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CHAPTER-II

REVIEW OF LITERATURE

“Literature adds to reality, it does not simply describe it. It enriches the necessary competencies that daily life requires and provides; and in this respect, it irrigates the deserts that our lives have already become”.

-C.S. Lewis

At one time or another, most people experience stress. The term stress has been used to describe a variety of negative feelings and reactions that accompany threatening or challenging situations. However, not all stress reactions are negative. A certain amount of stress is actually necessary for survival. The stress reaction maximizes the expenditure of energy which helps prepare the body to meet a threatening or challenging situation and the individual tends to mobilize a great deal of effort in order to deal with the event.

Social perspectives of the stress response have noted that different people experiencing similar life conditions are not necessarily affected in the same manner (Pearlin, 1982).[1] Research into the societal and cultural influences of stress may make it necessary to re-examine how stress is defined and studied.

A literature review is a survey and discussion of the literature in a given area of study. It is a concise overview of what has been studied, argued, and established about a topic, and it is usually organized chronologically or thematically. A literature review is written in essay format. It is not an annotated bibliography, because it groups related works together and discusses trends and developments rather than focusing on one item at a time. It is not a summary; rather, it evaluates previous and current research in regard to how relevant and/or useful it is and how it relates to one's own research.[2]

A well-structured literature review is characterized by a logical flow of ideas; current and relevant references with consistent, appropriate referencing; proper use of terminology; and a comprehensive view of the previous research on the topic.[3]
According to Abdellah (1965), “What is found in the literature, can have an important influence on the formalities of the problem and design of the research, but can also provide useful comparative material, when data collected in the research is analysed.”

Woods N. Catanrrao (1986) states that, “the literature review contains a summary of the earliest work on same or related topic. It contains critical analysis of earlier work that identifies what is known and not known about a topic. Though usually not exhaustive, it includes the most important work in the area.”

A Literature Review is more than an annotated bibliography or a summary, because the researcher organizes and presents the sources in terms of their overall relationship to ones own project, to develop a clear understanding of how studies conducted related to stress affect the individual. The factors triggering perception of stress and what strategies are adopted by individual to mange their stress.

The reviewed literature has been organized under the following headings:

- Occupations related to stress
- Effect of stress
- Measures adopted to cope with stress.
- Life style modification made related to stress,

2.1 Studies related to Job stress in different professional.

2.1.1 Stress and nurses:
Bratt MM, Broome M, Kelber S, Lostocco L,(2000), “Influence of stress and nursing leadership on job satisfaction of pediatric intensive care unit nurses”, It is observed that high levels of stress and the challenges of meeting the complex needs of critically ill children and their families can threaten job satisfaction and cause turnover in nurses. This study aimed at exploring the influences of nurses' attributes, unit characteristics, and elements of the work environment on the job satisfaction of nurses in pediatric critical care units and to determine stressors that are unique to nurses working in pediatric critical care. A cross-sectional survey design was used. The sample consisted of 1973 staff nurses in pediatric critical care units in 65 institutions in the United States and Canada. The following variables were measured: nurses' perceptions of group cohesion, job stress, nurse-physician collaboration, nursing
leadership, professional job satisfaction, and organizational work satisfaction. The study brought out significant associations ($r = -0.37$ to $r = -0.56$) between job stress and group cohesion, professional job satisfaction, nurse-physician collaboration, nursing leadership behaviors, and organizational work satisfaction. Organizational work satisfaction was positively correlated ($r = 0.35$ to $r = 0.56$) with group cohesion, professional job satisfaction, nurse-physician collaboration, and nursing leadership behaviors. Job stress, group cohesion, job satisfaction, nurse-physician collaboration, and nursing leadership behaviors explained 52% of the variance in organizational work satisfaction. Dealing with patients' families was the most frequently cited job stressor.

The study concludes that job stress and nursing leadership are the most influential variables in the explanation of job satisfaction. Retention efforts targeted toward management strategies that empower staff to provide quality care along with focal interventions related to the diminishment of stress caused by nurse-family interactions was warranted.[6]

Yeh MC, Yu S,(2009),Studies “Job stress and intention to quit in newly-graduated nurses during the first three months of work in Taiwan” Given the current nursing shortage, retention of newly-graduated nurses is crucial issue. Hence the study aimed to identify job stress and intention to quit in newly-graduated nurses during the first three months of their work at two different levels of hospitals and to understand factors that may influence their retention. A cross-sectional research design was adopted. Newly-graduated nurses' perceptions of job stress and intention to quit at different time periods during the first three months in addition to related factors was measured using structured questionnaires in two levels of hospitals in central Taiwan.

