REVIEW OF LITERATURE

Review of the related literature, besides, allowing the researcher to acquaint himself with current knowledge in the field or area in which he is going to conduct his research, serves the purpose of defining the limit of his field and his problems. The knowledge of related literature brings the researcher up-to-date on the work which others have done and thus, helps him to state the objectives clearly and concisely. It enables him to avoid unfruitful and useless problem areas and can select those areas in which positive findings are very likely to result and his endeavors would be likely to add to the knowledge in a meaningful way. It also helps the researcher to avoid unintentional duplication of well established findings. It gives the researcher an understanding of the research methodology which refers to the way the study is to be conducted and to know about the tools and instrument which proved to be useful and promising in the previous studies. One of the most important specific reasons for reviewing the related literature is to know about the recommendations of the previous researchers listed in their studies from further research (Kaul, 1998).

2.1 Stress and Meditation

Dohrenwend and Dohrenwend (1974) gave considerable evidence to show that a relationship exists between life stress and physical illness. Vinokur and Selzer (1975) have found life stress to be related to the occurrence of depression, anxiety and tension.

Many studies have found that the practice of meditation significantly reduces self-rated perceptions of anxiety and stress by meditators (Delmonte, 1984; Fling et al. 1981; Janowiak & Hackman, 1994; Shapiro et al., 1998).

Meditation has been particularly helpful in treatment of hypertension, pain and stress responses. The practice of meditation has been found to be
cost effective, those who meditate regularly have reduced health care utilization significantly (Orme-Johnson, 1987).

2.1.1 Transcendental Meditation (TM) and Stress

TM has its origins in the Vedic tradition of India and was introduced to the West by Maharishi Mahesh Yogi. TM has been taught to somewhere between two and four million people. It is one of the most widely practiced forms of meditation in the West. TM has been studied many times; these studies have produced much of the information about the physiology of meditation. In TM, the meditator sits with closed eyes and concentrates on a single syllable or word (mantra) for 20 minutes at a time, twice a day. When thoughts or feelings arise, the attention is brought back to the mantra.

Alexander et al. (1993) conducted a three-month prospective study to evaluate the effects of the Transcendental Meditation (TM) technique on stress reduction, health and employee development in two settings in the automotive industry. Employees who learned TM were compared to controls similar in worksite, job position, demographic and pre-test characteristics. Regular meditators improved significantly more than controls (with irregular meditators scoring in between) on multiple measures of stress and employee development including: reduced physiological arousal (measured by skin conductance levels) during and outside TM practice, decreased trait anxiety, job tension, insomnia and fatigue, cigarette and hard liquor use, improved general health and enhanced employee effectiveness, job satisfaction and work/personal relationships. Principal components analysis identified three factors underlying this wide range of improvements through TM: “occupational coherence,” “physiological settledness,” and “job and life satisfaction.” The “effect size” of TM in reducing skin conductance, trait anxiety, alcohol/cigarette use and in enhancing personal development (relative to the control condition) in these business settings was substantially larger than for other forms of meditation and relaxation reports.
Schneider et al. (1995) tested the short-term efficacy and feasibility of two stress education approaches to the treatment of mild hypertension in older African Americans. This was a randomized, controlled, single-blind trial with 3 months of follow-up (aged 55 to 85 years). Mental and physical stress-reduction approaches (Transcendental Meditation and progressive muscle relaxation) were compared with a lifestyle modification education control program and with each other. The reductions (BP) in the Transcendental Meditation group were significantly greater than in the progressive muscle relaxation group for both systolic blood pressure (P=0.02) and diastolic blood pressure (P=0.03). Linear trend analysis confirmed these patterns. Compliance was high in both stress-reduction groups. Of the two techniques Transcendental Meditation was approximately twice as effective as progressive muscle relaxation.

Wenneberg et al. (1997) evaluated the effects of stress reduction on both laboratory cardiovascular reactivity and ambulatory blood pressure in real life on thirty-nine male subjects who were pre-tested for ambulatory blood pressure and cardiovascular reactivity to stress using a battery of laboratory stressors. Thereafter, subjects were randomly assigned to practice either the Transcendental Meditation (TM) technique or a cognitive-based stress education control (SEC) for four months. TM demonstrates significant reduction in blood pressure as compared to controls.

Barnes et al. (2004) conducted a study to determine the impact of stress reduction on blood pressure (BP) in adolescents by the Transcendental Meditation (TM) program. African-American adolescents with high normal systolic BP were randomly assigned to either four month TM (n = 50) or health education control (n = 50) groups. Ambulatory 24-h BP measures were recorded at pre-test, two and four month post-tests and follow-up. Greater decreases in daytime systolic BP (P <0.04) and diastolic BP (P < 0.06) in the TM group compared with the control group across the visits.
demonstrate a beneficial impact of the TM program in youth at risk for the development of hypertension.

Schneider et al. (2005) in a study reported that psychosocial stress contributes to high blood pressure and subsequent cardiovascular morbidity and mortality. The objective of the present study was to evaluate, over the long term, all-cause and cause-specific mortality in older subjects who had high blood pressure and who participated in randomized controlled trials that included the TM program and other behavioral stress-decreasing interventions. There were two hundred and two subjects, including seventy seven whites and one hundred and twenty five African-American men and women. The results suggest that a specific stress-decreasing approach used in the prevention and control of high blood pressure, such as the TM program, may contribute to decreased mortality from all causes and cardiovascular disease in older subjects who have systemic hypertension.

