CHAPTER II

REVIEW OF RELATED LITERATURE

The investigator came through several books, periodicals, journals and unpublished thesis, while searching for relevant facts and findings that are related to his present study. “The literature in any field forms the foundation upon which all future work will be built. The investigator has gone through available literatures, which are relevant to his studies, findings; facts and figures are brought them in this chapter.

2.1. LITERATURE ON PSYCHOLOGICAL VARIABLES

2.1.1. REVIEWS OCCUPATIONAL STRESS

Anderson et al. (1999) studied the effect of meditation on teacher perceived occupational stress, state and trait anxiety, and burnout. Teacher stress has been the focus of educational concern and research for decades, and has resulted in the development of several teacher stress scales and various strategies to address the negative effects of stress and burnout. Promising results in reducing teacher stress have come from the practice of standardized meditation (SM). The study employed a pretest–posttest control group design and used the Teacher's Stress Inventory, State–Trait Anxiety Inventory, and the Maslach Burnout Inventory to assess the effect of a 5-week standardized meditation class on the perceived occupational stress of 91 full-time elementary, middle, and high school teachers (aged 22–60 yrs) from suburban districts in three states. Results were consistent with previous studies and offered support for the hypothesis that SM significantly reduces teachers' perceived stress. Teachers perceived a reduction in stress using SM only 2–5 times per week. The use of SM by school psychologists to assist in reducing teacher stress is discussed.

Vempati et al. (2000) studied the baseline occupational stress levels and physiological responses to a two days stress management program. The study evaluated the physiological changes of a yoga based stress management program for 26 a symptomatic, male, middle managers. Their ages ranged between 34 – 54 years. Assessments were made at the beginning and at the end of the two-day workshop. The Occupational Stress index (OSI) (Srivastava & Singh, 1981) and autonomic parameters were measured.

Data of subjects with OSI greater or less than the median ware analyzed separately. The 't' test for paired data was used for pre-post comparisons. The whole group (n=26) showed a significant decrease in breath rate ($p < .005$) after the two days program, with no other changes. Subjects with OSI more than median (n = 13) showed a significant decrease in breath rate ($p < .01$), in the power of the low frequency component of the heart rate variability spectrum ($p<.05$), and in the low frequency: high frequency ratio (LF/ HF) ($p<.05$) and an increase in the high frequency component ($p<.05$) after the program, with no changes in the subjects with OSI less than the median. At the end of a two-day yoga based stress management program, the breath rate was lower, with no other change. However, when subjects were categorized based on their occupational stress index as OSI greater or less than the median, the two categories showed different trends. The 'OSI greater than the median' group showed a decrease in breath rate, also peak power of LF of the HRV, and LF/HF, with an increase in the HF peak power. The 'OSI less than the median' group showed no change. Subjects with high occupational stress scores at baseline appeared to be more likely to show reduced sympathetic activity after the two days program.

Ned Hartfiel et al. (2011) studied the effectiveness of yoga for the improvement of well-being and resilience to stress in the workplace. The study examined the effectiveness of yoga in enhancing emotional well-being and resilience to stress among university employees. Methods in a randomized controlled trial at a British University; they recruited 48 employees and randomized them into either a yoga or a wait-list control group. The yoga group was offered six weeks of Dru Yoga, comprising one 60-minute class per week. These classes were offered by a certified Dru Yoga instructor at lunchtime from January-March 2008. The wait-list control group received no intervention during this six-week study. Baseline and end-program measurements of self-reported mood and well-being were self-assessed with the Profile of Mood States -Bipolar (POMS-Bi) and the Inventory of Positive Psychological Attitudes (IPPA). The six-week yoga intervention resulted in significantly improved POMS-Bi and IPPA scores for the yoga compared to the wait-list control group for seven of eight measures of mood and well-being. In comparison to the wait-list control group at baseline and the end of the program, the yoga group reported marked improvements in feelings of clear-mindedness,

composure, elation, energy, and confidence. In addition, the yoga group reported increased life purpose and satisfaction, and feelings of greater self-confidence during stressful situations. The results show that even a short program of yoga is effective for enhancing emotional wellbeing and resilience to stress in the workplace.

Nicholas M. Brisbon et al. (2011) designed a study to examine mindfulness and stress levels in beginner and advanced practitioners of Hatha Yoga. Participants ($N = 52$) were recruited through Hatha Yoga schools local to western Massachusetts. Beginner practitioners ($n = 24$) were designated as those with under 5 years ($M = 3.33$) experience and advanced practitioners ($n = 28$) as those with over 5 years ($M = 14.53$) experience in Hatha Yoga. The participants completed the *Mindful Attention Awareness Scale* (*MAAS*; Brown and Ryan 2003) and the *Perceived Stress Scale* (*PSS*; Cohen et al. 1983) directly preceding a regularly scheduled Hatha Yoga class. Based on two independent-samples *t*-tests, advanced participants scored significantly higher in mindfulness levels ($P < .05$) and significantly lower in stress levels ($P < .05$) when compared to beginner participants. Additionally, a significant negative correlation ($r = -.45$, $P = .00$) was found between mindfulness and stress levels. No significant correlations were found between experience levels and mindfulness and stress levels. Hatha Yoga may be an effective technique for enhancing mindfulness and decreasing stress levels in practitioners.

Ned Hartfiel et al. (2012) studied the benefit of yoga for reducing perceived stress and back pain at work. There were 37 participants in the study were recruited from a British local government authority and randomized into a yoga group who received one 50min Dru Yoga session each week for 8 weeks and a 20min DVD for home practice and a control group who received no intervention. Baseline and end-program measurements of self-reported stress, back pain and psychological well-being were assessed with the Perceived Stress Scale, Roland Morris Disability Questionnaire and the Positive and Negative Affect Scale. Analysis of variance and multiple linear regression showed that in comparison to the control group, the yoga group reported significant reductions in perceived stress and back pain, and a substantial improvement in psychological well-being. When compared with the control group at the end of the program, the yoga group scores were significantly lower for perceived stress, back pain, sadness and hostility, and substantially higher for feeling self-assured, attentive and serene.

Wolever et al. (2012) studied the effective and viable mind-body stress reduction in the workplace. Highly stressed employees are subject to greater health risks, increased cost, and productivity losses than those with normal stress levels. To address this issue in an evidence-based manner, worksite stress management programs must be able to engage individuals as well as capture data on stress, health indices, work productivity, and health care costs. In this randomized controlled pilot, their primary objective was to evaluate the viability and proof of concept for two mind-body workplace stress reduction programs (one therapeutic yoga-based and the other mindfulness-based), in order to set the stage for larger cost-effectiveness trials. A second objective was to evaluate 2 delivery venues of the mindfulness-based intervention (online vs. in-person). Intention-to-treat principles and 2 (pre and post) × 3 (group) repeated-measures analysis of covariance procedures examined group differences over time on perceived stress and secondary measures to clarify which variables to include in future studies: sleep quality, mood, pain levels, work productivity, mindfulness, blood pressure, breathing rate, and heart rate variability (a measure of autonomic balance). Two hundred and thirty-nine employee volunteers were randomized into a therapeutic yoga worksite stress reduction program, 1 of 2 mindfulness-based programs, or a control group that participated only in assessment. Compared with the control group, the mind-body interventions showed significantly greater improvements on perceived stress, sleep quality, and the heart rhythm coherence ratio of heart rate variability. The two delivery venues for the mindfulness program produced basically equivalent results. Both the mindfulness-based and therapeutic yoga programs may provide viable and effective interventions to target high stress levels, sleep quality, and autonomic balance in employees.

