CHAPTER 3
REVIEW OF LITERATURE
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Adolescent years bring many transitions with it. Anxiety and stress is accompanied with every dynamic phase that an adolescent faces. Negative mood, low self-esteem and achievement motivation may add to the varied phases that young people confront adding to their anxiety and stress. Whether anxiety is situational or specific; stress is due to physiological or psychological reasons; negative mood is unexplainable and uncontrolled; self-esteem is endangered by reasons pertaining to self or others and achievement motivation does not relate positively to one’s progress and goals, these variables are associated with one another.

Right from interfering in our daily life events, to affecting our general health and well being, to further lowering an individual’s immunity and causing disease conditions anxiety and stress have played crucial roles. Literature on factors associated to the adolescence and the interrelationship of the variables such as anxiety, stress, negative affect, self-esteem and achievement motivation are reviewed.

(A) ADOLESCENCE AND ITS ASSOCIATED VARIABLES

3.1: Reviewed literature on Problems during Adolescence

The experience of many changes occurring simultaneously is particularly likely to occur during early adolescence and thus this period may be a time of particular risk (Petersen & Spiga, 1982). This also reveals the fact that adolescent years are more prone to stress and anxiety due to
many changes occurring simultaneously and one may find it difficult to cope.

Everyday hassles such as interaction with a rude friend, teacher, incompatibility with parents, heavy traffic, work overload do raise stress and anxiety. Though more serious problems such as death of a loved one makes the probability of one falling ill even greater (Schleifer, Keller, Camerion, Thornton & Stein, 1983).

Broody (1989) believe that college students experience their own array of stress inducing events such as low grades, divorced parents, unwanted pregnancies and the more the stress one experiences, there are chances of greater physical illness.

According to Nezu & D’Zurilla (1989) the most common major stressful events involve major life changes and include events such as divorce, change in careers, beginning college, death of a family member or else a major material loss. Here beginning college can be associated with adolescent stress problem.

David (1990) reported that younger persons are more susceptible to stress and anxiety. The younger persons trying to compete with the present scientific and technological advancement are more vulnerable to stress. Extensive evidence from studies of the structure of emotions in children, adolescents, college students and adults indicate that self rated mood is dominated by two broad factors, ‘negative mood’ composed of negative emotions and distress and ‘positive affect’ made up of positive emotions (King, Ollendick & Gullone, 1991; Watson & Tellegen, 1985).
Pestonjee (1992) reported a study conducted by Mehta (1989) including a sample of 258 college students in which coping behaviours were studied in relation to appraisal of academic and personal stressors as controllable-uncontrollable and challenging-threatening. Students appraised academic stressors as more controllable and challenging and personal stressors as more uncontrollable and challenging. The appraisal of stress as uncontrollable was related to emotion forms of coping.

Glaser, Kiecolt-Glaser, Bonneau, Malarkey, Kennedy & Hughes (1992), Vedhara & Nott (1996) reported that students may take grim satisfaction from studies indicating that examinations, public speaking and other stressful events of academic life can lead to enhanced cardiovascular activity, changes in immunological parameters and even illness.

According to Elliot (1993) adolescents are falling apart psychologically and data shows evidence of increased rates of problem behaviours according to the media or other popular impressions and this is much in contrast with the general positive trends. Leffert and Petersen (1996) on healthy adolescent development say that research has demonstrated that negative outcomes are linked to the experience of simultaneous changes during the period of adolescence (Petersen, Sarigiani & Kennedy, 1991; Simmons, Burgeson, Carton-Ford & Blyth, 1987).

Adolescents may be sufficiently stressed or challenged such that there coping resources are overwhelmed, resulting in various expressions of mental health problems (Klerman, 1993). During adolescents drug use is
often associated to low self-esteem, stressful life events, emotional problems, disturbed family situations, poor school adjustments and social deviance. It is believed that the greater the number of risk factors the higher the likelihood of drug abuse (Newcomb & Bentler, 1989; Stein, Newcomb & Bentler, 1987). The generalized anxiety disorder is also believed to begin typically in the mid teens according to (Barlow, Blanchard, Vermilyea, Vermilyea, & DiNardo, 1986). Barlow (1986) also had stated that generalized anxiety disorder is somewhat more common in women. This thus perhaps hint that the female adolescents more vulnerable to anxiety disorder.

Bosco, Renk, Dinger, Epstein (2003) on connection between adolescent’s perceptions of parents, parental psychological symptoms and adolescent functioning found that the adolescent daughters showed greater internalizing emotional and behavioural problems in relation to higher levels of parental depression and anxiety and lower levels on maternal control.

3.2: Reviewed literature on Adolescence and Self Esteem

Researchers have assessed self-esteem in particular domains such as physical attractiveness, peer relationship or acceptance, academic competence and behaviour. Global assessments though are highly correlated among domains, developmental trends and may vary among individuals (Fend & Schrorer, 1985).
Petersen & Leffert (1995) explains that as not all adolescents engage in problem behaviors such as delinquency or substance use thus showing different trends in self-esteem during adolescents.

In a study of students facing exams, those having high self-esteem were less likely to become upset in response to stress. This finding was more evident at low levels of stress at which the stressful events themselves overwhelmed differences in self esteem (Whisman & Kwon, 1993). Consistent with the overall increase in self-esteem, studies do show increasing capacity for autonomy during adolescence (Steinberg & Silverberg, 1986).

Ficova (1999) among 242 (14-17) years of high school students analyzed the relationship between personality dimensions and self esteem indicators. Adolescents with high scores in self-esteem, the author found significantly higher extroversion and conscientiousness. Low self-esteem correlated significantly with high neuroticism, high state and trait anxiety. Results indicated that neuroticism, extroversion, conscientiousness, state and trait anxiety are reliable predictors of self-esteem.

The relationship between adolescent’s coping, gender, age and self-esteem is studied by Mullis and Chapman (2000). 361 subjects (12-19 years) had their self-esteem and coping strategies measured using the Coopersmith Self Esteem Inventory and Adolescent Coping Orientation for Problem Experiences respectively. Results found that adolescents with high self-esteem used more problem-focused strategies and these with lower self-
esteem used more emotion-focused strategies. No age or gender difference was found.

Gurnskova (2000) in a study of 116 subjects reported that subjects scoring high in negative self esteem claimed to use maladaptive coping strategies more frequently (behavioural and mental disengagements, focusing on emotions and their expressions, denial). Subjects with lower scores in negative self-esteem referred humor, positive reinterpretation and growth as coping strategies. Women achieved a higher level of negative self-esteem, they focused more on emotions and sought instrumental and emotional social support more frequently than men.

Vyrost (2000) relationships between self-esteem and behavioural strategies in demanding life situations were the subject of analyses on a sample of 166 undergraduates. According to the data obtained, young people with low self-esteem in a demanding life situation prefer help seeking orientation more than the high self-esteem group.