Orme-Johnson et al. (2006) in a pilot study with twelve subjects practicing Transcendental Meditation for thirty years showed a 40–50% lower brain response to stress and pain compared to twelve healthy controls. Further, when the controls learned and practiced Transcendental Meditation for five months, their brain responses to stress and pain also decreased by a comparable 40–50%.

Kauts and Sharma (2009) assessed the effect of yoga and TM on academic performance of adolescent students. Out of eight hundred adolescent students; one hundred and fifty nine high-stress students and one hundred and forty two low-stress students were selected on the basis of scores obtained through Stress Battery. Experimental group and control group were given pre-test in three subjects, i.e., mathematics, science and social studies. A yoga module consisting of yoga asanas, pranayama, meditation™ and a value orientation program was administered on experimental group for 7 weeks. The experimental and control groups were
post-tested for their performance on the three subjects mentioned above. The results show that the students, who practiced yoga performed better in academics. The study further shows that low-stress students performed better than high-stress students, meaning thereby that stress affects the students’ performance.

On the basis of research studies it can be concluded that the Transcendental Meditation reduces stress, decreases trait anxiety, improves general health, academic performance and reduces blood pressure due to stress.

2.1.2 Zen Meditation and Stress

Zen Meditation or Zazen is a part of Zen Buddhism. A part of Mahayana Buddhism, Zen places an importance on experiencing life as it is, without any structure or belief system. Zazen is an important part of the process of experiencing this kind of ‘bliss’.

The word 'Zen' derives from 'zazen', which means meditation. Zazen is part of the monastic Zen tradition, as is the giving of 'koans': riddle-like questions aimed at bringing the student face to face with what seems to be preventing direct and spontaneous perception. Another part of the living tradition is 'sanzen': a private interview with a Zen master. The master is a totally clear mirror, intrinsically able to show the nature of true being and to reflect the workings of the student's ego. Zen masters all have their own ways, quite unique to them and to the moment, of encouraging students to see into their true nature and resolve the apparent conflict generated by dualism (Haywood, 2004).

Gillani and Smith (2001) attempted to rigorously map the psychological effects of Zen meditation among experienced practitioners. Fifty-nine Zen meditators with at least six years of experience practiced an hour of traditional Zazen seated meditation. A control group of twenty four college students spent 60 minutes silently reading popular magazines.
Before relaxation, all participants took the Smith Relaxation States Inventory (SRSI), the Smith Relaxation Dispositions/Motivations Inventory (SRD/MI), and the Smith Relaxation Beliefs Inventory (SRBI). Pre and post-session analyses revealed that meditators showed greater increments in the relaxation states, mental quiet, love and thankfulness as well as reduced worry.

*Friedman (2002)* examined how patients with coronary artery disease respond to stress. This study examined whether patients with documented coronary artery disease would be able to learn a self-help skill which would reduce cardiac reactivity during mild stressful and restful activities. Cardiac stress was determined measuring Heart Rate Variability (HRV), an indication of autonomic arousal. HRV has been shown to be a predictor of sudden cardiac death in patients with cardiac disease. Fifty six patients with documented coronary artery disease were randomized to receive either a cardiac stress management video or a meditation video which guided them through a standard Zen breath awareness meditation. Results suggest that engaging in even one brief period of Zen breath meditation awareness can be effective for improving the heart’s response to stress for patients with coronary artery disease.

*Kim et al. (2005)* investigate the effect of Zen Meditation on serum nitric oxide activity (NO) and oxidative stress (lipid peroxidation). The experimental group included twenty subjects who had practiced the Zen Meditation program. The control group included twenty subjects who did not practice any formal stress management technique and their age and sex matched with experimental group. Meditation group showed a significant higher level of serum nitrate+nitrite concentration and a significant reduced level of serum malondialdehyde (MDA) than control group.

*Lin et al. (2008)* investigated the effects of ZM on musical performance anxiety and musical performance quality. Nineteen participants were recruited from music conservatories and randomly assigned to either an
eight-week meditation group or a wait-list control group. After the intervention, all participants performed in a public concert. Outcome measures were performance anxiety and musical performance quality. Meditation practiced over a short term did not significantly improve musical performance quality. The control group demonstrated a significant decrease in performance quality with increases in performance anxiety. The meditation group demonstrated the opposite effect - a positive linear relation between performance quality and performance anxiety. This finding indicates that enhanced concentration and mindfulness (silent illumination), cultivated by Chan practice, might enable one to channel performance anxiety to improve musical performance.

*Chiesa (2009)* conducted electroencephalographic studies on Zen meditation and found increased alpha and theta activity, generally related to relaxation in many brain regions, including the frontal cortex. Theta activity in particular seemed to be related to the degree of experience, being greater in expert practitioners and advanced masters. Moreover, Zen meditation practice could protect from cognitive decline usually associated with age and enhance antioxidant activity. From a clinical point of view, Zen meditation was found to reduce stress and blood pressure and be efficacious for a variety of conditions, as suggested by positive findings in therapists and musicians.

The above studies show that Zen Meditation can effectively reduce symptoms of anxiety, stress, worry and panic. It helps in improving the heart’s response to stress in patients with Coronary artery disease.

### 2.1.3 Buddhist Meditation and Stress

The cultivation of "correct" mental states has always been an important element of Buddhist practice, as canonized in the mental discipline section of the Noble Eightfold Path. The centrality of meditation can be tied to the tradition's founding myth, which describes the historical
Buddha attaining enlightenment while meditating under a Bodhi tree. Thus, the majority of early Buddhist teaching revolves around the achievement of particular mystical states as the key to accurate perception of the material world and eventual release from the cycle of nirvana (salvation).

