CHAPTER - I

INTRODUCTION

Modern age is the age of competition, rapid pace and complexity; in coping with which one faces difficulties. Due to these day to day pressures and difficulties, constant state of worry, tension, uneasiness and depression exists in today's society. That is exactly what is named as anxiety. There is no men without anxiety: though the degree varies from person to person.

Ross (1950) has defined anxiety as "a serious symptom that arises from faulty adaptations to the stresses and strains of life". This definition emphasis the stress and strains of life as a cause of anxiety. Fisher (1947) on the other hand, lays emphasis on the inner difficulties as a root cause of anxiety. According to him, "Anxiety is a reaction to the unapproachable inner or subjective difficulties, of which the individuals has no idea". This definition also indicates that usually people are uncertain of the origin of anxiety. This uncertainty of origin is explicit in psychoanalytic theory.

According to psychoanalytical theory of anxiety given by Freud, psyche consists of three parts - id,
ego and superego. Id is governed by the law of pleasure, ego by the law of reality and superego by the law of morality. Id being governed by pleasure principle wants to fulfil all the desires either by right or wrong means and ego and superego both put a check on it by reminding us of reality and ethics respectively. All the three forces are thus governed by different laws and strive to seek different goals at the same time. The conflict therefore, arises at an unconscious level and the individual is not aware of it at his conscious level. Freud in his writings emphasised the undischarged libido as a cause of anxiety. He believed that feelings of passion lie within an individual and on failing in their gratification, they are repressed and give rise to anxiety. In brief Freud believed that the repression of passion and conflict are the casual factors of anxiety.

Adler (1911) discarded Freud's views and thought the repression of self-assertion to be the cause of anxiety, rather than repression of passion.) According to him, strong tendency of self-assertion lies within an individual and if it is not gratified, it represses; thus causing anxiety. Among the other such opinions are the view of Okelly (1959) and Gardon
and McDougall (1971). They believed the mental conflicts and failure and a conflict between two emotions to be responsible for anxiety.

The behaviouristic approach to anxiety however, is entirely different and stresses cause due to irrational thoughts which are learnt by a person, Jenkins (1968-69) reported that anxiety often hails from the families which set high expectations for their children.

On the basis of its nature, the anxiety could be divided into two parts. There are some situations in which any individual may possibly experience anxiety. For example all the passengers would experience anxiety if the breaks of a bus fail. This is normal, true or real anxiety. It is interesting to know that anxiety is not always normal or real. There exist individual differences in experience of anxiety. There are some who may experience anxiety without any real cause. This form of anxiety is neither normal nor every individual experiences it. This is what clinicians have named as free floating anxiety. For example one may feel anxious of missing the train though there is a lot of time in its departure. So the anxiety can be both real as well as freefloating.
What ever be its kind individual having anxiety exhibit some common symptoms that could be either physical or mental. Mental symptoms include fear, tension, suspicious, excessive excitement, uneasiness, sleep disturbances, frightening dreams etc. and physical symptoms include loss of weight, fatigue, headaches, muscular tension, increase in heartbeat, perspiration, dizziness, perspiration, loss of appetite etc. Wolpe (1969) reported that persons with high anxiety level show symptoms of inability to concentrate, difficulty in making decision, discouragement sustained muscular tension and extreme sensitivity, hence, hampering the performance of a person. Whereas persons with low level of anxiety show symptoms of depression, laziness and inactivity which in turn hamper the performance of a person. So it could be concluded that extremely high and extremely low levels of anxiety hamper the activity level thus reducing the performance level on a given job. Hence, inverted 'U' relationship exists between anxiety level and job performance (Duffy, 1962). Studies on anxiety show that not only performance but also thinking, reasoning, memory, sleep, decision making and perception etc. are influenced by anxiety. Memory is negatively affected by anxiety: (Landis, 1951,
Simon & Brozek, 1952). Belleck et al. (1974) reported highly anxious people to have more sleep disturbances. Decision making and anxiety are negatively co-related (Susan, 1974). Perception also has been observed to be related to anxiety. Brown (1965) found that state of arousal effects CFF more than any other retinal measure of perception.

The primary factor in CFF is that a steady light seems to fuse at a very high frequency. The point at which subject feels that the light is fusing is called flicker fusion threshold or Critical Flicker Fusion point.

Seiger (1740) was the first to give actual measurements of flicker fusion. Though the first experimental study was done in 1834 by Talbot, the contributions of Ferry and Porter (1892) in the field of flicker fusion is also remarkable. They were the first two to give theory or law in this field. The following laws were formulated by them.

According to Ferry-Porter law (1892) "retinal persistence varies inversely as the logarithm of illuminosity". Talbot disagreed with it and gave his own law in 1934. According to Talbot's law the intensity
of light and the time of bodies remaining at any given point of the circle are proportional to the circumference of the circle.

Factors like intensity, colour of light, shape, size, position of image on retina, light and dark adaptation, duration of exposure etc. have a profound influence on CFF. Ferry-Porter (1892) described the relationship between frequency and logarithm intensity which gives rise of CFF with a formula that the rate of intermittence in cps (cycle per sec.) at the CFF threshold is equal to a constant log intensity plus a constant which varies from person to person and from time to time.