Another study looked at the relations between life stress, self-concept clarity, self-esteem and depressed mood in a sample of 268 high school students (14-19 years). A model in which self-concept clarity and self-esteem mediated the association between life stress and dysphoria was examined. Consistent with the model, results of conducting a path analysis indicated that the association between life stress and depressed mood was mediated by self-concept clarity and self esteem. Results also indicated that self-esteem was the strongest predictor of depressed mood even after
controlling for the influences of clarity of self concept and self esteem (Chang, 2001).

Joseph, Bosson and Jacobs (2003) believe that if most people desire to maximize feelings of self worth, results from four studies suggest that people with low self esteem may be less likely to accept positive feedback from themselves than from an outside source but equally likely to accept negative feedback from the self and an outsider. Studies showed that when the self was the source of positive feedback, people high, but not low in self esteem incorporated the feedback into their self views, in contrast when positive feedback came from a knowledgeable external source, both high and low self esteem people accepted it. Finally when self-generated feedback was negative, participant in low self-esteem accepted it.

Sandhu and Tung (2005) examined the correlates of identity formation among adolescent boys and girls (19-21 years). The sample administered various psychological tools to measure identity status, emotional autonomy, family environment, well being, intellectual capacity, creativity and personality. Results suggest that identity achievement and moratorium statuses to be positively linked with healthy and congenial family environment, emotional autonomy, well being and mature cognitive and personality functioning, whereas opposite was true for diffusion status. Foreclosure in adolescents is being maintained by high control, cohesion and moral religious emphasis in the family and such adolescents seem to be responsible and self-controlling in their personality, and high elaborators cognitively.
3.3: Reviewed literature on Adolescence and Achievement motivation

Studies have been conducted to see the effect of child rearing practices on achievement motivation with regard to the child rearing practices adopted by parents. General findings show that fewer restrictions from parents lead to high level of achievement motivation (Baumrind, 1971; Ojha, 1972; Grelow, 1973; Tewary & Mishra, 1977). Mittal and Mittal (1976) also made similar observations. Social psychological family environment variables were identified as having moderate to high concurrent validity in relation to academic achievement (Dave, 1972; Kellagham, 1977; Trotman, 1978) as reported in a research study by (Kaushik & Rani, 2005).

Immense literature supports an association between student's motivation and socializing agents such as parents and teachers. Wong, Wiest, Cusick (2002) reported that various studies show that students perception of positive relationship with parents and teachers contribute to success in academic settings. Higher achievement and motivation have been linked to parental involvement (Ginsburg & Bronstein, 1993), parental autonomy support (Wiest, Wong & Cusick, 1997) and teacher autonomy support (Wentzel, 1997).

Achievement motivation has also been a result of perceived competence (Harter, 1981), perceived control and autonomy support (Skinner, Wellborn & Conell, 1990; Grolnick & Slowiaczek, 1994). Adolescent's secure parental attachment may allow them to achieve a sense of academic competence, as well as actual school achievement by providing them a secure emotional foundation (Wong, Wiest & Cusisk, 2002). Learner & Kruger (1997) in a study examined that parent adolescent attachment was
positively related to student’s motivation in high school and found that parent attachment was positively related to student’s motivation to succeed academically.

Studies have also shown relationship between intelligence and achievement motivation. Chiu, Hong & Dweck (1994) have reported that individuals with an incremental view of intelligence tend to adopt achievement related attitudes and behaviours. Learners who adopt learned helplessness orientation tend to adopt performance goals when they are faced with academic challenge, their goal is to look competent or at least avoid negative evaluations (Nicholls, 1984; Dweck & Elliott, 1981).

In a comparative study of achievement motivation, home environment and parent child relationship of adolescents, results of a study conducted on boys and girls 100 each (14-16 years) by Kaushik and Rani (2005) indicated that environment and parent child relationship affect the achievement motivation of the adolescents irrespective of their gender. According to them studies have indicated that higher achievement motivation was a favourable result of positive evaluation of the child by his parents.

Singhal and Misra (1990) collected data on the response of 92 subjects. They examined the meaning of achievement in terms of subjects’ notions about achievement goals and ways of achievement from an ecocultural and developmental perspective, concluding that achievement motive should be defined in terms of subjective purposes rather than overt behaviours (Misra & Agarwal, 1985). Weiner (1986) believes that
achievement motivation is closely linked with other variables such as attributional style, success and failure. The achievement motivation dimensions that appear to be important in predicting educational attainment from the data are acquisitiveness, dominance and work ethic.

Butler and Orion (1990) study the hypothesis that pupils do not always understand the determinants of their learning outcomes, and that such a sense of unknown control will be associated with poor achievement in school. The study tapped both dispositional and attributional measures using MMPCC. Results confirmed that unknown control emerged as a distinct measure or dimension of perceived control in both dispositional and attributional measures and was consistently associated with poor achievement in school.

According to Classidy and Lynn (1991) the social and familial background, intelligence and personality of children and adolescents have been shown to contribute to their status in society, their educational attainment and to social competence in general as adults. This study considered how these factors are translated into behaviour through the mediation of achievement motivation. It is suggested that a focus on the development of cognitive behavioural styles of achievement motivation, problem solving and attribution may provide a useful future direction for research on social competence. The importance of recognizing the role of achievement motivation lies in its implications for educators and for parents. It is an aspect of the individual that would appear to take longer to develop.
Kaur (2000) on a sample of 400 adolescent girls from urban and rural area found a significant positive correlation between achievement motivation and imperceptive for the total sample. Thus the high need achievers of the total sample indicated tendencies to hope that the time and expected circumstances will solve frustrating problems.

Sewani (2000) reported that on a sample of 500 tenth grade females there was a significant difference seen in the personality pattern of subjects having high need for achievement. Those with high need for achievement were found to be more intelligent, emotionally stable, sensitive and self disciplined than the less achievement motivated girls who were less intelligent, emotionally less stable, tough minded and uncontrolled. Findings also revealed that achievement oriented girls were better adjusted overall emotionally, socially and educationally than the less achievement oriented girls.

Mehta (2000) summarized the results of the study of Singhvi (2000) which showed that need achievement appeared to be working for better education achievement of eleventh grade science students. In a study by Nagar (2000) need for achievement showed positive effect on adjustment of girls and boys. Educational achievement appeared to affect psychological adjustment in appositive way. Type A adolescents in a study by Jain (2000) appeared to be having poor adjustment especially in emotional and educational areas. High need achievers showed more ego defense responses while low need achievers tended to give more need persistive responses as revealed by Chowdhry (2000). Those with high need achievement, vocational
maturity and better study habits especially in learning motivation and taking exams appeared to work for success for competitive exams.

(B) INTERACTION AMONG ANXIETY, STRESS, NEGATIVE MOOD, ACHIEVEMENT MOTIVATION AND SELF ESTEEM

3.4: Reviewed literature on the Interrelationship between anxiety, stress, negative mood, achievement motivation and self-esteem

Singh and Kaur (1976) reported a low negative correlation between need achievement and anxiety. Sarson, Johnson & Seigel (1978) in two samples of college students reported significant concurrent correlation between negative life events and both state and trait anxiety. Gupta (1982) failed to observe any relationship between anxiety and achievement motivation and self-concept. Poor academic performance can serve as a precursor to stress and depression (Petzel & Riddle, 1981), which is a sign of low achievement motivation among the adolescents.