Buddhism distinguishes between two classes of meditation practices, *shamatha* and *vipassana*, both of which were thought to be necessary for attaining enlightenment. The former consists of practices aimed at developing the ability to focus the attention single-pointedly; the latter includes practices aimed at developing insight and wisdom through seeing the true nature of reality.

*Kabat-Zinn et al. (1985)* treated ninety chronic pain patients with meditation for ten weeks. Out of these twenty one chronic pain patients were treated with pain-medication without any form of self-regulation. The findings revealed significant improvement as compared to the comparison group in present-moment pain, negative body-image, degree of inhibition of everyday activities by pain, medical symptoms and psychological symptomatology including somatization, anxiety, depression and self-esteem. Furthermore, pain related drug utilization decreased and activity levels increased. Improvements seemed to be independent of gender, source of referral and type of pain. At follow-up, the recovery observed during the meditation training was maintained up to fifteen months after the ten week meditation training for all measures except present-moment pain.

*Greene and Hiebert (1988)*, in a study on twenty four college students who learned either a meditation or a cognitive self-observation procedure for three consecutive training sessions and practiced the method daily, concluded that both groups showed reliable increases in dimensions of self-actualization (measured by the Personal Orientation Inventory) and decreases in common stress-related symptoms (measured by the Symptoms of Stress Inventory). There were no differential treatment effects.
Disayavanish (1995) assessed pre/post vipassana mediation retreat on an experimental group of hundred meditators and a control group of fifty non-meditators. Results demonstrated that as compared to the control group, participants in the meditation program showed reduced levels of psychopathology: obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism.

Miller et al. (1995) carried out an investigation for a period of three years on eighteen medical outpatients with anxiety disorders who showed improvements in subjective and objective symptoms of anxiety and panic following an eight-week stress reduction intervention based on mindfulness meditation. They showed maintenance of the gains obtained in the original study on depression and anxiety scales as well as on the number and severity of panic attacks. Ongoing compliance with the meditation practice was also demonstrated in the majority of subjects at three years.

Flinton (1998) carried out a study on forty two adolescent boys. They were separated into two groups that participated in (reverse order) an eight-week meditation program that taught progressive relaxation, concentration techniques and mindfulness meditation, and an eight-week video/discussion group condition. There was a significant reduction in anxiety and an increase in internal locus of control (as measured by the Brief Symptom Inventory and Pugh's Prison Locus of Control Scale) after participation in the meditation program, with no changes in the video/discussion control condition.

Shapiro et al. (1998) conducted an eight-week meditation-based stress reduction on seventy three premedical and medical students using an intervention group and a wait-list control group and showed that the intervention can effectively reduce self-reported state and trait anxiety, reduce reports of overall psychological distress including depression, increase scores on overall empathy levels and increase scores on a measure
of spiritual experiences assessed at termination of intervention. These results were observed during the exam period.

_Barbara and Carde (1999)_ in a study compared perceived stress, cognitive and emotional differences between two groups of Buddhist mindfulness meditators. Nineteen beginning and twenty-four advanced meditators carried electronic pagers for five days and responded to daily random signals by completing an Experience Sampling form (ESF) containing items related to the dependent variables. As compared with beginners, advanced practitioners reported greater self-awareness, positive mood and acceptance. Greater stress lowered mood and self-acceptance in both groups, but the deleterious effect of stress on acceptance was more marked for the beginners.

_Valentine and Sweet (1999)_ conducted studies on Buddhist meditation. They compared nineteen meditators to twenty-four controls. The meditators were classified as either long-term (more than twenty-four months of meditation experience) or short-term (less than twenty-four months) meditators. When the meditator groups and the control group were given the Wilkins’ Counting Test, a test of sustained attention in which participants must count the number of random-interval auditory beeps they hear in a series, the meditators all scored significantly higher on the test than non-meditators. Furthermore, the long-term meditators also scored significantly higher than the short-term meditators.

_Cahn and Polich (2009)_ presented a three-stimulus auditory oddball series to experienced Vipassana meditators during meditation and a control thought period to elicit event-related brain potentials (ERPs) in the two different mental states. The stimuli consisted of a frequent standard tone (500 Hz) an infrequent oddball tone (1000 Hz), and an infrequent distracter (white noise), with all stimuli passively presented through headphones and no task imposed. The strongest meditation compared to control state effects occurred for the distracter stimuli: N1 amplitude from the distracter was
reduced frontally during meditation; P2 amplitude from both the distracter and oddball stimuli were somewhat reduced during meditation; P3a amplitude from the distracter was reduced during meditation. The meditation-induced reduction in P3a amplitude was strongest in participants reporting more hours of daily meditation practice and was not evident in participants reporting drowsiness during their experimental meditative session. The findings suggest that meditation state can decrease the amplitude of neurophysiologic processes that subserve attentional engagement elicited by unexpected and distracting stimuli. Consistent with the aim of Vipassana meditation to reduce cognitive and emotional reactivity, the state effect of reduced P3a amplitude to distracting stimuli reflects decreased automated reactivity and evaluative processing of task irrelevant attention-demanding stimuli. The above studies show positive effects of Buddhist Meditation on stress, anxiety, depression and marked improvement in sustained attention.

2.1.4 Preksha Meditation (PM) and Stress

Preksha Meditation (mindful meditation) is the combination of knowledge from our ancient religious books, modern science and our experience. Preksha Meditation is the practice of purifying our emotions and our conscious (chitta) and realizing our own self. Preksha Meditation is a technique of mediation for attitudinal change, behavioral modification and integrated development of personality.