Huang, Fu-Jung et al. (2013) conducted a study to investigate the comparative effectiveness of a single 90-minute Hatha yoga class and an 8-week, 90-minute-class-per-week course. They used a quasi-experimental design and recruited 63 female community residents in New Taipei City aged 40–60 years. Participants were randomly divided into an experimental group (n = 30) and a control group (n = 33). The experimental group received the 8-week Hatha yoga course. The control group received no intervention. The Perceived Stress Scale (PSS) and heart rate variability (HRV) assessed stress reduction effectiveness. Chi-square, independent t test, paired t test, and generalized

estimating equations were used for data analysis. After a single 90-minute class of Hatha yoga, experimental group PSS scores were significantly less than those of the control group (p = .001). Although experimental group HRV (low-frequency norm and high-frequency norm) had improved, these changes were not statistically significant (p = .059). PSS scores for the single 90-minute class and 8-week course did not significantly differ (p = .157) and HRV of statistics is significant (p = .005). Generalized estimating equations analyzed changes in the effectiveness over time of stress reduction (HRV and PSS) after the Hatha yoga intervention. Results showed the post intervention HRV and PSS of the experimental group decreased significantly (p < .001) more than the control group. Participation in a single 90-minute Hatha yoga class can significantly reduce perceived stress.

Bethany (2014) studied and examined the effects of a classroom-based yoga intervention on cortisol concentrations and perceived behavior in children. A 10-week Yoga 4 Classrooms intervention was implemented in one second-grade and one third-grade classroom. Students' salivary cortisol responses were assessed at 3 time points. Classroom teachers also documented their perceptions of the effects of the intervention on students' cognitive, social, and emotional skills. Second, but not third, graders showed a significant decrease in baseline cortisol from before to after the intervention. Second and third graders both showed significant decreases in cortisol from before to after a cognitive task, but neither grade showed additional decreases from before to after a single yoga class. The second-grade teacher perceived significant improvements in several aspects his/her students' behavior. The third-grade teacher perceived some, but fewer, improvements in his/her students' behavior. Results suggest that school-based yoga may be advantageous for stress management and behavior.

Bland et al. (2014) conducted a study to quantify the impact of physical activity associated behaviors and exercise types significantly associated with high stress tolerance (HST) among college students. They adopted *a* research design employed was a quantitative, analytical, cross-sectional study of randomly selected college students (N=936) that completed a stress tolerance questionnaire (STQ) coupled with a physical activity log. Statistical differences by type of physical activity and stress tolerance were determined by Chi-Square and Odds Ratio (95%CI). The result was that significant

physical activity behaviors associated with HST included: exercised (p=0.001), engaged in leisure activity (p=0.004), engaged in extra-curricular activity (p=0.012), and engaged in extra-curricular sport (p=0.039). Three out of four types exercise were significantly associated with HST: vigorous exercise, stretching, and resistance training ($p<0.05$). The study demonstrated the positive protective impact of physical activity behaviors and exercise on stress tolerance among college students.

Sang Dol Kim (2014) investigated the effects of yogic exercises on life stress and blood glucose levels in nursing students. [Subjects and Methods] The study was a randomized controlled trial. Twenty-seven undergraduate nursing students were randomly selected, with 12 assigned to an exercise group and 15 assigned to a control group. The yogic exercises intervention was undertaken for 60 minutes one day a week for 12 weeks. It consisted of physical exercise (surya namaskara) combined with relaxation and meditation (shavasana and yoga nidra). Life stress was measured by the Life Stress Scale for College Students, and postprandial blood glucose levels were measured with a digital glucometer. The exercise group measurements were significantly decreased in both life stress and postprandial blood glucose levels compared with the control group. These findings indicate that yogic exercises would reduce life stress and lower D postprandial blood glucose levels in nursing students.

Godse et al. (2015) studied the effects of suryanamaskar on relaxation dispositions (R-dispositions) among college students with high stress in Pune, India and found it is effective in leading to R-Dispositions like physical relaxation, mental quiet, at ease/peace, rested and refreshed, strength and awareness and joy and reduces sleepiness, somatic stress, worry and negative emotion at a dispositional level.

Esther I. de Bruin et al. (2017) studied the effects of Combined Physical Exercise, Yoga, and Mindfulness Meditations for Stress Relieve in Employees. This proof of concept study assessed the feasibility, acceptability, and preliminary effects of the newly developed Mindful2Work training, a combination of physical exercise, restorative yoga, and mindfulness meditations, delivered in six weekly group sessions plus a follow-up session. Participants ($n = 26$, four males), referred by company doctors with (work-related) stress and burnout complaints, completed measurements pre and post the intervention, as

well as at 6-week (FU1) and 6-month (FU2) follow-up. Results showed very high feasibility and acceptability of the Mindful2Work training. The training and trainers were rated with an 8.1 and 8.4 on a 1–10 scale, respectively, and training dropout rate was zero. Significant improvements with (very) large effect sizes were demonstrated for the primary outcome measures of physical and mental workability, and for anxiety, depression, stress, sleep quality, positive and negative effect, which remained (very) large and mostly increased further over time. Risk for long-term dropout from work (checklist individual strength [CIS]) was 92 % at pre-test, reduced to 67 % at post-test, to 44 % at FU1, and 35 % at FU2, whereas employees worked (RTWI) 65 % of their contract hours per week at pre-test, which increased to 73 % at post-test, 81 % at FU1 and 93 % at FU2. Intensity of home practice or number of attended sessions was not related to training effects. To conclude, the newly developed Mindful2Work training seems very feasible, and acceptable, and although no control group was included, the large effects of Mindful2Work are highly promising.

2.1.2. REVIEWS ON JOB SATISFACTION

Adhia (2010) conducted a study to measure the effect of yoga way of life on five different indicators through an empirical study. The five indicators are job satisfaction, job involvement, goal orientation, affective organizational commitment and organizational citizenship behavior. Pre- and post-data was measured using self-reported questionnaire. Independent T-test (Paired) and Pearson's correlation test were conducted using SPSS. The results of the study show that Yoga has a significant positive impact on four out of five of these indicators. Only job involvement does not show significant improvement. The construct used for measuring job involvement had a Chronbach alpha of 0.613, which is an indicator of moderate reliability, which could be the main reason for not getting positive result.

Chawla (2010) have studied the Individual Spirituality at Work and its Relationship with Job Satisfaction, Propensity to Leave and Job Commitment. An Exploratory Study among Sales Professionals revealed that sales professionals' spirituality at work is positively related to job satisfaction and job commitment, and negatively related to propensity to leave.