The study showed that subjects experienced somewhat stressful conditions (Mean = 2.89, SD 0.62) and 31.5% intended to quit. Job stress was the highest at 0-1 month and the intention to quit was highest at 1-2 months. The intention-to-quit group had significantly higher job stress with regard to roles/interpersonal relationships than the intention-to-stay group [$t(144) = 2.65$, $p = 0.009$]. Logistic regressions indicated that higher job stress (odds ratio = 2.26; 95% CI 1.14-4.51), working at a medical centre (odds ratio = 3.61; 95% CI 1.10-10.92) and not having had a clinical practicum in the working hospital (odds ratio = 2.41; 95% CI 1.01-5.77) were significant predictors associated with the intention to quit. It may conclude that newly-graduated nurses perceived moderate job stress which significantly influenced their intention
to quit. The study implies that Nursing administrators should assist newly-graduated nurses in role adaptation and interpersonal relationships particularly to those who had previously worked only in medical centre’s and had never done a clinical practicum in the hospital. The study has relevance to clinical practice as it indicates concrete directions to nursing administrators in developing a stress-alleviation programme to decrease newly-graduate nurses' job stress, to facilitate their successful entry into practice and to decrease their intention to quit.[7]

V.J.C.McCarthy ,S.Power and B.A.Greiner. (2010) conducted a study on “Perceived occupational stress in nurses working in Ireland” Stress has been seen as a routine and accepted part of the health care worker's role. There is a lack of research done regarding stress of nurses in Ireland. Therefore, study aimed to examine the levels of stress experienced by nurses working in an Irish teaching hospital and investigate differences in perceived stress levels by ward area and associations with work characteristics. The method used for the study was a cross-sectional study design, with a two-stage cluster sampling process. Data collection was by means of a self-administered questionnaire, and nurses were investigated across 10 different wards using the Nursing Stress Scale and the Demand Control Support Scales. The study results indicated the response rate was 62%. Using outpatients as a reference ward, perceived stress levels was found to be significantly higher in the medical ward, accident and emergency, intensive care unit and pediatric wards (P < 0.05). There was no significant difference between the wards with regard to job strain; however, differences did occur with levels of support, the day unit and pediatric ward reporting the lowest level of supervisor support (P < 0.01). A significant association was seen between the wards and perceived stress even after adjustment (P < 0.05). It may be concluded that perceived stress does vary within different work areas in the same hospital. Work factors, such as demand and support, are important with regard to perceived stress. Job control was not found to play an important role.[8]

Silva A.A, Rotenberg L, Fischer F M, (2011), studied “Nursing work hours: individual needs versus working condition”. Their objective was to assess factors associated with professional and total hours of work (work + home) among nursing staff. They conducted Cross-sectional study in a university hospital in the city of São Paulo, southeastern Brazil, between 2004 and 2005. A total of 696 workers (nurses, nurse technicians and aids), mostly women (87.8%) working day and/or night shifts, participated in the study. A self-
administered questionnaire was used to collect information on demographic characteristics, and working and life conditions. Which was translated and adapted into Portuguese versions of the Job Stress Scale, Effort-reward imbalance, Short-Form-Health-related quality of life and the Work Ability Index were also administered. A logistic regression model was used for data analysis. The findings highlighted that the sole breadwinner, working night shifts and effort-reward imbalance were the variables associated with both professional (OR = 3.38, OR = 10.43, OR = 2.07, respectively) and total hours of work (OR = 1.57, OR = 3.37, OR = 2.75, respectively). There was no significant association between the variables related to hours of work and low Work Ability Index. Inadequate rest at home was statistically associated with professional (OR = 2.47) and total hours of work (OR = 1.48). Inadequate leisure time was significantly associated with professional hours of work (OR = 1.58) and barely associated with total hours of work (OR = 1.43). Hence the researchers concluded that the sole breadwinner, working night shifts and effort-reward imbalance are variables that need to be further investigated in studies on work hours among nursing staff. These studies should explore workers' income and the relationship between effort and reward, taking into consideration gender issues.\[9\]

All the above studies have studied work stress of nurses mainly related to content of work and personnel’s they interact with.