Started in 1970 Preksha Meditation is the result of the untiring efforts of Ganadhipati Tulsi and Acharya Mahapragya. Acharya Mahapragya researched and experimented for twenty years to rediscover the process of meditation, which was practiced by Lord Mahaveera. Preksha Meditation is for everyone, irrespective of his or her race, religion, language, colour and gender.

Hundreds of successful camps and seminars of national and international level have been organized to inculcate the techniques of the
unique capsule called Preksha Meditation where more than 2,50,000 people around the world, with different cultural backgrounds and religions, have participated and benefited from regularly practicing it. Amongst them are people from all walks of life including professionals, engineers, businessman, political personalities, academicians, housewives and students. Preksha Meditation has proved a panacea for development of right emotions, positive thoughts and after all increasing the efficiency of mind and body.

Naveen et al. (1987) assessed the effects of uninostril breathing on the performance in verbal and spatial memory tests. School children (N = 108 whose ages ranged from 10 to 17 years) were randomly assigned to four groups. Each group practiced a specific yoga breathing technique: (i) right nostril breathing, (ii) left nostril breathing, (iii) alternate nostril breathing, or (iv) breath awareness without manipulation of nostrils. These techniques were practiced for ten days. All four trained groups showed a significant increase in spatial test scores at retest, but the control group showed no change. Average increase in spatial memory scores for the trained groups was 84%. It indicates that yoga breathing increases spatial rather than verbal scores, without a lateralized effect.

Cheung (1999) introduced progressive relaxation training to seventy junior high school students where they consciously relax their bodies part by part. Those who received the training showed significantly lower scores in trait anxiety and positive improvement in mood state.

Khasky and Smith (1999) undertook study in which one hundred and fourteen participants in four groups practiced twenty five minutes of progressive muscle relaxation, yoga stretching, imagery or a control task. Before and after training, participants took state versions of the Smith Quick Stress Test (which measures somatic stress, negative affect, and worry) and the Smith R-State Inventory (which measures relaxation-related states
disengagement, physical relaxation, mental relaxation, strength and awareness, joy, love and thankfulness and prayerfulness). After training, all took both the verbal and figural forms of the Torrance Tests of Creative Thinking. At post-test, groups' scores did not differ on creativity; however, when compared with yoga stretching, imagery trainees had lower post-test scores on negative affect. Both yoga stretching and imagery trainees displayed higher scores on self-reported physical relaxation than did controls. Progressive muscle relaxation trainees had lower scores on somatic stress than controls. Paradoxically, for all relaxation trainees, disengagement (feeling "distant, far away, indifferent") correlated positively with both negative affect and physical relaxation, suggesting that disengagement in relaxation may not lead to relaxation-induced anxiety but may help one cope with such anxiety.

Manchanda et al. (2000) conducted a study on forty-two men with angiographically proven coronary obstructive disease who were randomized to control (n=21) and yoga intervention group (n=21) and were followed for one year. The yoga lifestyle program was a user friendly program consisting of strict control of risk factors, diet control, moderate aerobic physical exercise, health rejuvenating exercises, breathing and relaxation exercises (Kayotsarga), stress management, meditation and reflection on moral values. The control group was managed by conventional methods, i.e. risk factors control and AHA step I diet. At the end of 1st year, the yoga groups showed significant improvement in number of angina episodes, improved exercise capacity, decrease in body weight, total as well as LDL(low density lipids) cholesterol and serum triglyceride levels as compared to controlled group. It was concluded that Yoga lifestyle intervention is beneficial in improving the symptoms and exercise capacity, lowering weight and serum lipid levels. It also retards the progression of coronary atherosclerosis in patients with severe coronary artery diseases and reduces re-vascularisation procedures.
Gaur et al. (2004) in a pilot study investigates the effect of Meditation (P.M.) on management of stress in teenage students. For this investigation, a simple pre and post-experimental design was adopted. A sample of twenty four boys and girls were the subjects with mean age of fourteen years, drawn from various parts of Mumbai. The results obtained reveal that due to the practice of P.M. for sixteen days, the subjects experienced a reduction in stress in the areas of academy, family and achievement. They became more self-assured and confident. In the area of academy there was a reduction in their frustration level (p<0.05), conflict (p< 0.05) and pressure experienced (p<0.02). Further, there was a reduction in the level of family frustration (p<0.01) and family anxiety (p< 0.01). Their achievement frustration and anxiety were also reduced (0.05 and 0.01 level of confidence) as well as the existential pressure (p< 0.01), due to P.M. practice.

Goldberg et al. (2004) looked at the effect of teaching relaxation skills to six upper elementary school students with autism who showed overt signs of anxiety and dysfunction under stress. The relaxation program included yoga exercises and breathing, guided imagery, role-playing, discussion and stories to encourage the ability to use the relaxation skills in other settings. After almost every class, students had lowered pulse rates (p≤0.01) and parents’ and teachers’ evaluations rated the students as demonstrating lower stress levels. Classroom teachers reported increased alertness after sessions and more self-monitoring. Teachers were also able to use relaxation cues learned in the sessions to help children de-escalate in volatile situations.