Santosh Yaduvanshi et al. (2010) conducted a study to find the effect of pranayama on mental stress and job satisfaction of teachers from Banaras Hindu University. Thirty teachers were selected for the study. In this study two separate questionnaires were used for assessing the mental stress and job satisfaction. The t test was applied to find out the effect of effect of 12 week training of pranayama on mental stress and job satisfaction of teachers from Banaras Hindu University. For testing the difference between the mean gain of initial test and final test the level of significance was set at 0.05 level of confidence. On the basis of findings, it can be concluded from the study that the pranayama practice among teachers was significantly improved from the 12 week training of pranayama on mental stress and job satisfaction of teachers from Banaras Hindu University.

Chand (2012) conducted a study on workplace spirituality, organizational emotional ownership, and job satisfaction as moderators in coping with job stress in information technology professionals in India revealed that workplace spirituality, organizational emotional ownership, and job satisfaction are negatively correlated with job stress. The study also found that workplace spirituality emerged as the strongest predictor to cope up with job stress.

Melville, Chang et al. (2012) conducted a study to compare the acute (15 min) yoga postures and guided meditation practice, performed while seated in the office workspace, on psychological and physiological markers of stress. A within-subjects crossover design was utilized. Each participant completed three conditions, including yoga postures, meditation, and control (usual work), separated by >24hrs. Perceived stress and blood pressure were evaluated before, immediately after, and at 3x 5-min intervals post intervention. Heart rate, respiratory rate and parameters of heart rate variability (HRV) were collected continuously, before, during and post intervention. Twenty adults (39.6±9.5yr) completed the study. The yoga and meditation interventions significantly reduced perceived stress versus control. This effect was maintained throughout the 15-min post-intervention period. Yoga postures increased heart rate while meditation reduced heart rate versus control (both $p<0.05$). Respiratory rate was reduced during both yoga and meditation versus control ($p<0.05$). Time and frequency domains of HRV (i.e. SDNN and log-total power) were significantly improved during yoga versus

control. Additional HRV outcomes (LF and LF:HF) indicated increased parasympathetic modulation during yoga versus control. Meditation improved HRV outcomes versus control only during the initial 5-minutes of the 15-min intervention period. All physiological parameters generally regressed to baseline during the post intervention period. Blood pressure indicated normotension during the baseline recording in all conditions and did not improve in yoga versus control. Meditation induced a reduction in both systolic and diastolic blood pressure at 5-min post intervention versus control ($p<0.05$). Yoga postures or meditation performed in the office environment can acutely improve several psychological and physiological parameters associated with the stress response. Use of such practical interventions to mitigate stress in the workplace may reduce the risk of cardio-metabolic diseases and enhance job satisfaction and productivity.

ul Hassan et al. (2012) conducted a study to examine the effects of Yogic and physical exercise on job satisfaction and job burnout. 145 subjects in four groups, viz., light exercise group, heavy exercise group, yoga performers group and control group were administered measures of job satisfaction and job burnout. All the subjects are male in the age range of 22 to 58 years. Data were analysed by simple ANOVA suitable for multi group design. Results revealed that the control group has significantly higher job burnout and poor job satisfaction than the exercise and yoga-performing group.

Sahukar Madhura (2014) conducted a study set out to explore the correlation among job satisfaction, job stress, and health and to compare yoga and non-yoga practicing groups score of job satisfaction, job stress, and health. The study also sought to know how the Indian spirituality influences these parameters. The findings of this study have shown that there is a significant correlation among job satisfaction, job stress, and health. Job stress is negatively related to health and job satisfaction. Software professionals with higher job satisfaction scored less job stress score and psychosomatic ailments score. This study found out that yoga did not show a significant impact on job satisfaction. However, in yoga practitioners, job satisfaction is not significantly related to psychosomatic health, whereas in the non-yoga group psychosomatic health symptoms showed a significant relationship with job satisfaction. That means psychosomatic disorders are well managed in yoga practicing software professionals irrespective of job satisfaction.

Shaly Joseph et al. (2015) conducted a study to find out the effectiveness of yoga in stress management among the employees in industry. The scope of the research extends to the employees in the industry. The results of the study indicate Yoga practices considerably reduce the emotional, cognitive, behavioral, physical and organizational effects of stress among the employees. As a result an increase in job satisfaction and job performance also reported. In the light of above result it can be recommended that a stress management and relaxation center should be part of any worksite health promotion program. Yoga can be effectively used as an intervention strategy to deal with stress in this center. This study was used yoga as an intervention strategy and probe into the effectiveness of yoga in improving individual job performance and job satisfaction. Effectiveness of Yoga in reducing the wrong effects of stress in the employees is investigated in detail. It also establishes the feasibility and practicability of introducing Yoga practices regularly in the industry for the benefit of the organization and individual employees. It gives wider scope to other researchers to probe in to various other aspects, which is not covered in this study.

Wongtongkam, Nualnong et al. (2017) conducted a study to examine the beneficial effects of mindfulness meditation on job satisfaction, mindful awareness and anxiety levels in university personnel. Mixed methods with a quasi-experiment and in-depth interviews were used. Fifteen participants engaged in a mindfulness meditation approach and five volunteers were interviewed. The findings showed a significant increase in awareness, with staying focused ($t(14) = –3.09$, $p = .00$), noticing feelings of physical tension ($t(14) = –4.00$, $p = .00$), being aware of running automatically ($t(14) = –3.55$, $p = .00$) and not being preoccupied with the future or the past ($t(14) = –2.69$, $p = .01$), respectively. Mindfulness was also effective in reducing sleep disturbance. Qualitative results demonstrated the mindfulness approach contributed to calmness and relaxation, and increased ability to handle difficult matters in the workplace. Apart from helping participants to better manage emotions, the mindfulness intervention could promote better relationships towards family members and reduce blood pressure to normal levels. Therefore, mindfulness meditation should be promoted across academic settings to enhance job performance and satisfaction and reduce work-related stress.

2.2 LITERATURE ON HEMATOLOGICALVARIABLES

2.2.1 REVIEWS ON IMMUNITY

Juan (2004) conducted a study by intervening Qigong technique, which is a type of Chinese psychosomatic exercise that integrates meditation, slow physical movements, and breathing, and to which numerous physical as well as mental benefits have been classically ascribed. The aim of the study was to analyze the effects of a qigong program on various immunological parameters. 29 native subjects participated in the study, of whom 16 were allocated to the experimental group and the rest to the control group. The experimental subjects underwent a qigong training program, conducted by a qualified instructor, consisting of half an hour of daily practice for one month. The day before the experiment commenced and the day after it finished, blood samples were drawn from all subjects for the quantification of immunological parameters (leukocytes, immunoglobulin, and complement). As statistical analysis, analysis of covariance (ANCOVA) was carried out. Statistically significant differences were found between the control and experimental groups, with the experimental group showing lower numbers of total leukocytes and eosinophils, number and percentage of monocytes, as well as complement C3 concentration. In addition, a similar result with a trend towards significance was observed in the number of eosinophils. These findings demonstrate that after one month of practicing qigong, significant immunological changes occurred between the experimental and control groups, with a consistently lower and broadly significant profile of these measures within the qigong practitioner group. Tai-chi, meditation, autogenic, cognitive behavioral therapy, group therapy and spirituality. All these strategies are based on research into the connection between yoga and the nervous, immune and endocrine system, all of which make up the basis of psycho neuro-immunology. The practice of yoga has proved to be useful for both healthy and sick. It is now evidenced that yoga has significant impact in cardiovascular diseases, asthma, rheumatoid arthritis, immunodeficiency disorders, and diabetes mellitus and in stress relaxation. Studies on impact of yoga on various hematological parameters are scanty and limited with the short term and unsatisfactory training especially in young healthy population. It is reported that anemia is a common problem of young Indian females, but cannot be ignored in young population as overall. Erythrocyte sedimentation rate (ESR),

the most widely used laboratory measure of disease activity in clinical medicine, is still considered useful for monitoring inflammatory diseases. Taking into consideration, the scarcity of information about cardio-protectant and anti-stress role of yoga and its relation with hematological parameters, we planned to conduct a study on effect of a long term regular yoga training of three months, on various hematological parameters and ESR in young healthy individuals. Gender has a significant role in variation in hematological parameters so we conducted this study in male subjects only.