Rao & Murthy (1984) found that externally oriented subjects as compared to internals were low achievers, more anxious, morbid, neurotic and low on need for achievement. Achievement motivation is a result of healthy family environment, warm affective ties and social support. Individuals who perceive less family support have been found to experience more depression and work related distress (Mitchell, Cronkite & Moss, 1983) thus affecting a person's achievement motivation too. Children experiencing high control but low cohesion have been found to be more introverted and depressed (Billings & Moos, 1984).
Watson & Clark (1984) describe negative affectivity as a broad personal disposition that subsumes trait anxiety, depression and low self-esteem. People high in negative affectivity focus on negative aspects of themselves and others and are generally dissatisfied with themselves and their lives. People high in negative affectivity may have negative view of the availability of support.

Self-esteem has been linked to anxiety and depression in clinical literature (Mineka, Watson & Clark, 1998). Self-esteem has also been linked to happiness and contentment in personality psychology (Diener & Diener, 1995) and to anger and hostility in social psychology (Bushman & Baumeister, 1998). These interrelations reveal that self-esteem is effectively related to stress and anxiety, negative affect contentment and achievement motivation.

With regard to anxiety as an affective state Ekman, Levenson & Friensen (1983) state that each emotion is thought to have its own characteristic pattern of autonomic activity and that there is some evidence to indicate that this is true. Researchers believed that subjective distress is dominated by a large general factor that has variously been called neuroticism, general physiological distress or most recently negative affectivity (Gotlib, 1984; Watson & Clark, 1984; Zurawski & Smith, 1987).

In studies finding unitary factors, mood disturbance items and symptoms common to anxiety and depression such as insomnia, excessive worries predominate, the resulting factor resembles the pervasive personality dimension negative affectivity (Watson & Clark, 1984). People high in
negative affectivity also have shown multiple physical complaints (Watson & Pennebaker (in press)).

Symptoms of both anxiety and depression are concurrently reflecting a broader category of generalized emotional distress termed negative affectivity by (Watson & Clark, 1984). According to Finch, Lipovsky & Casat (1989) investigations have examined assessment research on adults and found high correlations between self-report measures on anxiety, depression and neuroticism. They noted that negative affectivity is a pervasive personality trait and that it generally is unrelated to measures of situation specific anxiety. Rao (1985) found close link between stressful life events and depressive symptoms.

Tanwar & Sethi (1986) noted a small positive correlation between achievement motivation and self esteem. Singh (1987) in his study found a significant positive correlation between academic achievement and self-concept among science students.

Watson and Kendall (1989) states “the negative emotions combine to form a broad distress factor called Negative Affect (NA), while the positive mood states jointly comprise Positive affect (PA).” Negative affect is a general factor of subjective distress and dissatisfaction. High negative affect includes states of fear, nervousness, anger, guilt, disgust, sadness, loneliness and self-dissatisfaction and low negative affect is defined with term as such as calm and relaxed. An individual who reports feeling fearful is also likely to experience substantial amount of anger, guilt and sadness also (Watson & Kendall, 1989).
Research studies have found that the accumulations of small undesirable events within a day, week or month hassles the adjustment process, even within the normal population arising strong negative affects (Kanner, Coyne, Schaefer & Lazarus, 1981; Reich & Zaytra, 1983; Stone & Neale, 1983; Eckenrode, 1984;). High negative affectivity persons may tend to rate life stressors as more upsetting, as a result correlations between reports of life stress and dysphoric mood may reflect converging measurements of a single construct that is negative affectivity (Depue & Monroe, 1986).

Zautra, Guaraccia & Dohrenwend (1986) administered the inventory of Small Life Events (ISLE) reported in Zautra et al.(1986) and the Psychiatric Epidemiology Research Interview (PERI) Major Life Events Scale (Dohrenwend, Krasnoff, Askenasy & Dohrenwend, 1987) to 100 college students. The number of different undesirable ISLE events excluding health related events was associated with high anxiety. The study also revealed that the internally caused undesirable events were more highly correlated with negative affects than externally caused undesirable events, though both had significant relationships with reports of anxiety.

Zautra, Guarnaccia & Reich (1989) believe that there is converging evidence to support a role for daily events in the regulation of negative affectivity. Small events may play an important role in the regulation of affective states as firstly the events occurring in high frequency themselves may put a strain on the adjustment process and secondly the events may simply an underlying disequilibrium in an individual’s ongoing relationship
with the environment and may serve as a provocative reminders of long
sanding problems which interfere with the person’s ability to meet basic
needs.

report that studies have not only found that daily stressful events are as good
as or better predictors of health and psychological dysfunctions than major
life events, but also that primary influence of daily problems and hassles
which in turn have negative effect on health and psychological outcomes.

Chu (1985) explained that individuals sense of self worth and
purpose in life, the way the person a can cope and survive reflects a measure
of the strength of the self.

The emotional response to a particular life event includes perceived
autonomic activity and other physical sensations, along with the subjective
affective experiences that accompany them (Mandler, 1982).

Nezu & D’Zurilla (1989) each of the four major stress related
variables (daily problems, major stressful events, emotional states and
problem solving coping) influence each other to either escalate the stress
process and eventually produce long term negative affective outcomes, or to
reduce the stress process and moderate these negative long term effects.

Brett, Brief, Burke, George and Webster (1990) report that
individuals high in negative affectivity express distress and dissatisfaction
across a varied situations.
Models of achievement suggest links among student’s belief about the nature of intelligence, their perceptions about themselves, their perceptions about elements within the learning context and the sorts of achievement related attitudes and behaviours they adopt (Dweck, 1991). It is reported that positive self-esteem enhances one’s ability to cope effectively with stress because individuals with poor coping mechanism are more vulnerable to environmental stressors (Simonds, McMahon & Armstrong, 1991). Research findings have indicated an inverse correlation between life stressors and self esteem (Kliewer & Sandler, 1992).

In a sample of mood disturbed participants who are either anxious, anxious and depressed (mixed) or the controls (25 each) were presented with a range of future positive and negative events and asked to provide explanations so as to why those events would (pro) or would not (con) happen to them. Byrne & Macleod (1997) in this study found that the mood-disturbed participants anxious and mixed gave more pro relative reasons for negative events and more con relative reasons for positive events.

Kaplan and Sadock (1994) report that anxiety tends to produce confusion and distortions of perceptions not only of time and space but for people and meaning of events and for those depressed one complaints of reduced energy, difficulty in completing task and decreased motivation. Those who are able to regain and maintain positive emotional states are less likely to get sick or use medical services when faced with stressful events (Goldman, Kraemer & Salovey, 1996).
Many educators have reported general decline in school performance among adolescent girls (Orenstein, 1994). Dianne (1995) in a paper for the Educational Resource Information Center suggests that the relationship between a decline in self-concept and a decline in achievement indicates that identifying the special needs of female students at school and at home should be a high priority for parents and teacher. He also reports that researchers have observed other consequences associated with a general loss of self-esteem in pre adolescent girls in addition to a decline in actual academic performance.