Kuglemass and Landis (1952) found that CFF was higher when area was varied and intensity and frequency constant than when intensity was varied and the other two were constant. Lythgoe and Tansley (1961) found that CFF was much lower for dark adapted eye than for light adapted eye. Hammond (1949) obtained increase in CFF as the duration of exposure is increased from 0.1 to 1.0 second Changes in CFF are also accompanied by various drugs and chemicals.
Davis (1955) and Nagatsuka (1975) explained change in CFF on the basis of excitation of Central Nervous System (CNS). It has two systems. One is activating and another is inhibitory system. In their studies they showed that an optimum level of excitation of cerebral cortex makes CFF threshold remain constant but while inhibitory system is active the result is decrement in CFF. The physical conditions of person play a crucial role in the determining CFF values. In physical conditions of person are included subjective factors like anxiousness, fatigue or stress etc. Simonson and Brozek (1952) reviewed the literature on relation between various kinds of fatigue/stress and the CFF, summarizing the decrements in CFF values after fatigue/stress. Stress is a serious threat which is likely to elicit anxiety and would lead to the interruptions of other ongoing activities in order to cope with it. It refers to both, the circumstances that place physical or psychological demands on an individual and the emotional reactions experienced in these situations. In other words, generally, it occurs when pressures and difficulties in day to day life grow beyond one's capacity.

The term stress, a latin derivation, was first used in English during 17th century to describe distress, oppression, hardship and adversity. During
18th and 19th centuries, the popular meaning of stress shifted to denote force, pressures or strong influence acting upon a physical object or person. Aubrey Kagan (1970) referred stress as physiological state that prepares the organism for action.

In bio-science, stress refers to the sum of the non-specific biological phenomena and consequently a stressor agent is, by definition, non-specific, since it produces stress. Lazarus (1966) defined stress as the response of people to stressors.

Dr. Hans Selye (1936) was pioneer in the field of stress. He conducted experimental studies on different kinds of animals and found that the animals reacted in monotonous manner to different stimuli as injections, intoxications, traumas etc. though the specific action to these stimuli was different, the only common feature was that animals placed their bodies in a state of stress. He described stressor as any stimulus which gives rise to specific syndrome called General Adaptation Syndrome (GAS).

GAS consists of a series of drastic physical changes in an attempt to adapt to stress. It consists of three major stages - Alarm Reaction State, Stage of resistance and stage of exhaustion.
Alarm reaction stage occurs upon sudden exposure to anxious stimuli to which the organism is not adapted. The reaction has two phases -

a) Shock Phase - This phase is the initial and immediate reaction to the noxious agent. Various signs of injury such as loss of muscle tone, depressed temperature and blood pressure are characteristic symptoms of this phase.

b) Counter shock Phase - This refers to a rebound phase marked by the mobilization of defensive forces.

Stage of resistance is marked by full adaptation to the stressor during which symptoms improve or disappear. Here a person attempts to return to equilibrium.

Stage of exhaustion occurs if the stressor is sufficiently severe and applied for a prolonged period of time, all defence mechanisms give out sooner or later. Symptoms reappear and if stress continues unabated death ensues.

On the basis of day to day experiences stress with which each and every individual has to cope with could be categorized into two main categories physical and Mental stress.
Physical stress is induced when individual suffers from inner problem as fever, and every part of body gets affected by the temperature and produces stress.

Mental stress or tension occurs when inspite of hard labour a person fails to solve the problem and can't satisfy his needs. Kalsbeck (1967) said that physical stress/workload refers to muscle work and mental stress/workload means information processing.

The stress could also be induced by various tasks. It includes both physical and mental stress and could be of two types qualitative and quantitative. Qualitative stress refers to difficulty or complexity level of the task and quantitative stress is seen in terms of output and errors in performance. Parker (1955) reported that with an increase in task complexity, output decreases. Some tasks are themselves stressful because they require the subject to attend to too many things at the same time, thus producing excessive demands upon the individual.

The adverse effects of stress on physical health and emotional well being are increasingly recognized and the efforts have been made to measure them...
Two main techniques are used to measure stress—physiological changes and behaviour orientation/task performance.

Physiological changes include increased blood pressure, heart rate, blood sugar, urine contents etc.

Task performance techniques include absolute performance or the number of errors committed while performing the task.

When the task becomes lengthy then also stress is produced in the form of work load. Thus the work load is pressure or overload as a result of working continuously for a long time. Lengthy work periods affect human performance and his physiological systems. Nicholson (1984) did a study and showed that long periods of work disturb sleep of the person. Vernon (1962) found that longer the work period is, longer the rest period one requires to maintain the performance. Work load is a discrepancy between the system input and the system's processing potential to deal with this input. Where processing potential refers to the total ability of the processing system in the execution of complex task demands (Ogden et al., 1979).

Kakimoto (1984) did experiment on various levels of work load and found that the physiological
changes such as increased blood pressure, heart rate, blood sugar, urine contents etc. were similar to the changes produced by stress. Thus, he described work load as stressor. So, it becomes essential to study the effect of work load as stressor. The stress is increasing day by day and so is increasing the anxiety as it has been described earlier in the chapter. So, the study was conducted to see the effect of anxiety and stress seperately as well as in interaction on CFF on performance.