Chatterjee et al. (2012) made an attempt to observe the effect of twelve weeks of yogic training on general immunological health variables in a middle aged group. The convenient sampling method was applied. Forty five untrained volunteers (30 male and 15 female, age group of 35-55 years) divided into two groups (experimental: male = 15 & amp; female = 8; control: male = 15 & female = 7). The study group (experimental) underwent yogic practices (kriyā, sũrya namaskāra, āsana, prāāyāma and meditation) daily in the morning for 6 days / week for 12 weeks. Body weight, body mass index, total & differential (neutrophils, eosinophils, basophils, monocytes and lymphocytes) count of white blood cells and platelets were measured before commencement and after 6 and 12 weeks of yogic training period. Repeated measures of ANOVA were used for data analysis. Simple percentages were also calculated from the mean value to see the quantitative changes of the yogic training. Regular yogic training for 12 weeks produced a significant increase (p<0.05) in WBC, neutrophil, monocyte, lymphocyte and platelets whereas eosinophil was decreased significantly (p<0.05) for both male and female group as compared to control. All the changes were in the normal range. From the present study it can be concluded that integrated approach of yogic training may be beneficial to maintain the general immunological efficiency and promote healthy aging.

Gabriel A. Carranque (2012) studied the hematological and biochemical modulation in regular yoga practitioners. They examined the effects of effects of long-term yoga practice on blood parameters. Twenty-six healthy volunteers of whom sixteen were advanced practitioners of yoga took part in the study. The remaining ten participants were not practitioners and constituted the control group. Blood samples were taken to determine the following hematological parameters: erythrocytes, hematocrit, hemoglobin, platelets and erythrocyte sedimentation rate; and biochemical parameters: renal and

hepatic profile, glucose, uric acid, total protein and albumin. The Mann-Whitney U test was performed to ascertain the statistical analysis. The experimental group showed higher hemoglobin levels ($p>0.01$) and erythrocyte sedimentation rate ($p>0.01$) and lower albumin levels ($p>0.05$). The regular practice of yoga brings about changes in basic hematological parameters. New clinical trials with a wider sample of subjects will be needed in order to recommend the use of yoga as complementary therapy in those cases where the above-mentioned parameters are altered.

Vaishali (2012) studied the effects of yoga-based program in modifying certain biochemical parameters for long duration Type DM 2 elderly subjects. Sixty elderly with more than 15 years of DM 2 were randomly assigned into Control (Educational group) and Yoga group in a tertiary day care center. Educational group received advice and leaflets on general healthy lifestyle and exercise for every one month. The yoga group was offered individualized yoga asanas and Pranayama for 6 days a week over 12 weeks. Following 12 weeks of intervention, Pre- and Post, biochemical parameters were analyzed between the groups. Results showed a significant improvement in glycosylated hemoglobin level, Fasting glucose level, and serum lipid profile in Yoga group compared to Educational group. Yoga asanas under supervision have beneficial effects in biochemical parameters for chronic Type 2 diabetic elderly subjects.

Purohit Geetanjali et al. (2013) studied the Cardio-protectant and Anti-stress Effect of Yoga Training and its Correlation with Hematological Parameters. 47 normal healthy male participants, aged between 15-35 years participated in the study. The hematological parameters studied include Hb concentration, RBC count, TLC, PCV, ESR and blood indices which included MCV, MCH and MCHC. Pre and post yoga training data were analyzed by students paired t test. Post yoga training participants showed, significant increase in MCHC (32.2 ± 1.0 Vs 34.8 ± 1.3, $p<0.01$), hemoglobin concentration (13.2 ± 2 Vs 14.6 ± 2.1, $p<0.05$) and neutrophil count. Erythrocyte sedimentation rate (11.4 ± 2.87 Vs 3.87 ± 1.81, $p<0.01$) and total leucocyte count decreased after yoga. Packed cell volume, red blood cell count and other white blood cells showed changes but within physiological limit. In conclusions, the improvement in hemoglobin concentration and MCHC without increase in number of RBC and hematocrit indicates

cardio-protectant and anti-stress effect of yoga. This statement further supported by decrease total leucocyte count and ESR after yoga. Yoga can be recommended as combined therapy in various clinical conditions, where these parameters altered.

2.2.2. REVIEWS ON CHOLESTEROL

Vyas R et al. (2008) studied the effect of Raja yoga meditation on the lipid profile of post-menopausal women. This study was designed to assess the effect of raja yoga meditation of Brahmakumaris, which is very simple to practice, on serum lipids in normal Indian women. 49 normal female volunteers were the subjects. They were divided into pre-menopausal (n=23) and post-menopausal (n=26) groups. They were further divided into non- meditators (who had never done any kind of meditation), short-term meditators (meditating for 6 months to 5 years) and long-term meditators (meditating for more than 5 years). Lipid profile was assessed using their respective reagent sets. Serum cholesterol, triglyceride and low-density lipoprotein-cholesterol in non-meditators were significantly more in post-menopausal women as compared to pre-menopausal women. Serum cholesterol and low density lipoprotein- cholesterol were significantly lowered in both short and long term meditators as compared to non-meditators in post-menopausal women. Raja yoga meditation lowered serum cholesterol and low-density lipoprotein-cholesterol in post- menopausal women thus reducing the risk of coronary artery disease in them.

Anjum (2010) studied the effect of Sudarshan Kriya Yoga, a novel breathing technique conceived by the world renowned spiritual leader and founder of The Art of Living Foundation Sri Sri Ravishankar to see the effect of Sudarshan Kriya Yoga on Lipid Profile, Pulmonary Function and Hemoglobin concentration. They conducted a workshop of 8 days consisting of 150 participants. Out of which 55 were included in the study group. The results showed that after practicing Sudarshan Kriya, there is decrease in Total Cholesterol, LDL-Cholesterol along with significant increase in HDL-Cholesterol. There are significant changes in Pulmonary Function, but statistically non-significant changes in Hematological parameters. From the observation Sudarshan Kriya Yoga may play vital role in reducing. Total Cholesterol ($P<0.05$), LDL-Cholesterol ($P<0.001$) and significantly increasing HDL-Cholesterol ($P<0.001$). Spirometric Pulmonary Function

Tests studied were Forced Vital Capacity, Forced Expiratory Volume in first second, Peak Expiratory Flow Rate and Maximum Voluntary Ventilation. The results showed improvement in all Pulmonary Function parameters in all subjects as compared to before practicing Sudarshan Kriya Yoga. Thus Sudarshan Kriya Yoga may have therapeutic implication in the adjunctive (non-pharmacological) management of cardiovascular diseases and respiratory diseases. The present study confirmed the positive effect of Sudarshan Kriya YjjkJoga on Lipid Profile and Pulmonary Function over period of 8 days.