Research has shown that low self-esteem people respond with greater emotional distress to failure than do high self esteem individuals (Brown & Dutton, 1995). Similarly negative affect individuals are more reactive to stressful circumstances than are low negative affect individuals (Bolger & Zuckerman, 1995). This reveals an interactive relationship between negative affect stressful events and self esteem.

Folkman and Moskowitz (2000) believe that there is a growing interest in positive aspects of the stress process, including positive outcomes of stress and antecedents that dispose individuals to appraise stressful situations more as a challenge than as a threat. Less attention has been given to the adaptational significance of positive emotions. The author review evidence for the occurrence of positive emotions under conditions of stress, discuss the functional role that positive emotions play under such conditions and presents three types of coping that are associated with positive emotions during chronic stress. Thus pointing to new research questions about the role
of positive emotions during stress and the nature of coping that generate these positive emotions.

Hahn (2000) examined four pathways through which locus of control may affect stress which are exposure, reactions, coping choice and coping effectiveness. 86 college students employed in low level service jobs completed diaries for fourteen days reporting on interpersonal stress, coping and distress. Internals and externals did not differ in exposure to interpersonal conflict, but did differ in reactivity, with internals reporting more anger and health symptoms but less depression than externals. Problem solving coping and emotional social support were related to greater anger and physical health symptoms. Internals and externals chose different coping strategies, which partially explained differences in reactivity.

Fredrickson’s (1998,2001) broaden and built theory predicts that positive emotions are useful in many ways. The theory also proposes that the experiences of positive emotions during times of stress prompt individuals to pursue novel and creative thoughts and actions.

Wong, Wiest & Cusick (2002) in their study offered some preliminary support for self worth as a significant predictor of motivational orientation. They believe that such a link is hypothesized by competence motivation theory (Harter, 1981) which warrants further empirical attention as it has been consistently demonstrated that students self-perception have a significant impact on academic outcomes.
Another interrelationship can be seen as researchers have noted the importance of reducing stress by helping youth develop positive perceptions of self in order to avoid catastrophic socioemotional outcomes such as suicidal behaviour (Ferrer-Wreder, Lorente, Kurtines, Briones, Russell, Berman & Arrufat, 2002). This shows that not only has the interrelation among self esteem and stress been dealt with as a causal aspect, but that enhancing one may lead to reduction of the other.

Tugade & Fredrickson (2004) indicated that resilient individuals bounce back from stressful experiences quickly and effectively. Three studies found the benefits of positive emotions in fueling psychological resilience to stressful events. The mediational analyses indicated that the experience of positive emotions may have contributed to the ability to achieve efficient emotion regulation and by finding positive meaning in negative circumstances. This investigation provides insight into the reasons so as to why resilient individuals are able to effectively cope with stressful experience, whereas others facing similar conditions do not fare as well. Resilient individuals recognize the benefits that positive emotions have on negative emotion regulation.

It can be thus seen that negative mood regulation may help an individual cope with stress better and resilient individuals prove to be more effective in coping with stressful situations.

(C) THE EFFECTIVENESS OF YOGA THERAPY

Therapies used as a preventive or curative purpose have their own systems of management and theories. Coping mechanisms not only depend
on the kind of problem confronted with but also an individuals coping potential. The mind and the body are inseparable and variables such as anxiety, negative mood, achievement motivation and self esteem also does consists of psychosomatic explanations as a causal or effectual factor.

Nothing exists by itself. Stimulus and response, mind and body or cause and effect relationship emphasizes the need for a holistic therapeutic approach towards the prevention or curative aspect needed for an individual's well being. Yoga follows a holistic approach in dealing with an individual’s need, refueling his energy resources and fighting disease.

Yoga techniques followed right from Patanjali’s yoga sutra some 2500 years ago and how this yoga has brought about revolution in today’s ordinary mans life is a scientific process. Yoga encompasses an individual’s behaviour, thoughts, deeds and regulation of all psychological and physiological aspects. If variables such as anxiety, stress and moods are psychosomatic so should be the cures. Yoga thus surpasses the therapies of modern medial science and psychotherapies.

3.5: Reviewed literature on Relaxation therapy for anxiety and stress

Relaxation is a part of various psychotherapies used for the treatment of stress and anxiety. Anxiety management techniques aim toward anxiety reduction by providing individuals skills to control fear. According to Peake, Borduin & Archer (1988) among such techniques are relaxation training (Jacobson, 1938; Bernstein & Borkovec, 1973), stress inoculation training (Meichenbaum, 1974), cognitive restructuring (Beck, 1972; Ellis,
1977), breathing retraining (Clark, Salkovskis & Chalkley, 1985), social skill training (Becker, Heimberg & Bellack, 1987) and distraction techniques (Wolpe, 1973). However Fao, Rothbaum & Kozak (1989) says that the most widely used technique is deep muscle relaxation training defined by Wolpe(1985) as the “activity of the undoing of the tonic contraction of muscle fibers.” It affects the autonomic nervous system such that sympathetic responses are attenuated, slowing down of the heart rate and breathing and falling of the blood pressure.

According to McCreary (1982) adolescents need some stress for motivation and need coping skills for excess stress. Self-control through muscle relaxation has been suggested as one method of coping with stress. This study examined the relationship of neuromuscular relaxation training on the reduction of stress as reported on the self-evaluation questionnaire. The study aimed at examining the effect of reduced stress on test scores measured by two equivalent forms. From a random sample of biology students, relaxation exercises were administered to 36 students while 34 control group students did biological experiments of a different nature. The pre and posttest measures include scores on Self Evaluation Questionnaire and Nelson Denny Reading Test. A two-way analysis of variance indicated significant difference on the pre and post self-evaluation questionnaire of both experimental and control groups. Though both groups showed less anxiety, the mean gain score of experimental group was much greater than that of control group. No significant interaction was seen for the pre and post trials of reading variable revealing that relaxation exercise decreases stress but does not improve cognitive performance.
McMillan and Lynn (1986) in their research paper talking of the treatment of anxiety believe that the most appropriate type of therapy for alleviating anxiety was considered to be relaxation training. Relaxation therapy has been successfully employed in the treatment of various problematic behaviours in which anxiety plays a central role, such as in case of insomnia and study anxiety (Richardson & Suinn, 1973).

Lindsay, Gamsu, McLaughlin, Hood and Espie (1987) designed a study to test the relative effectiveness of cognitive behaviour therapy, anxiety management training and treatment by benzodiazepines against a waiting list control with (n=40). During anxiety management training sessions subjects were taught relaxation exercises and given relaxation tape with which to practice these exercise between sessions. Anxiety management training group and the cognitive behaviour therapy group showed consistent and significant improvement on the measures of General health questionnaire, Zung Self Rating Anxiety Scale, Modified Autonomic Perception Questionnaire and Cognitive Anxiety Questionnaire as treatment progressed compared to the two other groups.