### 2.1.2 Stress experienced in health care setting by nurses:

According to Kelly J G(1988) Research on ‘stress experienced by staff in critical care units’ has predominantly focused on the nurses; however, a small number of investigations have centered on intensivist neonatologists and pediatricians’. Australian studies have highlighted that the major stressors encountered by critical care staff. Research report suggested that job satisfaction is diminished for staff working within highly stressful critical care units. Study also discussed the implications in order to focus attention upon the effects of high dependency stressful work environments.\[10\]

Poncet MC, Toullie P,Papazian L, Kentish-Barnes N,Timsit J F,Pochard F,Chevret S, Schlemmer B, Azoulay E,(2007) Studied “Burnout syndrome in critical care nursing staff”, Burnout syndrome (BOS) associated with stress has been documented in health care professionals in many specialties. The intensive care unit (ICU) is a highly stressful environment. Little is known about BOS in critical care nursing staff. The study aimed to
identify determinants of BOS in critical care nurses. A Survey was conducted using questionnaire in France 278 ICUs were contacted for the study, of which 165 (59.4%) were included, 2,525 nursing staff members, of whom 2,392 returned questionnaires with complete Maslach Burnout Inventory data. The main result indicated that of the 2,392 respondents (82% female), 80% were nurses, 15% nursing assistants, and 5% head nurses. Severe BOS-related symptoms were identified in 790 (33%) respondents. By multivariate analysis, four domains were associated with severe BOS: (1) personal characteristics, such as age (odds ratio [OR], 0.97/yr; confidence interval [CI], 0.96-0.99; p=0.0008); (2) organizational factors, such as ability to choose days off (OR, 0.69; CI, 0.52-0.91; p=0.009) or participation in an ICU research group (OR, 0.74; CI, 0.56-0.97; p=0.03); (3) quality of working relations (1-10 scale), such as conflicts with patients (OR, 1.96; CI, 1.16-1.30; p=0.01), relationship with head nurse (OR, 0.92/point; CI, 0.86-0.98; p=0.02) or physicians (OR, 0.81; CI, 0.74-0.87; p=0.0001); and (4) end-of-life related factors, such as caring for a dying patient (OR, 1.39; CI, 1.04-1.85; p=0.02), and number of decisions to forego life-sustaining treatments in the last week (OR, 1.14; CI, 1.01-1.29; p=0.04). The study concluded that one-third of ICU nursing staff had severe BOS. Areas for improvement identified in the study included conflict prevention, participation in ICU research groups, and better management of end-of-life care. The study indicated interventional studies were needed to investigate these potentially preventive strategies. [11]

“Stress in nurses working in intensive care units”, conducted by Cavalheiro-AM; Moura-DF Jr; Lopes-A (2008) The present study aimed to identify the presence of stress in nurses working in intensive care units, the stressing agents and symptoms associated to the nurses' perceptions of stress, and to assess the correlation between the occurrence of stress, sources of stress, and symptoms shown by the nurses. Seventy-five nurses took part in the study. The data were collected from questionnaires, analyzed with the Pearson correlation coefficients, and adjusted by general linear models. The study showed the presence of stress related to work dissatisfaction, activities regarded as critical situations in intensive care units, symptoms related to cardiovascular, digestive and musculoskeletal disorders. The conclusion is that stress is present in nurses' activities in intensive care units, related to characteristics of the health area itself, causing dissatisfaction and stress-related symptoms. [12]