Ajay Pal (2011) studied Effect of yogic practices on lipid profile and body fat composition in patients of coronary artery disease. They have selected 170 subjects of coronary artery disease. Subjects were divided in to two groups randomly in yoga group and in non-yoga group, eighty five (85) in each group. Out of these (170 subjects), one hundred fifty four (154) completed the study protocol. The yogic intervention consisted of 35– 40 min/day, five days in a week till six months in the Department of Physiology CSMMU UP Lucknow. Body fat testing and estimation of lipid profile were done of the both groups at zero time and after six months of yogic intervention in yoga group and without yogic intervention in non-yoga group. The result shown was that, BMI ($p < 0.04$), fat % ($p < 0.0002$), fat free mass ($p < 0.04$), SBP ($p < 0.002$), DBP ($p < 0.009$), heart rate ($p < 0.0001$), total cholesterol ($p < 0.0001$), triglycerides ($p < 0.0001$), HDL ($p < 0.0001$) and low density lipoprotein ($p < 0.04$) were changed significantly. There is a reduction of SBP, DBP, heart rate, body fat%, total cholesterol, triglycerides and LDL after regular yogic practices.

Damodaran (2012) studied the effect of yoga on the physiological, psychological well-being, psychomotor parameter and modifying cardiovascular risk factors in mild to moderate hypertensive patients. Twenty patients (16 males, 4 females) in the age group of 35 to 55 years with mild to moderate essential hypertension underwent yogic practices daily for one hour for three months. Biochemical, physiological and psychological parameters were studied prior and following period of three months of yoga practices, biochemical parameters included, blood glucose, lipid profile, catecholmines, MDA, Vit. C cholinesterase and urinary VMA. Psychological evaluation was done by using personal orientation inventory and subjective well-being. Results showed decrease in blood pressure and drug score modifying risk factors, i.e. blood glucose, cholesterol and triglycerides decreased overall improvement in subjective well being and quality of life.

There was decrease in VMA catecholamine, and decrease MDA level suggestive decrease sympathetic activity and oxidant stress.

Sanjay (2012) conducted a study to examine the effect of yoga training on high sensitivity C reactive protein (hs-CRP) and lipid profile levels in railway engine drivers working in metropolis. Male drivers of Indian railways, age ranged from 30 to 42 yrs with no known medical disorders, were randomized to yoga group (n=16) and control group (n=16). At the baseline and after completion of one month yoga training both the groups were assessed for hs-CRP and lipid profile levels. The yoga group practiced in a set of yoga techniques for 1 hr. daily in the morning along with daily routine work, while control group engaged in daily routine work only. The results shows statistically significant reduction lipid profile levels.

Seo Han (2012) studied the effect of yoga on metabolic parameters in obese boys. The purpose of their study was to test the effect of an 8-week of yoga-asana training on body composition, lipid profile, and insulin resistance (IR) in obese adolescent boys. Twenty volunteers with body mass index (BMI) greater than the 95th percentile were randomly assigned to yoga (age 14.7±0.5 years, n=10) and control groups (age 14.6± 1.0 years, n=10). The yoga group performed exercises three times per week at 40~60% of heart-rate reserve (HRR) for 8 weeks. IR was determined with the homeostasis model assessment of insulin resistance (HOMA-IR). After yoga training, body weight, BMI, fat mass (FM), and body fat % (BF %) were significantly decreased, and fat-free mass and basal metabolic rate were significantly increased than baseline values. FM and BF % were significantly improved in the yoga group compared with the control group ($p<0.05$). Total cholesterol was significantly decreased in the yoga group ($p<0.01$). HDL-cholesterol was decreased in both groups ($p<0.05$). No significant changes were observed between or within groups for triglycerides, LDL-cholesterol, glucose, insulin, and HOMA-IR. Their findings showed that an 8-week of yoga training improves body composition and total cholesterol levels in obese adolescent boys.

Subramanian (2012) conducted an investigation on the effect of Sudarshan Kriya and Pranayama program on lipid profile and hematological parameters. They collected blood samples of 43 engineering students at four intervals namely baseline (BL), exam

stress (ES), three and six weeks practice of Sudarshan Kriya and Pranama during exam stress. Lipid profile and hematological parameters were measured at all four intervals. ES elevated total cholesterol (TC), triglycerides (TGL) and very low-density lipoprotein (VLDL) levels. Hematological parameters affected by ES included neutrophil, lymphocytes, platelet count, packed cell volume (PCV) and mean cell volume (MCV). Three and six week practice of Sudarshan Kriya and Pranayama reduced the elevated lipid profile, hematological parameters and improved lymphocyte levels. The study indicates that Sudarshan Kriya and Pranayama practice has the potential to overcome ES by improving lipid profile and hematological parameters.

Begum (2013) conducted a study to evaluate the effect of on moderate degree hypertension and lipid profile. They selected 60 patients of moderate hypertension 30 females and 30 males aged between 40 and 60. They were trained in asanas, pranayama and relaxation techniques for six months. Blood pressure, serum total cholesterol, LDL, VLDL, HDL cholesterol and total triglycerides were measured at the beginning and at the end of the study. The result shows that the systolic blood pressure came down from 164.0+ 1.9 to 140+1.9 mmHg, diastolic blood pressure 96+0.8 to 82+0.6 mmHg, pulse rate declined from 85+1.2 to 77 + 0.7 per min, the TC concentration decreased significantly from 200 + 6.5 to 170 + 3.6 mg/dl ($p< 0.001$) the LDL reduced from 166 + 4.2 to 148 +3.7 mg/dl ($p<0.001$) and the triglycerides showed a significant decrease from 189 + 10.3 to 166 + 8.6 mg/dl ($p<0.001$), while the HDL cholesterol showed a marked increase from 39+1.4 to 46+1.2 mg/dl ($p<0.05$). The result concluded that that the yoga practice in patients with moderate degree hypertension leads to decrease in blood pressure and lipid profile within the period of six months.