Whitehouse, Dinges, Orne, Keller, Bates, Bauer, Morahan, Haupt, Carlin, Bloom, Zaugg & Orne (1996) report that when students find that the stress of college life is catching up with them, a five to ten minute break including deep breathing and relaxing can help them return to their tasks freeing themselves of some of their previous tensions.
3.6: Reviewed literature on the efficacy of Yoga

Rao (2001) mentions that there are techniques, which are extensively used in psychotherapies, which has close affinity with meditation. Wallace, Benson & Wilson (1971), Wallace and Benson (1972) cited evidence that the practice of transcendental meditation can help lower the metabolic rate. Kocher (1972) in a study of the effect of yoga practices including asanas, pranayama and kiryas on neuroticism and anxiety found that the scores significantly lowered on neuroticism, anxiety and general hostility after eight months, whereas no such effect was seen for the control group. Orme- Johnson & Farrow (1977) reported that it was estimated that over a million people were initiated into transcendental meditation. There are a number of studies suggesting that meditation is effectual in reducing stress (Goleman & Schwartz, 1976; Linden, 1973; Patel, 1993).

Vahia, Doongaji & Jeste (1973) researched on subjects (15-50 years) who were outpatients suffering from psychoneurosis. The patients were treated for a minimum of four weeks, one hour daily and the treatment process included asanas, pranayama, pratyahara, dharana and dhyana. The subjects were administered MMPI and Taylor’s Manifest Anxiety Scale, which was clinically assessed before and after treatment. The results showed that the experimental group improved significantly and showed a significant reduction in anxiety scores and this was not seen for the control group.

Kolsawalla (1978) investigated the effectiveness of meditation and yogic exercises on personality. She administered Rokeach’s D Scale and
Cattell's 16PF Questionnaire. Significant changes were observed in group 1 who practiced meditation and yoga asanas for 75 days and showed a significant decline in tension level and increase in emotional maturity. Whereas no change was seen among group 2 who practiced only asanas and group 3 who was the control group.

Davison, Goleman & Schwartz (1984) administered the Spielberger State Trait Anxiety Inventory, the Telligen Absorption Scale and the Shor Personal experience questionnaire to four groups of subjects who were non meditating controls, beginners, short term and long term meditators. The results showed a decrease in trait anxiety and increase in measures of attentional absorption as a function of length of time meditation.

Balodhi (1986) explains the different stages of the traditional rajayoga of India and gives a comprehensive account of the system of yoga from a mental health perspective in order to promote its acceptance among mental health professionals. Rajayoga involves behavioural and psychophysiological control, self-analysis, meditation, cognitive change and change in consciousness. The author incorporates the theories on causation of mental afflictions and recommends the yogic processes for modifying the afflicted behaviour. It is also useful for the promotion of mental health and transcendence to the highest level of consciousness.

Eppley, Abrams, Allan & Shear (1989) conducted a meta analysis of studies on the effects of relaxation on trait anxiety. Results showed that transcendental meditation produced a significant larger effect in reducing trait anxiety than other forms of meditation and relaxation.
Pestonjee (1992) reported Sahasi, Mohan and Kacker (1989) study which measured the effectiveness of yoga teachings in the management of anxiety. Sample comprised of 91 patients suffering from anxiety neurosis. 38 patients were randomly assigned to yoga therapy and 53 were administered drug therapy. Results showed a decrease in anxiety level, increase in locus of control scale showing increased inner control among yoga group subjects. Those in the drug therapy group showed changes on the locus of control scale only.

Khumar, Kaur and Kaur (1993) examined the effectiveness of shavasana as a therapeutic technique to alleviate depression. Fifty female university were diagnosed with severe depression. Results revealed that shavasana was an effective technique for alleviating depression and continuation of the treatment for a longer period resulted in a significantly increased positive change in the subjects.

Dr. Sayeed Ahmadi a clinical psychologist and lecturer in Tehran University claims to use a mixture of behaviour, cognitive and hypnotherapy when interviewed by Sequeria, H (1994) He reported in his interview that he sometimes uses the deep relaxation technique shavasana and yogic mudra depending upon the type of problem. He himself used yoga as a tool of relaxing after tiring work schedules. According to him yoga helps one to become strong and control our emotions. He believes that what today’s man needs is quick relief, though it takes a long time to change even small things. Yoga deals with all aspects of life and thus those attending health camps and yoga education camps are benefiting.
Schmidt-Wilk, Alexander & Swanson (1996) reviews retrospective, prospective and case research on workplace application of transcendental meditation for developing consciousness and human potential. The distinctive psycho physiological state of restful alertness produced by the transcendental meditation technique appears to improve employee health, well being, job satisfaction, efficiency and productivity in turn influencing organizational climate, absenteeism and financial performance.

Astin (1997) examined the effect of an eight week stress reduction program based on mindfulness meditation among 28 under graduates in treatment group or non intervention control group. Results revealed that the subjects in the experimental group showed reduction in overall psychological symptomatology, increase in overall domain specific sense of control and utilization of an accepting or yielding mode of control in their lives and higher scores on a measure of spiritual experience. Thus concluding that the technique of mindfulness meditation may represent a powerful cognitive behavioural coping strategy for transforming the ways in which we respond to life events.

Vinod, Vinod & Rajguru (1998) studied the effect of yoga on positive approach towards life. The objective of his study was to evaluate the effect of on improving positive approach towards life, and that if negative could be favourably influenced in a positive direction with the help of yoga training programme. The study also aimed at knowing the effect of yoga on making improvements in self-concept, handling of crises in positive ways, proper attitudes and evaluations of other people, tenacity and perseverance. The yoga-training program involved yogie postures, pranayamic breathing,
shavasana meditation, prayer, chanting of omkar, personal, prenatal and group discussion. The results obtained on the sample comprising of 189 males and 71 females (17-21 years) accumulated from 1986 to 1988 showed that the training in yoga produced marked improvement in the positive approach towards life. Negative approach towards life also decreased after intensive training in yoga. There was a marked improvement seen in the self-concept, ability to handle crises in positive way, attainment of proper attitude towards and evaluation of other people and also in the development of perseverance and tenacity.

Hall (1999) examined the effect of meditation on performance of 56 African American college students. The meditation group spent ten minutes at the start and end of the study session. The mediation process consisted of natural breathing techniques, relaxation and attention focusing techniques. Results showed significant increase in the meditation group in their overall performance.

Anderson, Levinson, Barker & Kiewra (1999) in their study employed a pretest posttest control group design. The subjects were teacher from middle and high school (22-60 years). They were measured on Teacher’s Stress Inventory, State Trait Anxiety Inventory and the Maslach Burnout Inventory. The five week standardized meditation class results showed a significant reduce in their stress.