Manjunath et al.(2004) compared the performance scores of children (aged 11 to 16 years) in verbal and spatial memory tests for two groups (n = 30, each), one attending a yoga camp and the other a fine arts camp. Both groups were assessed on the memory tasks initially and after ten days of their respective interventions the yoga group showed a significant
increase of 43% in spatial memory scores (Multivariate analysis, Tukey test), while the fine arts and control groups showed no change. The results suggest that yoga practice including physical postures, yoga breathing, meditation and guided relaxation improved delayed recall of spatial information.

Sharma et al. (2004) conducted a research work was to study the effect of Preksha Meditation, on frustration of prisoners. A multi-group, multi-level, pre and post-research design was adopted to conduct this study. A sample of hundred prisoners - fifty for experimental and fifty for control group was used. The subjects of the experimental group were assigned the training of P.M. one hour daily for four months. After two months P.M. practice the subjects of the experimental group differed significantly from those of the control group as their frustration level decreased in all the four areas, viz- aggression (p<0.05), resignation (p< 0.0005), fixation (p<0.10) and regression (p<0.05). This level further decreased more significantly (p< 0.0005) in all the said areas after four months of P.M. training.

Mishra (2005) carried out a scientific study to evaluate the efficacy of Preksha Meditation (Kayotsarga and Svasa Preksha) to cope up the examination stress of University students. Physiological parameters used in the study were blood pressure, pulse rate, galvanic skin resistance, respiratory rate, blood sugar level and alpha brain waves. The result indicated significant decreases in blood pressure, pulse rate, respiratory rate whereas galvanic skin resistance and blood sugar level were decreased and number of Alpha brain waves were found to be significantly elevated. The author concluded that Preksha Meditation causes occurrence of “integrated response” in terms of change in above mentioned parameters. Such responses yield a hypo metabolic state due to inactivation of sympathetic nervous system which is ultimately responsible for managing the stressful state of body during examination days of U.G and P.G. students.
Stueck and Gloeckner (2005) looked at the results of a Training of Relaxation with Elements of Yoga for Children (TorweY-C) technique for forty eight fifth grade students. This technique was comprised of fifteen meetings and included an opening relaxation, yoga exercises and then final activities to integrate the effects of the training: games or massage or sensory exercises or guided imagery with instructions for children to pay attention to their emotions as well as the external stimuli. Students experienced significant reductions in aggression, helplessness in school, static balance ability, reduced physical complaints and improved stress-coping abilities.

Jain (2007) studied the effect of Preksha meditation on the anxiety level and operational efficiency of the inmates. The sample consisted of twenty eight convicted young criminals below twenty one years. A variety of measures including an anxiety test and certain psychomotor tasks reaction time, hand steadiness, grip strength and finger dexterity were used to assess behavioral efficiency before and after the two weeks long Preksha meditation camp. The results showed significant changes in the anxiety level as well as operational efficiency after the meditation intervention.

Paul et al. (2007) designed a curriculum to assist sixty four students in developing and practicing a stress-management technique. It was implemented on a regular basis from June 2004 to April 2006. Students participated in Deep Breathing Meditation exercises in two classes and completed pre-test, post-test and follow-up surveys each academic year. Students reported having perceptions of decreased test anxiety, nervousness, self-doubt and concentration loss, using the technique outside of the two classes and believing it helped them academically and would help them as a physician. The Deep Breathing Meditation technique was successfully implemented each academic year, as it provided students with a promising solution for meeting challenging academic and professional situations.
Beauchemin et al. (2008) assessed thirty four adolescents diagnosed with learning disabilities (LD; defined by compromised academic performance). These children often have higher levels of anxiety, school-related stress and less optimal social skills as compared with their typically developing peers. Previous health research indicates that meditation and relaxation training may be effective in reducing anxiety and promoting social skills. This pilot study used a pre-post no-control design to examine feasibility of attitudes toward and outcomes of a five-week mindfulness meditation intervention administered to thirty four adolescents diagnosed with LD. Post intervention survey responses overwhelmingly expressed positive attitudes toward the program. All outcome measures showed significant improvement, with participants who completed the program demonstrating decreased state and trait anxiety, enhanced social skills and improved academic performance.

Zylowska et al. (2008) in their study tested the feasibility of an 8-week mindfulness training program for adults and adolescents with ADHD (Attention deficit hyperactivity disorder). Twenty-four adults and eight adolescents with ADHD enrolled in a feasibility study of an eight week mindfulness training program. ADHD is a childhood-onset psychiatric condition that often continues into adulthood. The majority of participants completed the training and reported high satisfaction with the training. Pre-post improvements in self-reported ADHD symptoms and test performance on tasks measuring attention and cognitive inhibition were noted. Improvements in anxiety and depressive symptoms were also observed.

Mishra (2009) conducted a scientific study on “Neurophysiologic, Cardiovascular and Respiratory Efficacy of Preksha Meditation among adults,” and concluded that selected practice module of PM have yielded consolidated improvement in omission of Alfa waves, cardiac functions and various respiratory functions, which firmly reduces the risk factors causing stress.
Much of the physiological data on meditation suggests its effectiveness for treating a variety of stress-related, somatically based problems. Many studies have suggested that meditation could be a promising preventive or rehabilitative strategy in treatment of addictions, hypertension, fears, phobias, insomnia, and stress. Research has also suggested that subjects using meditation change more than control groups in the direction of positive mental health, positive personality change, self-actualization, increased spontaneity self-regard and inner directedness and self-perceived increase in the capacity for intimate contact (Hjelle, 1974; Otis, 1974; Seeman et al. 1972). Delmonte (1984) discussed the relationship between meditation and personality scores, focusing on self-esteem and self-concept, depression, psychosomatic symptomatology, self-actualization, locus of control and introversion/extroversion. He found no compelling evidence that meditation changes psychometric scores, but found that meditation does seem to be associated with increases in self-actualization and decreases in depression.