2.3 LITERATURE ON SOCIOLOGICAL VARIABLES

2.3.1 REVIEWS ON SOCIAL VALUES

Barry S. Oken et al. (2006) conducted a study to determine the effect of yoga on cognitive function, fatigue, mood, and quality of life in seniors. One hundred thirty-five generally healthy men and women aged 65–85 years were participated in the study. The participants were randomized to 6 months of Hatha yoga class, walking exercise class, or wait-list control. Subjects assigned to classes also were asked to practice at

home. Outcome assessments performed at baseline and after the 6-month period included a battery of cognitive measures focused on attention and alertness, the primary outcome measures being performance on the Stroop Test and a quantitative electroencephalogram (EEC) measure of alertness; SF-36 health-related quality of life; Profile of Mood States; Multi-Dimensional Fatigue Inventory; and physical measures related to the interventions. Seventeen subjects did not finish the 6-month intervention. There were no effects from either of the active interventions on any of the cognitive and alertness outcome measures. The yoga intervention produced improvements in physical measures (eg, timed 1-legged standing, forward flexibility) as well as a number of quality-of-life measures related to sense of well-being and energy and fatigue compared to controls. There were no relative improvements of cognitive function among healthy seniors in the yoga or exercise group compared to the wait-list control group. Those in the yoga group showed significant improvement in quality-of-life and physical measures compared to exercise and wait-list control groups.

Sudheer Deshpande (2009) studied the efficacy of yoga on *Gunas* (personality) and self esteem in normal adults through a randomized comparative study. Of the 1228 persons who attended motivational lectures, 226 subjects aged 18–71 years, of both sexes, who satisfied the inclusion and exclusion criteria, and who consented to participate in the study were randomly allocated into two groups. The Yoga (Y) group practised an integrated yoga module that included *asanas, pranayama,* meditation, notional correction, and devotional sessions. The comparison group practised mild to moderate physical exercises (PE). Both groups had supervised practices for one hour daily, six days a week, for eight weeks. *Guna* (personality) was assessed before and after eight weeks using the self-administered "The 'Gita" Inventory of Personality" (GIN) to assess *Sattva*, *Rajas,* and *Tamas*. Self esteem in terms of competency (COM), global self esteem (GSE), moral and self esteem (MSE), social esteem (SET), family self esteem (FSE), body and physical appearance (BPA), and the lie scale (LIS) were assessed using the self esteem questionnaire (SEQ).The baseline scores for all domains for both the groups did not differ significantly ($P> 0.05$ independent samples t-test). There were significant pre-post improvements in all domains in both groups ($P< 0.001$ paired t-test). The number of persons who showed improvement in *Sattva* and decrease in *Tamas* was significant in the

Y but not in the PE group (McNemar test). The effect size for self esteem in the Y group is greater than for the PE group in three out of seven domains. This randomized controlled study has shown the influence of Yoga on *Gunas* and self esteem in comparison to physical exercise.

Sushil (2011) conducted a study to evaluate the effects of integral yoga practices on the variables sustained attention, emotional intelligence – EQ, general health – GHQ, guna personality – *sattva, rajas* and *tamas*and also the consistency of correlations observed between them. The variables were measured at the beginning and the end of a one-month yoga course. There was no control group. The study was carried out at Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA) University, in its rural campus south of Bangalore. Based on health criteria, 108 subjects were selected out of 198 volunteers to form the experimental yoga group. Ages ranged from 17 to 63 years. The yogasanas (postures), pranayama (breathing exercises), relaxation techniques, meditation, chanting and lectures were the components of yoga intervention. Significant pre-post changes were found in all variables. Significant correlations were found between the following pairs: The two sustained attention variables; emotional intelligence and general health; GHQ and *tamas; sattva* and *tamas*; and *rajas* and *tamas*. The study shows that there were significant changes in all variables ($P< 0.001$) except in *sattva*. It also confirms that EQ and general health variables correlate significantly with each other and negatively with *tamas*. EQ and *tamas* form positive and negative predictors of health respectively. *Sattva* correlates positively with EQ suggesting that a sattvic personality indicates better self-control. This suggests that, by improving guna personality, long-term yoga practice may stabilize EQ.

Tim Gard (2012) conducted a study to investigate the effects of a yoga-based program on quality of life, perceived stress, mindfulness, and self-compassion in young adults. These variables were measured in 33 self-selected participants of a four-month residential yoga intervention before and after the program. Forty-three demographically matched controls completed the same questionnaires at two time points with a four-month interval in between. Participation in the program predicted increases in quality of life and decreases in perceived stress, mediated by mindfulness and self-compassion. Multiple mediator models revealed that the effect of group on quality of life was simultaneously

mediated by mindfulness and self-compassion, while the effect of group on perceived stress was only mediated by self-compassion. These positive effects on perceived stress and quality of life suggest that yoga-based interventions may be of value in cultivating subjective well-being in young adults.

Jaspal (2013) studied the effect of yoga in students for improving their attention and self esteem. They assesed the study through Integrated Yoga Module (YM). Sixty low-income high school girls with 15.17 + 0.64 years of mean age participated in this single group pre-post study. The data was collected before and after 5 days of IYM.Means, standard deviations, Kolmogorov-Smirnov test, and Wilcoxon signed rank test were used to analyze the data with the help of SPSS 16.The data analysis showed 9.04% increase (P = 0.001) in SE scores, whereas d2 test for attention revealed 10.12% increase (P< 0.001) in total number of symbols processed scores and 44.73% decrease (P< 0.001) in total number of errors. The study suggested that of IYM can result in improvement of attention and SE among students and thereby enhancing their mental health and can help them in improving their academic achievement.

Maika Puta (2013) presented an overview of an ancient Indian personality system that shows promise for playing an important role in the applied research on well-being and spirituality: the concept of *tri-guna*. The core proposition of this concept is that the psyche consists of three energies ("*gunas*") called *sattva, rajas* and *tamas*. They are said to be present in everyone in different degrees, explaining differences not only in behavior but also in well-being and spirituality. It is assumed that a dominance of *sattva* is favorable for well-being. In the first part of this chapter, they have provided a summary of indicators for the three *gunas*, extracted from the available literature, and present empirical findings. The indicators are given separately for cognition, emotion, motivation, social and physical factors, the environment and behavior in general. In the second part they discussed the interventions that are claimed to increase *sattva* and thereby further well-being.

Moliver (2013) conducted a study to examine the extent to which psychological attitudes, transcendence, mental mastery, and subjective vitality in a sample of female yoga practitioners over 45 years varied according to the length and frequency of yoga

practice. They administered online surveys to a non-probability sample of 211 female yoga practitioners 45 to 80.They used weighted least squares regression analyses to evaluate the relationship of extent of yoga experience to the outcome variables after accounting for age and lifestyle factors. Participants had practiced yoga for as long as 50 years and for up to 28 h per week. There were significant positive relationships between yoga experience and all outcome variables. These significant relationships remained after accounting for age and lifestyle factors. Among a non-probability sample of female yoga practitioners between 45 and 80 years, increased yoga experience predicted increased levels of psychological well-being. Results showed a dose-response effect, with yoga experience exercising an increasingly protective effect against low levels of SWB and vitality.

