a high aspiration in educational attainment and occupational placement would certainly anticipate greater harm in case his educational and occupational motives are thwarted in comparison to one who is characterized by extremely low level of aspiration. No study has come to the notice of the investigator which has a direct bearing upon the present work.

The review of literature cited in this chapter is relevant to the extent we consider achievement motivation and aspiration as stress stimulus variables producing an automatic self-generated anticipatory harm, thwarting the motives of pupils; and thereby producing threat in them. The threat specificity produced by extreme groups of independent variables would be correspondingly reflected through different measures of psychological stress reactions, characterizing thereby its individual response specificity as a dependent variable.

In essence, the review of studies cited earlier hardly prepares any solid base on which the present study could be specifically founded. However, it does give a direction for designing the present investigation on a new line of action where the threat has not been induced externally. Rather, it has been assumed to be inherent
differentially in all individuals and groups because of differential nature of inherent inner-directed drive arousal process that anticipates harm differentially by thwarting of motives leading to threat appraisal. Very few researches have been conducted on this assumption, and on this design; in which the basic \( n \) Ach and aspiration inherent in the individual differentially have been considered as stress-stimuli. The psychological stress reactions as dependent variable has been measured in the same way as cited in the literature. Anxiety as an indicator of stress has been very much highlighted, while frustration has been hardly undertaken as a depressive indicator of psychological stress reaction. The latter too has been, however, included in this study as an indicator of negatively toned affect.

We, therefore, mark the following departure from the existing literature on psychological stress reactions as related to achievement motivation and level of educational and occupational aspiration.

1. That, in the present study, stress-stimulus configuration has been assumed inherently among the high and low extreme group students in whom differential nature of \( n \) Ach and level of aspiration would function automatically because of inner-directed anticipatory harm leading to the thwarting of their motives, and thereby producing threat. The study does not aim at inducing external threat, and
thereby observing the effect of stress stimulus on stress reactions but utilizing the existing inherent threat because of specific psychological structure of the individual in terms of his \( n \) Ach and aspiration as independent variables.

ii) that, the measurement of psychological stress-reaction as a dependent variable does not find any departure from the existing techniques; however, frustration as a depressive indicator of negatively toned affect has been included as one of the parameters of psychological stress-reactions.

iii) That, the study has been based on a new design which employed the extreme groups on \( n \) Ach and educational and occupation aspirations for collecting data. Perhaps, in this context, the present study is an extension of the work done by Mechanic (1962). Data has been processed and treated in terms of various interactions among independent variables in relation with each one of the measures of dependent variables.

iv) that, the study has been basically conceptualized on the findings of Mechanic (1962) who conducted his study on student samples. From his results, we conceived of the fact that different categories of students visualize differential nature of threat in the conduct of their
examination and announcement of results; and the amount of psychological stress, observed in them differed not only from one category to another, but also from time to time, place to place and situation to situation. Mechanic's findings were, thus, very much meaningful, significant and relevant in the theoretical conceptualization, formulation of hypotheses and methodological operations.

v) that, the study has been designed on the concept of extreme group variation in arousal or activation of autonomic nervous system, and in reactivity. Thus, a highly achievement motivated extreme group would react differently to the same stress-stimulus variable or threat producing situation in comparison to an extreme group with low achievement motivation. Such a thinking is universally operative for other extreme criterion groups also.

Apart from the group specificity as a significant basal concept, stress stimulus specificity as a psychological concept has also contributed much in the formulation of hypotheses and treatment of data.

The review of relevant literature and its relevance and significance with the present study reveal that no such study which has father a greater educational and vocational significance in a developing country like India, has been
undertaken so far. Though the existing body of knowledge developed out of the literature understudy, prepares a base for the present study, sets limits, highlights merits, and specifies the direction of action in the formulation of hypotheses and treatment of data to a certain extent, it, however, conceptually makes a departure from the available literature in terms of nature of stress-stimulus, threat-producing conditions, formulation of hypotheses, kind of sample, research design and treatment of data.