A study conducted on 50 MBBS medical students showed statistically significant reduction following the practice of yoga on Spielberger anxiety scale. Anxiety, which rose prior to the exams showed
reduction on the day of exam, after yoga practice. Improvement was also reported with regard to well being, improved concentration, self confidence, lowered irritability levels and an optimistic outlook indicated by feedback scores (Malathi & Damodaran, 1999).

Bhushan and Sinha (2001) examined the effect of yoga nidra meditation on anxiety and hostility, a psychic sleep in which the body sleeps and the mind remains awake. 27 individuals (19-50 years) completed questionnaires concerning hostility and trait anxiety before and after practicing yoga nidra one hour daily for fifteen days. Results showed significant reduction in hostility, and anxiety for those experiencing hyper anxiety. The study revealed that yoga nidra is a useful technique of relaxation that can be used to manage emotional problems.

Bhogal, Oak and Bera (2002) reported that the effect of nine month yoga training programme on measures of attitude towards yoga, neuroticism and value system was studied in healthy 25 student volunteers. Statistically significant changes on attitude scale and neuroticism inventory indicated a favourable change in their attitude towards yoga and marked reduction in neurotic tendencies. Value test taken in the beginning, mid and end of the test revealed social value, followed by religious and aesthetic value in the order of degree of enhancement.

Madanmohan, Vijayalakshmi, Udupa, Bhavanani and Prakash (2003) in a study post graduated students of JIPMER, Pondicherry, shavasana training of seven days enhanced their ability to respond to stressful stimuli as documented by respond to cold pressor test.
Ganguly, Bera and Gharote (2003) examined the effect of three-year yoga exercise programme on health related physical fitness and achievement motivation of schoolboys (10-13) years. Physical fitness variables included cardiovascular functions, body fat percentage, abdominal muscle strength, endurance and flexibility. Academic achievement involved marks scored in theoretical subjects in school examinations. Subjects practiced yoga for three days per week for 45 minutes. Results indicated an overall significant improvement on all variables of fitness and academic achievement, the pre to post scores improved progressively with faster rates over control subjects.

Kamakhya (2004) study aimed to find out the effect of yoga nidra on stress, anxiety and general well being on the students of yoga clinic of Dev Sanskriti Vishwavidyalaya. Practice time was thirty minutes daily for a total duration of six months. To measure stress and anxiety 8 state questionnaires (developed by O.P Mishra, Haridwar) and PGI General Well Being Test (developed by Dr. Santosh, K Verma and Miss Amita Verma, Chandigarh) were used. The results showed a significant change as yoga nidra positively decreased the stress level, no significant change was seen in the anxiety level. Yoga nidra positively increased the general well being of the subjects.

Campbell and Kathleen (2004) designed the yoga classes as a six-week program including pranayama, asanas, yoga nidra and meditation. The aim of this process was to enhance self-awareness, encouraging the perspective that emotional states are somewhat transient and encouraging a
self-accepting and calm attitude through concentrating. Psychometric testing was carried out to assess symptoms of stress, anxiety and depression across three groups: yoga practitioners, beginners and people who did not practice. At the end of six weeks the beginners showed low average levels of symptoms of depression, anxiety and stress than at commencement. Levels were stable for regular yoga practitioners and those who did not perform yoga. In addition beginners showed growth in their self reported level of intrinsic spiritual experience.

Woolery, Myers, Sternlieb & Zeltzer (2004) to study the effect of short term Iyengar yoga course on mood in mildly depressed young adults. Twenty-eight volunteers participated (18-29 years). They practiced for one hour each week for a period of five weeks. The measures that were included were Beck Depression Inventory, State Trait Anxiety Inventory, Profile of mood states and morning cortisol levels. Results revealed that the subjects who participated in the yoga course demonstrated significant decrease in self reported symptoms of depression and trait anxiety. Changes were also observed in the acute mood, with subjects reporting decreased levels of negative mood and fatigue following yoga. There was a trend for higher morning cortisol levels in yoga group by the end of the yoga course as compared to the controls.

Jain and Sharma (2005) explained that the art of living program is based on the five Hs- health, hygiene, harmony, home and humanism and deals with several yogic activities and meditational techniques. The sudarshan kriya is the purifying action during which, through rhythmic breathing, toxins and stress are released and natural energy and enthusiasm
is restored. Their study was carried out to find out the effect of meditation, pranayama, surya namaskar, vajrasana, omkar, sudarshan kriya for six days involving three hour schedule for five days and seven hour schedule for he sixth day on general health and stress. The findings revealed that the stress arousal level had decreased and there was improvement in the subject’s general health. Subjects learnt to keep control over their anger, eating habits, distractions of mind and stress during intervention phase. Physical and mental activeness was maintained through asanas, yogic kriyas and meditation.

(D) STRESS- ILLNESS- YOGA

3.7 Anxiety, Stress, Negative Mood and illness

The present study has not taken into consideration the physiological symptoms related to anxiety, stress and negative mood as the dependent variables. Yet it becomes mandatory to consider these aspects, as anxiety, stress and mood disorders are psychosomatic in nature. Taking into account that anxiety and stress have psychosomatic effectual and causative features, it is seen that yoga as a holistic therapy has been effectual in the treatment of physiological criteria related to them. Studies have revealed that yoga has also been effectual in balancing the physiological secretions, and curing the physiological complaints related to stress and anxiety. It can thus be seen that relieving the physiological complaints will certainly help relieve stress, anxiety and negative mood.

In case of college students it is frequently reported that they show an increase in upper respiratory infections when exams approach (Dorian, Keystone, Garfinkel & Brown, 1982).
Chattopadhyay and Majumdar (1982) compared patients of tension headaches, individuals suffering from anxiety states and a control group. On a multichannel recorder it was found that the level of arousal in the tension headache group was as high as that in anxiety group with control group showing the lowest arousal level.

Stone, Cox, Valdimarsdottir, Jandorf and Neale (1987) reveal the direct relation between stress and health saying that more directly the body’s immune system does not function well when stress is high. They in a study showed that changes in the immunoglobulin A found in secretions such as saliva, tears, gastrointestinal and nasal secretions viewed as body’s first defense against virus and bacteria were linked to changes in mood. During an eight-week study dental students saliva was collected three times a week. When students experienced high level of negative mood fewer antibodies were present in the saliva as compared to days of low level of negative mood.

Friedman and Booth-Kewely (1987) found week but consistent evidence of relationship between negative mood and the five diseases asthma, arthritis, ulcers, headaches and coronary heart disease.

Jemmott and Magloire (1988) obtained samples of student’s saliva over several weeks to assess the presence of secretory immunoglobulin A that is the primary defense against infections. It was seen that the levels of this substance dropped during final exams and returned to normal levels when exams were over. Thus showing that the psychological stress of finals
lead to changes in body chemistry and this in turn increased susceptibility to disease.

Studies exposing healthy individuals to laboratory stressful events have found heightened reactivity in persons who have high catecholamine and cardiovascular reactions to stress (Manuck, Cohen, Rabin, Muldoon & Bachen, 1991).