Correlation between job satisfaction and stress factors, burn-out and psychosocial well-being among nurses working in different healthcare settings, was studied by Violante S.
The aim of this study was to evaluate the prevalence and the causing factors of job dissatisfaction in three subgroups of nurses working in different context: i) hospital wards for acute patients, ii) units for long-term patients, and iii) home care for chronic patients. An anonymous, self-report questionnaire was used, composed by socio-demographic, burnout, stress and psychosocial (INRS) standardized variables. A specific summarizing item was also employed to evaluate the perception of job satisfaction. One hundred thirty seven out of 190 delivered questionnaires were returned (72.1%). About 30% of the total sample is unsatisfied, 28% of the sample suffered emotional exhaustion, 20% depersonalization, and 43% declared a low level of personal accomplishment. Stress scores beyond the threshold value of 17 were found for anguish (22.7 +/- 155), anxiety (22.3 +/- 15.8) and gastro enteric symptoms (19.0 +/- 17.8). Psychosocial scores beyond the threshold value of 50 were found for the variables general job load (56.7 +/- 19.8), attention (83.8 +/- 20.9), and social support from the supervisor (51.3 +/- 25.3). The logistic regression analysis suggested that coming from extra communitarian Countries (OR: 3.76; CI: 1.04-13.65; p < 0.05), working with acute patients (OR: 2.94; CI: 0.85-10.11; p = 0.08), home-care of chronic patients (OR: 73; CI: 11.27-473.0; p < 0.001), assumption of psycho drugs (OR: 5.01; CI: 1.40-17.92 p < 0.01), and anxiety (OR: 3.71; CI: 1.20-11.44; p < 0.05), were factors significantly associated with a low job satisfaction compared to the other subgroups. On the contrary, a high work degree of work involvement (OR: 0.37; CI: 0.14-0.97; p < 0.05) resulted to be a protective factor respect to job disaffection. These findings suggest that changes that have been occurring in the last years in the social conditions and in health organization in Italy was deeply influence the degree of job satisfaction among the nurses. In order to improve the analysis of the welfare state of the health workers, more effective methods of analysis should be used, in addition to the questionnaires.[13]

Al-Turki H A, Al-Turki R A, Al-Dardas H.A, Al-Gazal M.R, Al-Maghrabi GH, Al – Enizi NH, Ghareeb BA, (2010) studied “Burnout syndrome among multinational nurses working in Saudi Arabia”, It was noted that Nursing Staff reported to be under extreme state of stress, leading to burnout syndrome (BS). Most of the studies reviewed have been conducted among the nurses working in their home countries. Hence this study was conducted to assess the prevalence of BS among a multinational nursing workforce in Saudi Arabia. Study was conducted in King Fahd University Hospital, Al Khobar, Saudi Arabia, which is a tertiary care hospital employing 510 nurses of multinational workforce. Two hundred and fifty Maslach Burnout Inventory (MBI) individual-based questionnaires were
distributed after modification to include the age, sex, marital status, nationality, unit working and number of years on the job.

The data was entered in the database and analyzed using Statistical Package for the Social Sciences (SPSS), version 14.0. A P value of <0.05 was considered statistically significant. Data was collected from one hundred and ninety-eight nurses (77.2%) who completed the questionnaire. Their average age was 34.46 ± 5.36 years. Forty-five percent (89) had high emotional exhaustion (EE) and 28.9% (57) had moderate suffering with emotional exhaustion. Staffs that were on the job for longer duration had a lesser frequency of emotional exhaustion (P ≤ 0.001). The frequency of depersonalization (DP) was 83 (42%) and was graded as high and 61 (30.8%) were moderately affected. Personal accomplishment (PA) was moderate to low in the majority of the nurses (71.5%). Married nurses were prone to emotional exhaustion (28.17 ± 12.1 versus 22.3 ± 9.6) than unmarried nurses (P = 0.003, CI 95% and OR 2.4). The nurses in the patients' wards and clinics were more emotionally exhausted with higher depersonalization compared to nurses in the high stress and high activity areas (P < 0.001, OR -11.1; and P < 0.001, CI 95% and OR 9.65). Non-Saudi nurses were significantly more prone to EE (27.3 ± 12.1 versus 21.6 ± 2.9) than Saudi nurses (P = 0.004; 95% CI: <9.64). It was concluded that majority of the nursing staff at the hospital were in a state of burnout with high frequency of emotional exhaustion and depersonalization. Only a quarter of the surveyed staff felt that they had some level of personal accomplishment. Age and working away from their home countries were the important predictors in the development of BS in nurses. The researchers believed that working conditions have to be improved to develop strategies to cope and alleviate stressful situations. [14]

Augner C, Hacker GW, Jekel I, (2010) studied “Geopathic stress zones: short-term effects on work performance and well-being?” The study aimed to evaluate whether two different locations in the same room as tested by dowsers ("geopathic stress zone" [GSZ] versus "more neutral zone" [NZ]) would show significant short-term effects on work performance and well-being. It was also tested whether a device reported to "neutralize" GSZ would influence results obtained with the specific setup used in this study. The investigators conducted a blinded, randomized, short-term laboratory experiment using a within-subject design.
The study was conducted in the laboratory of the Research Institute for Frontier Questions of Medicine and Biotechnology at Salzburg Federal Hospital. The study subjects included 26 persons; aged 20-57. The intervention given to the study participants was to accomplish reaction tasks during three different conditions: GSZ, NZ, and GSZ with a device reported to "neutralize" GSZ. These conditions were counterbalanced into six different sequences and randomized to the subjects. At the end of each condition, a standardized well-being questionnaire had to be completed.