### 2.2 Emotional Stability and Meditation

Meditation is a mental discipline by which one attempts to get beyond the reflexive "thinking" mind into a deeper state of relaxation or awareness. Meditation often involves turning attention to a single point of reference. It is a component of many religions and has been practiced since antiquity. It is also practiced outside religious traditions. Different meditative disciplines encompass a wide range of spiritual or psychophysical practices that may emphasize different goals from achievement of a higher state of consciousness, to greater focus, creativity or self-awareness, or simply a more relaxed and peaceful frame of mind.

According to Baime (1999), “Meditation cultivates an emotional stability that allows the meditator to experience intense emotions fully while simultaneously maintaining perspective on them." Out of this experience of
emotional stability, one may gain greater insight and understanding about one's thoughts, feelings and actions. This insight in turn offers the possibility to feel more confident and in control of life. Meditation facilitates a greater sense of calmness, empathy and acceptance of self and others.

2.2.1 Transcendental Meditation (TM) and Emotional Stability

Aron et al. (1980) conducted a four-year study on undergraduate students taking the Transcendental Meditation Program. The results showed an increase in general intelligence and an increase in each of the following personality measures: social self-confidence, sociability, general psychological health and social maturity.

Throll (1982) administered the Eysenck Personality Inventory, the State-Trait-Anxiety-Inventory and two questionnaires on health and drug usage to thirty nine students before they learned Transcendental Meditation (TM) or Progressive Relaxation (PR). All students were tested immediately after they had learned either technique and then re-tested 5, 10, and 15 weeks later. There were no significant differences between groups for any of the psychological variables at pre-test. However, at post-test the TM group displayed more significant and comprehensive results (decreases in Neuroticism/Stability Extraversion/Introversion, and drug use) than did the PR group. Both groups demonstrated significant decreases in state and trait anxiety. The more pronounced results for meditators were explained primarily in terms of the greater amount of time that they spent on their technique, plus the differences between the two techniques themselves.

Gavin (2003) investigated the effects of TM practice on social-emotional development in early adolescence. African-American sixth grade graders (n=83) enrolled at two charter schools participated in the study. In one school, students and teachers learned and practiced meditation two times a day. Four months after students had been instructed in TM, researchers administered scales over a three-week period. Scales assessed school climate and indices of social-emotional development: emotional
competence, self-esteem, positive affectivity, anxiety, aggression and loneliness. TM students reported a significantly higher elevation in positive emotional state mood over time and decrease in negative affect immediately after meditation practice.

*Rosaen and Benn (2006)* conducted a study on fifth grade students with an objective to examine the effects of TM on students’ emotional disposition and competence. They were randomized into two groups ($n = 44$). One group received instruction in TM. These students practiced the TM technique twice a day for ten minutes as a group in the school gym. Control group students had unstructured time in their classrooms during these daily time-periods. After three months the results demonstrate that the instruction and practice of TM in a school setting can significantly affect fifth grade students’ emotional states and ways that they approach everyday situations.

*Colbert (2008)* in a study found that one hundred and six at-risk adolescents in three high schools reduced higher levels of stress, anxiety, hyperactivity and emotional problems when practicing the Transcendental Meditation technique for four months at school, as compared with controls.

Research has demonstrated that TM produces improvements in mental health, including reduction of various forms of psychological distress, such as depression, anxiety, hostility and emotional instability (*Abrams & Siegel, 1978; Aron et al., 1980; Brooks & Scarano, 1985; Davis, 1986; Eppley et al., 1989; Haratani & Hemmi, 1990*). TM has been shown to reduce aggression (*Shapiro, 1976*) and to increase overall relaxation in adults (*Alexander et al., 1993*).

The above studies show that TM is very effective in reducing emotional instability, aggression and emotional problems. It helps in enhancing self-esteem, emotional competence and positive emotional state.
2.2.2 Zen Meditation and Emotional Stability

Meditation is the attainment of a restful yet fully alert physical and mental state practiced by many as a self-regulatory approach to emotion management.

Takashi et al. (2005) quantitatively analyzed changes in psychophysiological parameters during Zen meditation in twenty normal adults and evaluated the results in association with personality traits assessed by Cloninger's Temperament and Character Inventory (TCI). During meditation, increases were observed in fast theta power and slow alpha power on EEG predominantly in the frontal area, whereas an increase in the normalized unit of high-frequency (nuHF) power (as a parasympathetic index) and decreases in the normalized unit of low-frequency (nuLF) power and LF/HF (as sympathetic indices) were observed through analyses of heart rate variability. They analyzed the possible correlations among these changes in terms of the percent change during meditation using the control condition as the baseline. The percent change in slow alpha EEG(electroencephalograph) power in the frontal area, reflecting enhanced internalized attention, was negatively correlated with that in nuLF as well as in LF/HF and was positively correlated with the novelty seeking score (which has been suggested to be associated with dopaminergic activity). The percent change in fast theta power in the frontal area, reflecting enhanced mindfulness, was positively correlated with that in nuHF and also with the harm avoidance score (which has been suggested to be associated with serotonergic activity). These results suggest that internalized attention and mindfulness as two major core factors of behaviors of mind during meditation are characterized by different combinations of psychophysiological properties and personality traits.