Individuals with disease prone personalities are often characterized as maladjusted, pessimistic, having low self-esteem and an external locus of control (Birkimer, Lucas & Birkimer, 1991; Campbell, Chew & Scratchley, 1991; Bernard & Belinsky, 1993). Research on subjective well being indicates many benefits of interpreting daily life in positive terms, being engaged in work and in leisure activities, feeling a sense of purpose and hoping for positive future outcomes (Myers & Diener, 1995).

Johnston (1993) reported that each disease is accompanied by emotional, behavioural and social components as a cause and effect and an individual in his daily life experiences stress. Those with stressful life styles are more prone to heart disease. Stress does increase blood pressure, heart rate and plasma cholesterol levels that effects coagulation and fibrolysis adversely. Anxiety is marked by apprehension, increased motor tension and autonomous arousal and may speed up the onset of coronary heart disease. Anxiety also accelerates deterioration and delays the healing process.

Stress and physical illness are interrelated as according to Whisman & Kwon (1993) in times of stress the resulting depression, worry and
anxiety can interfere with health related behaviours such as eating a balanced diet, not getting enough sleep and exercising. Ader & Cohen's (1993) work on psychoneuroimmunology examines the interrelationship among stress, emotional and behavioural reactions and the immune system.

A review of 38 studies relating to stress and human immune functions indicate substantial evidence for a relationship between stress and disease in functional immune measures, including proliferative response to nitrogen and natural killer cell activity (Herbert & Cohen, 1993).

Self-healing individuals are described as hardy, optimistic, extroverts, conscientious, having an internal locus of control and believing in a just world (Priel, Gonik & Rabinowitz, 1993; Tomaka & Benscovich, 1994; Amirkhan, Risinegr & Swickert, 1995).

Vulnerability to stress differs among individuals. Those who are disease prone personalities respond to stressful situations with negative emotions and unhealthy behaviour patterns. The self-healing personalities deal efficiently with stress and resist illness. These people are emotionally balanced, alert, responsive, energetic, secure and constructive (Friedman, Hawley & Trucker, 1994).

Cohen, Doyle, Skoner, Fireman, Gwaltney & Newson (1995) demonstrated the importance of affect in responses to health problems. Healthy volunteers were exposed to a respiratory virus. Negative affect (anxiety) was measured before the illness was induced, the greater an
individual's anxiety level, the more disease specific complaints the person expressed once the respiratory infection developed.

According to vanEck, Berkhof, Nicolson & Sulon (1996) negative affectivity can also be associated with elevated cortisol secretions, which further may provide biopsychological way linking negative affectivity adverse health outcomes.

Research suggests that both children and adults when under stress show increased vulnerability to infectious diseases including cold, flu, mononucleosis and Epstein- Barr virus (Kiecolt- Glaser & Glaser, 1987; Cohen, Tyrrell & Smith, 1993; Cohen & Herbert, 1996;).

Udupa (2000) proposes the fact that, correct homeostasis is maintained by correct secretion of neurohumors acetycholine, catecholamines and histamine and its related substances. When one experiences stress which is conveyed to the brain through sense organs, functional disturbances occur in various sense organs and tissues through the mediation of disturbed neurohumors and hormones.

Prischilla, Paul & Cherian (2002) identified that certain psychological factors such as sleep disturbance, anxiety and depression are predominant factors prevailing before the onset of the coronary heart disease. Results showed that the personal risk factors such as smoking, alcohol, imbalanced diet, sedentary life and work stress were significantly higher in younger patients than older groups.
Slovey, Stroud, Woolery & Epel (2002) examined the relationship between (PEI) perceived emotional intelligence and psycho physiological measures of adaptive coping. Study showed significant positive associations between PEI and psychological and interpersonal functioning. In another study discrimination among moods was related to greater increase in negative mood, but lower cortisol release during repeated stress. Findings suggest that psycho physiological response to stress may be one potential mechanism underlying the relationship between emotional functioning and health.

3.8 Curative efficacy of yoga therapy for the psychosomatic ailments

Patel (1973,1975,1977) in his studies the subjects practiced shavasana meditation, controlling breath, muscle relaxation and a concentrative form of medication to see the effect on hypertension. There was a significant improvement in the blood pressure level over a period of three months.

Swami Ram, Ballentine & Ajaya (1976) believed that yoga asanas and science of breathing and meditation techniques has produced objective evidence of definite improvement among patients suffering from physical and psychosomatic ailments.

According to Nagarathna, Horia & Nagendra (1984) eighteen patients with anxiety neurosis on practicing five different types of pranayama for 4-8 weeks showed a significant decrease in Max Hamilton anxiety scores, reduction in sudomotor sympathetic activity and pulse rate
and increase in skin galvanic resistance. Thus revealing that practicing yoga reduces levels of anxiety and pathogenic arousal in anxiety neuroses.

Larsson, Melin, Lamminen & Ullstedt (1987) in a controlled group outcome studied the efficiency of a self help relaxation approach and compared it with problem discussion and self monitoring conditions. The 36 high school subjects suffering from tension and migraine headaches were treated during a five-week period in their regular school setting. Results suggested that the self-help relaxation treatment improved all dimensions of the subject’s headache activity. Thus concluding that the self-help relaxation training seems to be a compromising, low cost procedure in the treatment of chronic headaches in adolescents.

Wittrock, Blanchard and McCoy (1988) study showed that during the course of a controlled comparison of thermal biofeedback and progressive relaxation as treatments of hypertension, those receiving progressive muscular relaxation, perceptions of deep relaxation during treatment sessions were most strongly related to outcome.

Kalpana (1990), Dharmprakash (1990) suggested that the practice of yoga for four weeks among forty-five patients with tension headache and lower backache helped them to reduce their medication and at the same time experience a reduction in pain.

Sharma, Kumaraiah, Misra and Balodhi (1990) used vipasana meditation to treat the patients of tension headaches. Results showed significant decrease in the muscle tension and skin conduction following
twenty sessions. The headache showed reduction in terms of intensity, frequency and duration. There was an improvement seen in the associated anxiety symptoms also.

Discussing the problem of pediatric pain (Kasson, Sentivany & Kato (1996) suggested that relaxation is effective as a biofeedback for pain management (Stroebel, 1982) and has been used as a pain management technique with children in many settings (Larsson & Melin, 1986). Relaxation is a behavioural phenomenon involving decrease in oxygen consumption, muscle tone, heart rate, respiratory rate, intense slow alpha waves and occasional theta activity in the brain. Leading to decrease in muscle tension, spasm, fear and anxiety during painful episodes (Benson, 1975). Pain, which is often, associated with the stress response, which causes anxiety, tension and muscle contraction is reduced by relaxation, which is simple, safe and cost effective.

Sunil Datt, Mishra, Kumaraiah & Yavagal (1997) investigated to find out the efficacy of biofeedback induced relaxation and behavioural counseling in reducing anxiety related symptoms in coronary heart disease cases. Results of the study indicated marked reduction in clinical symptoms and anxiety among the clients. The study also revealed that the therapy facilitated client's psychological well being and quality of life.