The main outcome measure indicated that dependent variables were reactive stress tolerance (reaction time, timely right answers, right answers, false answers, left out) and well-being. The results indicated no location-dependent effects on performance during reactive stress tolerance test were seen. For well-being, analysis of variance revealed a trend (p = 0.07) and showed significantly poorer well-being during the GSZ condition compared to NZ (p = 0.01). It was concluded from this study, that well-being could be location dependent and that this might be caused by a so-called GSZ. However, in this short-term experiment, factors of work performance tested remained unaffected.[15]

Le Gall J R, Azoullay E, Embriaco N, Poncet M C, Pochard F,(2011) studied “Burn out syndrome among critical care workers”, It highlighted that ‘Burnout syndrome’ (BOS) is a psychological state resulting from prolonged exposure to job stressors. Because intensive care units (ICUs) are characterized by a high level of work-related stress, the researchers reviewed the available literature on BOS among ICU-healthcare workers. Recent studies suggest that severe BOS (measured with the Maslach Burnout Inventory) was present in about half of all critical care physicians and one-third of critical care nurses. Interestingly, the determinants of BOS differ between the two groups of caregivers. Intensivists with severe BOS tended to be those with a large number of working hours (number of night shifts, and time since last vacation), whereas severe BOS among ICU nurses was mainly related to ICU organization and end-of-life care policy. ICU conflicts were independent predictors of severe BOS in both groups. Recent studies also identify potential preventive measures, such as ICU working groups, better communication during end-of-life care, and prevention and management of ICU conflicts.[16]

All the above studies relate to nurse stress in the critical care setting and its effect on the nurse and their performance.
2.1.3 Stress and student nurses:

Timmins F, Kaliszer M, (2002) studied, “Aspects of nurse education programmes that frequently cause stress to nursing students a fact-finding sample survey. “The study examined reported stress in 12 areas commonly reported to cause stress to nursing students. A questionnaire was distributed to 110 third-year nursing students, and the results indicate that stress exists for students in both the clinical and academic aspects of the programme. Financial constraints and academic-related concerns emerged was the most stressful areas for the students. A third of the students reported that relationships with teachers and staff on the ward cause some degree of stress. Factor analysis revealed that five factors emerged as sources of stress. Firstly, 'academic' stress factors. The second and third components concern relationships, the former involving teaching-related staff, and the latter involving the clinical experience. The last two components suggest that finance and death of patients were independent sources of stress. Major restructuring was about to take place in nurse education in Ireland, with the introduction of degree preparation for all nursing students in 2002. It was imperative that those involved with nursing students, both in the clinical area and in education settings, take cognisance of the stress that current students face. Recommendations of the study for educators included adequate support structures for clinical areas, preceptorship programmers’ and the availability of student counseling services.\[17\]

“Pre-registration diploma student nurse stress and coping measures”, was studied by Evans W, Kelly B,(2004). The aim of this study was to examine the stress experiences and coping abilities of student nurses. A survey design was employed to examine the stress experiences of Diploma student nurses in a large Dublin Teaching Hospital. A questionnaire was utilized that measured and explored five specific constructs pertinent to student nurse stress. These included clinical stress, academic stress, coping, emotions and personal factors which assist student’s nurses during periods of stress. Findings showed that examinations, the level and intensity of academic workload, the theory-practice gap and poor relationships with clinical staff were the leading stressors identified. Emotional reactions to stress included feeling exhausted and upset under pressure. Students adopted short-term emotion focused coping strategies when attempting to deal with stress. A sense of achievement, and determination, were personal factors, which assisted students to continue in the event of stress being present. Content analysis of the open questions shed further light in relation to the stress phenomenon, particularly in relation to clinical stress. The provision of adequate support services from a clinical and academic perspective, a lecture-practitioner model of
education delivery, and curriculum changes which focus on developing student self awareness skills were the suggested study recommendations.\[^{[18]}\]

“A comparative, longitudinal study of stress in student nurses in five countries: Albania, Brunei, the Czech Republic, Malta and Wales”, a study was conducted by Burnard-P; Edwards-D; Bennett-K; Thaibah-H; Tothova-V; Baldacchino-D; Bara-P; Mytevelli-J, (2008). Stress amongst nursing students is a global issue. There is an absence of published international comparative studies which investigate this and so this paper sets out to explore the sources of stress among nursing students throughout their course of study and to determine whether they were more stressed by academic or clinical factors across five different countries (Albania, Brunei, the Czech Republic, Malta and Wales). Although each country, within this study, has a unique culture, a cross-cultural comparison can be made in an attempt to better understand stress in the student nursing population.