Grant and Rainville (2009) recruited thirteen Zen meditators with a minimum of 1,000 hours of practice to undergo a pain test and contrasted their reaction with thirteen non-meditators. Subjects included ten women.
and sixteen men between the ages of twenty two to fifty six. The administered pain test was simple: A thermal heat source, a computer controlled heating plate was pressed against the calves of subjects intermittently at varying temperatures. Heat levels began at 43 degrees Celsius and went to a maximum of 53 degrees Celsius depending on each participant's sensitivity. While quite a few of the meditators tolerated the maximum temperature, all control subjects were well below 53 degrees Celsius. A marked difference was noticed in how their two test groups reacted to pain testing - Zen meditators had much lower pain sensitivity (even without meditating) as compared to non-meditators. The ultimate result showed Zen meditators experienced an 18 percent reduction in pain intensity.

Most of the studies on Zen meditation show long lasting effects on the emotional and physical well-being of the practitioner. It creates a deep state of relaxation as well as a calm, serene mind, enhances mindfulness and emotional steadiness and reduces pain intensity.

2.2.3 Buddhist Meditation and Emotional Stability

Barbara and Carde (1999) compared perceived stress and cognitive and emotional differences between two groups of Buddhist mindfulness meditators. Nineteen beginning and twenty-four advanced meditators carried electronic pagers for five days and responded to daily random signals by completing an Experience Sampling form (ESF) containing items related to the dependent variables. As compared with beginners, advanced practitioners reported greater self-awareness, positive mood and acceptance. Greater stress lowered mood and self-acceptance in both groups, but the deleterious effect of stress on acceptance was more marked for the beginners.

Twenty-four advanced Buddhist mindfulness meditators (all subjects aged 24-64 yrs) received daily random electronic page signals for five days and responded by completing an Experience Sampling form. As compared
with beginners, advanced practitioners reported greater self-awareness, positive mood and acceptance. Greater stress lowered mood and self-acceptance in both groups, but the deleterious effect of stress on acceptance was more marked for the beginners (Easterlin & Cardena, 1999).

Speca et al. (2000) reported that after the seven weeks intervention, ninety patients (aged 27-75 years) in the treatment group had significantly lower scores on total mood disturbance and subscales of depression, anxiety, anger and confusion and more vigor than control subjects. The treatment group also had fewer overall symptoms of stress; fewer cardiopulmonary and gastrointestinal symptoms; less emotional irritability, depression, and cognitive disorganization; and fewer habitual patterns of stress. Overall reduction in total mood disturbance was 65%, with a 31% reduction in symptoms of stress.

Carlson and Garland (2005) examined the effects of an eight-week Mindfulness-Based Stress Reduction (MBSR) program on the sleep quality of a heterogeneous sample of sixty three cancer patients. Overall sleep disturbance was significantly reduced (p < 0.001) and participants reported that their sleep quality had improved (p < 0.001). There was also a significant reduction in stress (p <0.001), mood disturbance (p <0.001) and fatigue (p < 0.001).

2.2.4 Preksha Meditation and Emotional Stability

PM is mindful meditation, in which attention is given to the present moment. Kabat-Zinn (2005) defines mindfulness as moment-to-moment, non-judgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment and as non-reactively, as non-judgmentally and as open heartedly as possible. In mindfulness training, it is important to be aware of the body and its reactions as “Mindfulness of the body keeps us present and therefore, we know what’s going on” (Goldstein, 2007).

A few studies on mindfulness meditation with reference to emotional stability are given below:
Derogatis (1983) conducted a study on twenty eight undergraduates who were randomized into either an experimental group or a nonintervention control group. Experimental subjects, when compared with controls, evidenced significantly greater changes in terms of reductions in overall psychological symptomatology, increases 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 experiences.

Kabat-Zinn, (1984) studied fifty one chronic pain patients engaged in a ten-week mindfulness based relaxation program. Subjects showed a reduction of 33% in the mean total of a pain rating index. Large and significant reductions in mood disturbance and psychiatric symptomatology accompanied these changes and were relatively stable up to one and a half years later.

McCraty et al. (1993) utilizes the measurement of heart rate variability (HRV) as a vehicle to show that continued practice of certain specific techniques involving an intentional shift of focus to the area of the heart and invoking specific feeling states such as “love” and “appreciation,” automatically manifests in increased autonomic nervous system balance. In particular, (1) enhanced balance between the parasympathetic and sympathetic nervous system, (2) a shift of the high frequency and low frequency portions of the HRV power spectra to around 0.1 Hz range, (3) entrainment and frequency portions of the HRV power spectra to around 0.1 Hz frequency, associated with a change in focus of the subject to a different heart feeling state, and (5) the intentional generation of a newly defined internal coherence state (near zero HRV), have all been achieved. These are electrophysiological correlates of certain mental and emotional states occupied by the individual. Three individual subjects plus a group study of twenty subjects are one hundred and seventy seven reported on and
discussed. From these results, one sees that individuals can intentionally affect their autonomic nervous system balance, and thus, their HRV.

Telles et al. (1993) assessed two groups of forty-five children each (age ranged from 9 to 13 years). They were on a steadiness test, at the beginning and again at the end of a ten-day period during which one group received training in Yoga, while the other group did not. The steadiness test required insertion of and holding for fifteen seconds a metal stylus without touching the sides of holes of decreasing sizes in a metal plate. The contacts were counted as “errors.” During the ten-day period, one group (the “Yoga” group) received training in special physical postures (asanas), voluntary regulation of breathing (pranayama), maintenance of silence, as well as visual focusing exercises (tratakas) and games to improve the attention span and memory. The other group (control) carried out their usual routine. After ten days, the “Yoga” group showed a significant (Wilcoxon’s paired signed-ranks test) decrease in errors, whereas the “control” group showed no change.