Gore (1997) in a preliminary study reported the physiological response to two different types of om recitation and indicated that the high pitch om brings about a mild sympathetic tone whereas, low pitch om leads to parasympathetic predominance. Though relaxation after high and low
pitch om appeared similar as judged through heart rate, respiration rate and blood pressure, the subjects reported better relaxation and peacefulness after low pitch om recitation.

Schneider, Nidich, Salerno and Sharma (1998) investigated the effects of stress reduction with the transcendental mediation program on serum lipid peroxide levels in forty-one (56-74 years). Venous blood sample were analyzed for lipid peroxide. Significantly lower serum levels of lipid peroxides were found in the treatment group as compared to the controls. These preliminary findings suggest that lower serum lipid peroxide levels may be associated with stress reduction using the transcendental meditation.

Vemaiti and Telles (1999) studied psychological variables in forty males (16-46 years) before and after yoga based isometric relaxation techniques and supine rest. Assessments of autonomic parameters were made in fifteen subjects. Oxygen consumption, breath rate and breath volume were recorded in twenty-five subjects. There was a significant decrease in breath rate after isometric relaxation and in finger plethysmogram after supine rest. Results suggested possibilities for isometric relaxation training in reducing some physiological signs of anxiety.

According to Udupa (2000) in a study volunteers who practiced shavasana or three months showed lowered levels of blood pressure and pulse rate. The most significant reduction was seen in their plasma catecholamine showing that this type of relaxation posture considerably reduces the sympathetic nervous activity. On pranayama or breath holding
practice there was seen a general reduction in serum cholinesterases, plasma catecholamines, serum lipids, serum cholesterol and blood sugar at the end of six months practice. Thus showing that pranayama produces good effect on all organs and tissues and helps in maintaining their activity at optimum levels. Through this study he also revealed that there was an increase in alpha waves throughout the pranayama practice, which suggests enhanced mental tranquility.

Helene and Ford (2000) used the Personal Health Improvement Program, a six-week meditation based learning program designed to help members improve their physiological and psychological distress. Sixty-nine participants on measures of Medical Symptoms Checklist and the Brief Symptom Inventory showed substantial improvement in overall physical distress directly after the course and at a six-month follow up. Eight out of the ten most common symptoms showed statistically significant improvement at six-month follow up.

In another study Udupa (2000) found that the combined practice of yogic posture, pranayama and relaxation type of meditation for a period of three months showed a marked reduction of all the three neurohumors and a slight rise of plasma cortisol indicating a better stress competence of the subjects.

For anxiety neuroses in a study Udupa (2000) revealed that a prescription of eight standard yogic exercises and practice of pranayama that may be learnt within a period of two to four weeks and carrying out the practices at home thereafter for a period of three months helped the patients
get over the entire symptoms and felt much better and more confident in himself and work.

Explaining the stress headache relationship Udupa (2000) believes that psychic stress is an important cause for the development of headache, especially tension headaches also called migraine. He claims that recently the use of meditation, yoga and biofeedback training has greatly helped patients to get over their trouble permanently. Adopting yoga one attains deep relaxation of the body and mind leading to complete alleviation of headache.

Udupa (2000) reports that in the experience of treating 400 patients of different stress disorders who underwent yoga therapy with or without the help of biofeedback showed remarkable good results. Young patients with relatively recent history of stress disease, yogic practice greatly helps in giving permanent relief. According to him the most important fact is that yoga practice can play a great role in the prevention of various stress disorders, when practiced with all sincerity and regularity.

Sinha and Jalan (2001) analyzed the combined as well as the specific efficacy of relaxation, exposure, cognitive restructuring with regard to the treatment of a case of chronic social phobia. The implication of relaxation was seen to some extent on the perceived troubles due to the simple logic that once the physical discomfort is managed, it would lessen the felt trouble. It was found that relaxation training had been useful in alleviating autonomic physiological responses related to stress and anxiety symptoms by normalizing autonomic activities. Significant impact of
relaxation technique was observed on physiological symptoms such as palpitation, blushing, sweating and trembling. Thus confirming the facts that the effects of relaxation are mediated by the control of sympathetic activities, which are responsible for physiological symptoms in anxiety and stress situations (Burns, 1981).

Somasundaram (2002) assessed the feasibility of using traditional relaxation technique for somatization and other minor health disorders in health care. Relaxation exercises were prescribed mainly for people diagnosed as having somatization, anxiety and mild depression. Relaxation exercises were often used in combination with other forms of treatment. In Cambodia 70% of the patients improved whereas there was 18% drop out rate. In Jaffna 35% of the patients improved, while 50% were dropouts. On follow-up the dropouts had improved and some were continuing to practice relaxation techniques.

Jenson and Kenny (2004) in their study randomly assigned boys diagnosed with attention deficit hyperactivity disorder to a twenty-session yoga group (n=11) and control group (n=8). Significant improvement from pre to post test were found for the yoga group and not the control group for the five subscales of Conners’ Parents Rating Scale. Thus revealing literature on the effective curative properties of yoga in case of many psychosomatic ailments.

The hypotheses of the present research study are stated hereafter.
HYPOTHESES

(1) The Science female adolescent subjects will differ significantly from their Arts counterparts on all the dependent variables of the study.

(2) The state anxiety (STAI-X1), trait anxiety (STAI-X2), test anxiety (TAI-H), stress (SI), negative mood (NMRS), achievement motivation (AMS) and self esteem (SEI) are significantly related to each other.

(3) STATE ANXIETY

a) Yoga therapy will be effective in curtailing the state anxiety of both Arts and Science treatment group subjects.

b) The Arts and Science ‘no treatment’ control group will not show any effective change in their state anxiety.

(4) TRAIT ANXIETY

a. Yoga therapy will be effective in curtailing the trait anxiety of both Arts and Science treatment group subjects.

b. The Arts and Science ‘no treatment’ control group will not show any effective change in their trait anxiety.
(5) TEST ANXIETY

a. Yoga therapy will be effective in curtailing the test anxiety of both Arts and Science treatment group subjects.
b. The Arts and Science ‘no treatment’ control group will not show any effective change in their test anxiety.

(6) STRESS

a. Yoga therapy will be effective in curtailing the general stress of both Arts and Science treatment group subjects.
b. The Arts and Science ‘no treatment’ control group will not show any effective change in their general stress.

(7) NEGATIVE MOOD

a. Yoga therapy will be effective in enhancing and regulating the negative mood of both Arts and Science treatment group subjects.
b. The Arts and Science ‘no treatment’ control group will not show any effective change in their negative mood.
(8) ACHIEVEMENT MOTIVATION

a. Yoga therapy will be effective in enhancing the achievement motivation of both Arts and Science treatment group subjects.
b. The Arts and Science ‘no treatment’ control group will not show any effective change in their achievement motivation.

(9) SELF-ESTEEM

a. Yoga therapy will be effective in enhancing the self-esteem of both Arts and Science treatment group subjects.
b. The Arts and Science ‘no treatment’ control group will not show any effective change in their self-esteem.