Subhadra Evans (2013) conducted a study to assess the impact of a 6-week twice/week Iyengar yoga (IY) program on HRQOL of young adults with RA compared to a usual-care waitlist control group. The program was designed to improve the primary outcome of HRQOL including pain, as well as disability and psychological functioning in patients. Assessments were collected pre, post, and at 2-months following treatment. Weekly ratings of anxiety, depression, pain and sleep were also recorded. A total of 26 participants completed the intervention (yoga = 11; usual care waitlist = 15). All participants were female (mean age =28 years). Overall attrition was low at 15%. On average, women in the yoga group attended 96% of the yoga classes. No adverse events were reported. Relative to the usual-care waitlist, women assigned to the yoga program showed significantly greater improvement on standardized measures of HRQOL, pain disability, general health, mood, fatigue, acceptance of chronic pain and self-efficacy regarding pain at post treatment. Almost half of the yoga group reported clinically meaningful symptom improvement. Analysis of the uncontrolled effects and maintenance of treatment effects showed improvements in HRQOL general health, pain disability and weekly ratings of pain, anxiety and depression that maintained at follow-up. The findings suggest a brief IY intervention is a feasible and safe adjunctive treatment for young people with RA, leading to health related quality of life (HRQOL), pain disability, fatigue, and mood benefits. Moreover, improvements in quality of life, pain disability and mood persisted at the 2-month follow-up.

Guido (2014) tested 184 Yoga trainees using the following questionnaires: Styles of Learning and Thinking (Torrance), Big Five Questionnaire (Caprara, Barbaranelli, Borgogni), and reduced Morningness-Eveningness Questionnaire (Natale). They found that Morning types score significantly higher than Evening types on Conscientiousness, Friendliness, Scrupulousness, Openness to Culture, emotional Stability, emotion Control, they score higher than intermediate types on Conscientiousness, Friendliness, Scrupulousness. Moreover, data showed that the high majority of subjects, also with reference to Morningness-Eveningness disposition, have right-sided styles of learning and thinking, pointing out a tendency towards right-sided cognitive processing in the whole sample.

Suchitra (2014) conducted a study to find out the effect of yoga on personality development camp on the tri-gunas in children. The study was pre-postdesign with control group. 200 children (100 children in each group), aged 8-12 yrs, selected from a residential camp at Prashantikutiram Jigani (Yoga group) and Jayagopal Garodia Rasrtothana school. Experimental group children practiced Integral Yoga module including Asanas, pranayama, nadanusandhana, chanting, and games. Control group children were under daily routine. Sushruta Child personality inventory was administered before and after 10 days. Mann-Whitney U test and Wilcoxon Signed Ranks Test were applied. They found out that sattva increased significantly, while rajas and tamas decreased significantly as compared to the control group.

Kamakhya Kumar et al. (2016) conducted a study to understand the role of Yoga into Inter-personal Relationship and to find the mechanism to develop it through Yogic practices. First part of the study is based on the science of Yoga and its background. Yoga-psychology and its principles have been observed in this part of study. The study in the next part goes through the systematic review in the field of inter-personal relationship and personality developments. To observe the effect of Yogic practices and Yoga based lifestyle, a study has been conducted at Centre of Complementary and Alternative Medicine, Dev Sanskriti Vishwavidyalaya for six months. A group of 100 Post graduation students were selected through random sampling for a pre-post research study. Among them 90 student completed the study successfully. They were practicing Asana, Pranayama, Meditation, regularly and Shatkarma once in a week according to the

prescribed syllabus of the University. A standard questionnaire of social adjustment was applied to measure their social adjustment level among them. The finding of the study shows a significant change in their social adjustment level.

2.3.2 REVIEWS ON EMOTIONAL INTELLIGENCE

Donald H. Saklofske et al. (2007) studied the associations of personality and self-report emotional intelligence (EI) with attitudes to exercise and self-reported exercise behaviour were investigated in a sample of 497 Canadian undergraduates. A positive attitude to exercise was negatively associated with Neuroticism and uncorrelated with other personality traits and EI. Exercise behaviour was positively associated with Extraversion and EI and negatively associated with Neuroticism. Structural equation modelling indicated that EI mediated the relationship between personality and exercise behaviour. The interpretation of this result in terms of EI having some properties of a coping style is discussed.

Adhia (2010) conducted a study to find out the impact of the yoga way of life on EI using data collected from 60 managers in a business enterprise and reports enhanced EI as a result of the practice of yoga. The results indicate the importance of yoga as an integral element in improving managerial performance in organisations and the need to further explore this construct in greater detail. They found that the study has been successful in establishing the usefulness of the yoga framework for the enhancement of the emotional intelligence of an employee.

Li-Chuan Chu (2010) evaluated the benefits of meditation with regard to emotional intelligence, perceived stress and negative mental health with cross sectional and experimental studies among 351 full time working adults with different amount of experience in meditation and found that those participants with greater meditation experience, exhibited higher emotional intelligence and less perceived stress and negative mental health than those who had less or none. He has randomly divided 20 graduate students with no experience of meditation into a mind ful meditation group (n=10) and a control group (n=10) and measured them for same variables. Pre-treatment and post treatment to test the hypothesis, found that those who completed the mindfulness meditation.

Tikhe (2011) applied yoga therapy for developing emotional intelligence in mid-life managers and to assess emotional intelligent quotient (EQ) in managers undergoing yoga-based Self Management of Excessive Tension (SMET) program. The data analysis showed 72.02% significant increase (P<0.001) in EQ. Persons with high EQ may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve organizational effectiveness. The study on yoga reported enhanced EQ as a result of the practice of yoga way of life. The results indicate the importance of yoga as an integral element in improving managerial performance in organizations. The present study is consistent with these findings, indicating that a systematic adoption of the SMET program can result in better EQ among managers for "executive efficiency," thus paving the way for their better performance as managers.

Sasmita Das (2012) studied the effect of Integrated Yoga Module on Emotional Intelligence in Normal Healthy Volunteers and found that Students need emotional intelligence (EI) for their better academic excellence. Three important psychological dimensions of EI are emotional sensitivity (ES), emotional maturity (EM) and emotional competence (EC) which motivate students for recognize truthfully, interpret honesty and handle tactfully the dynamics of their behavioural pattern.

Tikhe (2014) conducted a study applying yoga therapy for promoting emotional sensitivity in University students. Students need emotional intelligence (EI) for their better academic excellence. There are three important psychological dimensions of EI: Emotional sensitivity (ES), emotional maturity (EM) and emotional competency (EC), which motivate students to recognize truthfully, interpret honestly and handle tactfully the dynamics of their behavioral pattern. The study was designed to assess ES in the students undergoing yoga therapy program in the form of yoga instructor's course (YIC) module.In the present study, the data analysis showed 3.63% significant increase (P< 0.01) in ES between pre and post intervention measurements. One way to understand yoga's strong positive effect on EQ is that it first increases alertness (exemplified by increases in sustained attention); next it erases negative influences on personality (exemplified by decreases in *Tamas* or dull personality trait); and finally this leads to increased sensitivity to others' feelings and emotions (exemplified by increases in *Sattva*

or balanced personality trait). The present study is consistent with these findings, suggesting that a systematic adoption of the YIC module can result in better ES among students for their academic success. The result from the present study suggests that YIC module was associated with improvement in ES, thus paving the way for their academic success.

Anamika Tiwari et al. (2016) studied the effect of yoga practices (asanas, pranayam and meditation including theory and practical) on emotional intelligence and healthy life style habits. They selected 100 people of Allahabad city on random basis (50 regular Yoga practitioners of Bharatiya Yoga Sansthan Allahabad centre who practiced yoga regularly under the supervision of trained experts and 50 individuals who practiced yoga rarely). Self constructed questionnaires were used to measure emotional intelligence and healthy life style habits. Ex-post facto research design was used to analyse the data. Data were analyzed by using Mean(X), Standard deviation (SD) & t-test. Results evidenced that practitioners who involved in regular yoga practices scored more on emotional intelligence as well as healthy life style habits than practitioners who were rarely practicing yoga.