Wood (1993) assessed the effects of three different procedures that is relaxation, visualization and yogic breathing and stretch (pranayama) on perceptions of physical and mental energy and on positive and negative mood states in a group of normal volunteers (N = 71, age range 21-76). Pranayama produced a significantly greater increase in perceptions of mental and physical energy and feelings of alertness and enthusiasm than the other two procedures (P < 0.5). Relaxation made subjects significantly more sleepy and sluggish immediately after the session than pranayama (P < 0.05). Visualization made them more sluggish but less content than pranayama (P < 0.05) and more upset than relaxation after the second session (P < 0.05). Thus, a thirty minutes programme of yogic stretch and breathing exercises which is simple to learn and which can be practiced even by the elderly had a markedly ‘invigorating’ effect on perceptions of both mental and physical energy and increased high positive mood.
Winzelberg and Luskin (1999) studied effectiveness of mindful meditation training for student-teachers and reported significant reduction in stress symptoms as compared to the control group. The results of the studies clearly demonstrate the benefits to schools of incorporating mindfulness training for both students and faculty alike. There was improvement in behavior, physical and emotional health, ability to focus and improved learning.

Young (1999) revealed diagnosis of eighteen cancer patients who volunteered for a nine-week mindfulness meditation course. They described how bringing an accepting awareness to daily routine enhanced their self-knowledge, making them aware of and more prone to attend to their needs. They also became conscious of the good moments still available to them. In addition, the participants reported that bringing nonjudgmental awareness to stressful interactions with others gave them greater control over their feelings and behavior, enabling them to develop more appropriate modes of communication.

Benson et al. (2000) examined the relationship between exposure to a relaxation response curriculum and academic achievement among middle school students. Four measures of academic outcomes were analyzed: grade point average, work habits, cooperation and attendance. Students who had more than two exposures to semester long in the relaxation response curriculum had higher grade point averages, work habits scores and cooperation scores than students who have two or fewer exposures. In addition, students who had more exposures to the relaxation response curriculum showed an improvement in academic scores over the course of a two-year period.

Slovacek et al. (2003) conducted a study of four hundred and five students and eighteen teachers with mindfulness practices. The participants
appeared to have improved students’ self-esteem, behavior (fewer discipline referrals), physical fitness and academic performance.

Gorev (2004) in a relaxation study with thirty school children aged nine and ten years noted positive effects on brain functioning after the relaxation session was terminated. He reported that even short-term sessions of mild relaxation restore and increase the energy potential of the body and optimize its functional state. After such sessions, working ability improves the stability of information retention increases and the level of thinking creatively rises.

Neault (2005) undertook a study with ninety students in a middle school. The students practiced conscious breathing for five minutes at the beginning of class once a day for six to twelve. Overall, a large majority of the students noticed the experience of relaxation and relief from stress. They felt relaxed, calm and more focused in class after breathing practice.

Jain et al. (2007) examined the effects of one month mindfulness meditation versus somatic relaxation training as compared to a control group in eighty three students reporting distress. Results reveal that both meditation and relaxation groups experienced significant decreases in distress as well as increases in positive mood states over time, compared with the control group (p <0.05 in all cases). There were no significant differences between meditation and relaxation on distress and positive mood states over time. The meditation group also demonstrated significant decreases in both distractive and ruminative thoughts/behaviors as compared with the control group.

There are studies in the variables of academic achievement, stress and emotional stability but almost negligible. Various studies have been conducted up till now on the topic concerned with the subject i.e. role of relaxation breathing and meditation etc. on mental health, anxiety, fatigue etc. But no attempt has been made towards a collective approach to mental stress and its various manifestations like depression, anxiety, mental
conflict, frustration along with the study of emotional stability. That is why an attempt has now been made for the same. The research studies carried out so far test the effectiveness of different Preksha Meditation techniques on academic stress and emotional stability.

The present study has focused on exploring the impact of different Preksha Meditation techniques i.e. Kyotsarga, Jyoti Kendra Preksha and Svasa Preksha on academic stress and emotional stability of the adolescents. The finding of the study would not only add to the body of knowledge but will prove a great help to psychologists and educationists in effectively handling the adolescents. The finding would be of great significance in modern world of stress and tension, particularly among adolescents.

**Conclusion**

Meditation appears to have long-term effects of relaxation, stress-relief, emotional and psychological balance and superior attention skills. There is growing evidence that meditation has a great potential to become an important aid in illness prevention as well as an alternative or additive treatment for a wide range of disorders, ranging from minor physiological stress-related problems to severe mental and neurological illness.

Meditation is the way that makes a person totally patient and not overly happy or sad (Department of Mental Health, 2000), and able to cope with the difficult things because they can manage or control their emotion in every situation (Goleman, 1998).

It could be concluded from the scientific researches that mindful meditation may have some influence on human emotional quotient and positive impact on attitudes, creating a feeling of love, tranquility and calm in the mind (Phradhebsinghaburajarn, 2000). Finally, meditation may help control stable emotions and mental immunity (Phradhammapidok, 1998).
2.3 Lacuna

After reviewing relevant scientific studies it was observed that the impact of three important components of Preksha Meditation namely Kayotsarga, Jyoti Kendra Preksha and Svasa Preksha is still unexplored scientifically in terms of their effect on reducing academic stress and promoting emotional stability. That is why it was proposed to carry out the present study.