METHODS: The study was undertaking using a descriptive quantitative design using the Stress in Nurse Education Questionnaire with 1707 nursing students across the five countries. RESULTS: The mean score for the total sample for all the items on the stress scale was 52.3 (SD 17.1). The sample from Wales had the lowest mean score and those in Brunei had the highest. Students in Brunei and Malta were more stressed by the academic elements of the course than by the clinical elements. Whereas for those students in the Czech Republic For students in Wales and in Albania - Korea there were no differences in stress experienced between the academic and clinical elements of the course. The results indicated that there were no significant differences in total stress scores by year of study for students in Albania - Tirana, Albania - Korea, Malta and Wales. In Brunei however, ANOVA revealed that there were significant differences in total stress scores by year of study. Further analysis revealed that students in year 3 scored higher on the overall scale than students in year 1. The individual item on the stress scale with highest mean in the Albania - Korea and the Albania - Tirana sample was "The death of a patient" whilst the Bruneian sample, Maltese sample and Welsh sample opted for "Revising for and sitting examinations" and the Czech sample chose: "Continuous pressure to meet deadlines for assessments". This study succeeded as the first of its kind to compare and contrast levels and sources of stress amongst an international sample.

The findings indicate that student nurses worldwide do share much in common while still retaining individual cultural features relating to stress throughout their course of study.\[^{[19]}\]
2.1.4 Studies related to coronary heart disease and stress:

D.C. Greenwood, K. R. Muir, C. J. Packham and R. J. Madeley, (1995) conducted a study on “Coronary heart disease: a review of the role of psychosocial stress and social support.” According to the investigators, the role of psychosocial factors in the aetiology of coronary heart disease continues to be debated. Despite public perception of a major role for their effect, scientific opinion on their relevance remains divided. This paper reviewed the literature on the influence of social support and life stress on coronary heart disease incidence and mortality. The method was based on observation of studies published in English, based on over 100 human subjects from the general population, investigating life stress or social support. Fourteen studies were derived from MEDLINE searches on MeSH headings: coronary disease; stress, psychological; social support; social isolation; life change events. An equivalent search of BIDS and studies referenced by papers identified using these sources was carried out.

The review concluded that both life stress and social support were found to have an influence on coronary heart disease, social support more so than stress. Both have a stronger influence on coronary heart disease mortality than on initial incidence of clinical disease. Measures of the quality of support, in particular emotional support, showed the largest effects. The review highlighted problems in drawing conclusions from the available literature; in particular, the inconsistency in measures used to define the psychosocial factors. The investigators recommended that further studies were needed to investigate interrelationships between stress and social support, and a recommendation was made to adopt pragmatic measures in future studies, which if proven to have an effect, may be open to modification.[20]

H. Bosma, M. G. Marmot, H. Hemingway, A. C. Nicholson, E. Brunner, and S. A. Stansfeld (1997) studied, “Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study.” The objective was: To determine the association between adverse psychosocial characteristics at work and risk of coronary heart disease among male and female civil servants. Study design used for the study was: Prospective cohort study (Whitehall II study). A baseline examination was conducted (1985-8) and twice during follow up a self report questionnaire provided information on psychosocial factors of the work environment and coronary heart disease. An independent assessment of the work
environment was obtained from personnel managers at baseline. Mean length of follow up was 5.3 years. Study setting was London based office staff in 20 civil service departments. Samples comprised of 10,308 civil servants in the age group of 35-55. Male civil servants were 6895 (67%) and 3413 women civil servants (33%). The main outcome of the study indicated: New cases of angina (Rose questionnaire), severe pain across the chest, diagnosed ischaemic heart disease, and any coronary event. The study finding indicated men and women with low job control, either self reported or independently assessed, had a higher risk of newly reported coronary heart disease during follow up. Job control assessed on two occasions three years apart, although inter correlated, had cumulative effects on newly reported disease. Subjects with low job control on both occasions had an odds ratio for any subsequent coronary event of 1.93 (95% confidence interval 1.34 to 2.77) compared with subjects with high job control at both occasions. This association could not be explained by employment grade, negative affectivity, or classic coronary risk factors. Job demands and social support at work were not related to the risk of coronary heart disease.