Himani Anand et al. (Ira Das) (2016) conducted a comparative study to see the effect of Prayer along with meditation and the effect of Meditation (verbal chanting of 'OM') on Emotional Intelligence and Psychological Well-being of 130 female university students in the age range of 18 to 24 years. The sample of the study consisted of 65 students in Group I (Prayer along with Meditation) and 65 students in Group II (Only Meditation). The daily practice time of intervention was 30 minutes in Group I (15 min. for Prayer and 15-20 min. for Meditation) and 15-20 minutes in Group II for 30 days. Pre- Post data was recorded before and after intervention in both groups. A significant difference was found between the pre and post scores of emotional intelligence ($Z = 6.34$, $p < .01$ in Group I and $Z = 4.50$, $p < .01$ in Group II). A significant difference was also found between the pre and post scores of psychological well-being, ($Z = 4.43$, $p < .01$ in Group I). In Group II, Z value for psychological wellbeing was found to be 1.94 that is not significant even at .05 level. So, there is a significant positive effect of prayer along with meditation on emotional intelligence and psychological well-being. It was also found that there is a significant positive effect of meditation on emotional intelligence but no significant effect was found on psychological wellbeing.

2.4. REVIEWS ON SIMPLIFIED KUNDALINI YOGA

Chandravadhana, R (2013) studied the effect of Simplified Kundalini Yoga (erstwhile Manavalakkalai Yoga). The study was conducted on 30 women subjects suffering with stress. They were divided into two groups each with 15 subjects. One group was given six weeks of Simplified Kundalini Yoga Practices and the other group was control group and no training was given that group. The bio-chemical variables of total cholesterol and blood sugar were significantly controlled, the physiological variables of heart rate, systolic blood pressure, and diastolic blood pressure were significantly reduced, the psychological variable anxiety and stress were significantly reduced due to influence of six weeks practices of Simplified Kundalini Yoga as compared to control group.

Sasikala (2013) found out, Effect of Simplified Physical Exercises with Kayakalpa Practices and SKY meditation on Selected Biochemical and Psychological variables among Middle aged women‟ , had revealed that (i) HDL significantly increased (ii) LDL significantly decreased (iii) Aggression and stress decreased (iv) Self-concept increased, due to the treatment of Simplified Kundalini Yoga. Three groups each having 15 subjects from the total subjects of 45 formed. Experimental Group-I was given only Simplified physical exercise of Simplified Kundalini yoga. Experimental Group-II was given Simplified physical exercise with Kayakalpa practices and SKY meditation of Simplified Kundalini Yoga. No treatment was given to Control Group. Analysis of co-variance (ANCOVA) was applied to determine the significance of mean difference between three groups. Group-II which was given Simplified physical exercise with Kayakalpa practices and SKY meditation of Simplified Kundalini Yoga has shown significantly more than Group-I which was given only Simplified physical exercise of Simplified Kundalini yoga.

Suresh and Ramachandran (2013) Scientists, Defence Institute of Psychological Research R & D Organisation, Ministry of Defence, Delhi conducted a study to investigate the effect of Simplified Kundalini Yoga with meditation and physical exercises. They took the sample of 138 school and college students. They were divided into four groups. Group 1 consists of 24 college students and 24 school students. Group 2 consists

of 25 college students and 25 school students. Group 3 consists of 25 college students and 25 school students and group 4 is the control group consists of 24 college students and 25 school students. Groups 1 to Group 3 were given four months training. Group 1 is given training in Simplified Kundalini Yoga, Group 2 is given training in Simplified Kundalini Yoga, meditation and physical exercises, Group 3 is given training in simplified physical exercises and meditation and Group 4 stood as control group. The study investigated the impact of Simplified Kundalini Yoga on cognitive performance, psychological wellbeing, health locus of control, emotional and social health among young adults. The effect of training is measured before, during and after the introduction of kaya kalpa training program at the end of one month and three months. They were asked to do the practice daily. Each session of yoga training lasted for one to one and half an hour. The collected date were analysed through repeated measure ANOVA. The results indicated that the intervention group showed significant improvement in mid and post assessment on psychological wellbeing, internal locus of control, memory, sense of support and significant reduction in anxiety and anger. They found that the study implies Simplified Kundalini Yoga comprehensive, holistic approach to health promotion.

Baskaran (2015) conducted a study to investigate the effect of Simplified kundalini yoga among prison inmates. For the purpose 20 inmates belonging to remand, TamilnaduPrevention of Dangers Activities (TPDA), and convicts were selected from central prison, Salem, Tamilnadu. The subjects aged ranges from 24 to55. The simplified Kundalini Yoga training consisting of simplified exercises, meditation and Kayakalpa yoga was imparted to all the selected subjects. After completion of 15 days of training, a feedback about the effectiveness of the program was collected from all the subjects. Qualitative techniques of content analysis were used to analyse the feedback. The result revealed that all prisoners have problems with psychological, cognitive, physical and negative attitude towards life before practicing SKY yoga. Stress, lack of sleep, anxiety, lack of concentration and hopelessness are predominant problems reported by the prisoners before practicing SKY yoga. Practicing SKY yoga enhanced the physical, psychological and cognitive wellness of prisoners. Sound sleep, reduced anxiety, positive outlook towards life is the major signs of wellness achieved through the practicing of SKY yoga.

Damodharan (2015) conducted a study on the practice of yoga brings mind to a calm state through direct experience. Therefore, mind may be defined as a wave, which has different frequencies. We call them 'mind frequencies'. The foundation of this research is based on the hypothesis that, "it is impossible to separate the waves of the mind and the brain". The hypothesis is tested using eeg measurements involving a systematic system of meditation called simplified kundalini yoga (sky). Briefly, the sky system enables a meditator to bring the life force from the mooladhar chakra, which is located at the base of one's spinal cord, to "two higher chakras" located in the head, where the mind waves are said to attain lower frequencies. The EEG measurements show three ranges of lower mental frequencies corresponding to the three stages in the sky meditation system. The results of EEG frequencies reported here correspond to the values in the modern scientific literature on brain frequencies. Therefore, our finding supports the hypothesis that mind and brain frequencies cannot be separated. I present EMG results that demonstrate how the peace of mind also pacifies the body.

2.5. SUMMARY OF REVIEW

The investigator reviewed twelve related literature on the effects of Occupational Stress, nine literatures on Job satisfaction, five literatures on Immunity, eight on Cholesterol, eleven literatures on Social Values, eight literatures on Emotional Intelligence, five literatures on Simplified Kundalini Yoga.

The review proved that there was still scope for undertaking the research to compare the psychological variables occupational stress and job satisfaction, hematological variables immunity and cholesterol, sociological variables social values and emotional intelligence as no previous researcher made attempts to analyze the same. Hence with the experience gained through the review of the above literatures, suitable methodology for this study was selected and presented in Chapter III.