The study concluded that low control in the work environment is associated with an increased risk of future coronary heart disease among men and women employed in government offices. The cumulative effect of low job control assessed on two occasions indicates that giving employees more variety in tasks and a stronger say in decisions about work may decrease the risk of coronary heart disease.[21]

2.1.5 Studies related to effect of stress on the nurse:

Shirley Moore, Sandy Lindquist, Barry Katz, (1997) studied the “Home Health Nurses: stress, self–esteem, social intimacy and job satisfaction” They surveyed 253 home health care nurses' perceptions of work-related stress, self-esteem, social intimacy, and job satisfaction and found that stress had a negative correlation with self-esteem, social intimacy, and job satisfaction. A positive correlation, however, was found between self-esteem and social intimacy and job satisfaction. Health system administrators, owners, and directors had significantly higher levels of self-esteem; nurses with 5 years or more in their home health nursing position had significantly higher levels of self-esteem. The survey found that nurses with less than a baccalaureate degree possessed significantly lower levels of sociability than those with a graduate or baccalaureate degree. Administrators and managers scored significantly higher on sociability than head nurses.[22]
Lin H., Lin L. C., Shiao J.S, (2007) Studied the impact of self perceived job stress on menstrual patterns among Taiwanese nurses. They conducted a cross-sectional survey of nursing staff from five psychiatric institutions and four general hospitals in Taiwan. A total of 746 participants were eligible for the final analysis, among whom, 72.3% were ascertained as having a self-perceived high level of job stress. Self-perceived high job stress was significantly associated with irregular menstrual cycles [Adjusted odds ratio (AOR): 4.8, 95% confidence interval (CI): 3.3-7.2] and longer menstrual bleeding periods (more than 7 d) [AOR: 2.5, 95% CI: 1.7-3.7], but was not significantly related to long or short menstrual cycles. Overall, this study suggested that nurses' self-perceived job stress may be associated with certain aspects of menstrual dysfunction. The researcher suggested that further investigations with prospective follow-up studies and urine hormonal measurements were needed to provide additional insight into the patho-physiological mechanisms of their study findings.[23]

Association of job-related stress factors with psychological and somatic symptoms among Japanese hospital nurses: effect of departmental environment in acute care hospitals was studied by Kawano.Y, (2008). The study examined degrees of job-related stress factors as well as mental and physical symptoms among Japanese hospital nurses in various departments, and clarified associations of departments and job-related stress factors with those symptoms. A self-administered anonymous questionnaire was distributed to 1,882 full-time nurses at four acute care hospitals in Japan. The survey included demographic factors, and the Brief Job Stress Questionnaire. Among 1,599 nurses who completed all items relevant to the study, was then analyzed from the data received from the 1,551 female nurses. The results showed that working in operating rooms was associated with fatigue, that working in intensive care units (ICU) was associated with anxiety, and that working in surgery and internal medicine was associated with anxiety and depression independently of demographic factors and job-related stress factors. The physical and mental health of nurses might be affecting their time off, quality of nursing care and patient satisfaction in acute care hospitals.

The study suggested that, job-related stress factors should be minimized, to improve the physical and mental health of nurses, considering unique departmental demands.[24]

Hwang-G; Kim-S; Kim-J; Kim-H; Park-S; Kim-S (2008) “Influence of psychological stress on physical pain” The study was to determine the influence of psychological stress on
non-pathologic physical pain in a general population. Data pertaining to the source of, response to, and coping with stress, as well as site and intensity of pain was collected on 91 non-patient subjects using a self-report questionnaire. The questionnaire consisted of a Global Assessment of Recent Stress, Stress Response Inventory and Ways of Coping Checklist, in addition to the Site and Intensity of Stress-Related Pain. It was found that the degree of stress was proportional to the pain severity. Also, the degree of responses to stress and coping style played a role in pain severity. Moreover, economic status, stress from sickness or injury, and somatization were the best predictors of the pain severity in our study population. The most common stress-related pain was occipital headache, and the pain sites were dependent on certain stress variables. The high pain group and no pain group showed distinct demographic and stress profiles. The various aspects of psychological stress affect the incidence, site and intensity of physical pain.

Amati M,Tomasetti M,Ciuccarelli M,Mariotti L,Tarquini LM,Baracci M,Balducci C, et.al. (2010) Studied the “Relationship of job satisfaction, psychological distress and stress-related biological parameters among healthy nurses: a longitudinal study. Their objective was to examine the relationship between job satisfaction, psychological distress, psychosocial processes and stress-related biological factors, and to evaluate whether over time changes of work satisfaction could affect the immunological-inflammatory status of workers. One hundred and one nurses who were enrolled at the Clinic of Occupational Medicine, Polytechnic University of Marche, Ancona, Italy were included in the study. Their perceived job satisfaction, psychological distress, and social support were assessed every 4 mo over a 1-yr period using 4 self-reported questionnaires. T lymphocytes CD3, CD4 (+), CD8 (+), CD8 (+)-CD57 (+), B lymphocyte CD19 (+), NK cells CD56 (+), and NK cell activity were determined. The findings indicated that job satisfaction was associated with reduced psychological distress and was characterized by low cell numbers of CD8 (+) suppressor T cells, CD8 (+)-CD57 (+) activated T cells, CD56 (+) NK cells and low IL-6 levels. Over time changes in psychological parameters were related to changes in the immunological-inflammatory variables. Subjects who increased their job satisfaction showed a reduced psychological stress associated with reduced number of CD8 (+)-CD57 (+) activated T cells and inflammatory cytokines. The study findings conclude that job dissatisfaction/satisfaction was related to the psychological mechanisms of stress affecting cellular immune function which clear highlights that stress does have effect on the individual’s psychology and manifested in the physiological parameters measured.
The studies have highlighted the effect of stress on the health of nurses. These studies helped the investigator to understand the effect of stress on individuals.

2.1.6 Effect of stress on health:

Anneli Sepa, Jeanette Wahlberg, et.al.(2010), Studied ‘Psychological stress may induce diabetes-related autoimmunity in infancy’, In retrospective studies, a number of disparate environmental factors (including experiences of serious life events) have been proposed as trigger mechanisms for type 1 diabetes or the autoimmune process behind the disease. Psychosocial stress in families may affect children negatively due to a link to hormonal levels and nervous signals that in turn influence both insulin sensitivity/insulin need and the immune system. The aim of the investigators was to investigate whether psychological stress, measured as psychosocial strain in families, is associated with diabetes-related autoimmunity during infancy.

Research design and methods used to collect data was comprised of the first 4,400 consecutive 1-year-old children from a large prospective population-based project participated in the study. Parents completed questionnaires at birth and at 1 year, including various measures of psychosocial stress (e.g., parenting stress) and socio-demographic background. Blood samples drawn from the children at 1 year were analyzed for type 1 diabetes–associated auto-antibodies toward tyrosine phosphatase and GAD. Antibodies toward tetanus toxoid were used as non–diabetes-related control antibodies.

Results indicated that Psychosocial factors, i.e., high parenting stress (odds ratio 1.8 [95% CI 1.2–2.9], P < 0.01), experiences of a serious life event (2.3 [1.3–4.0], P < 0.01), foreign origin of the mother (2.1 [1.3–3.3], P < 0.001), and low paternal education (1.6 [1.1–2.3], P < 0.01) were associated with diabetes-related autoimmunity in the child, independent of family history of diabetes.

The study concluded that Psychological stress, measured as psychosocial strain in the family, seems to be involved in the induction, or progression, of diabetes-related autoimmunity in the child during the 1st year of life.\textsuperscript{[27]}

In another study conducted by Rebecca M Reynolds, Mark WJ Strachan, Javier Labad, et.al.,(2010) on “Morning cortisol levels and cognitive abilities in people with type 2
diabetes: the Edinburgh type 2 diabetes study, cited on world health net, news. The study highlights the negative effects of stress for diabetic. The investigators stated that while people with type-2 diabetes are at increased risk of cognitive impairment, the exact mechanism has remained unclear. The investigators conducted a cross-sectional study of 1,066 men and women, ages 60 to 75 years, with type 2 diabetes, enrolled in the Edinburgh Type 2 Diabetes Study. The team assessed the subjects’ cognitive abilities in memory, non-verbal reasoning, and information processing speed, executive function, and mental flexibility were tested, and a general cognitive ability factor. Prior intelligence was estimated from vocabulary testing, and adjustment for scores on this test used to estimate lifetime cognitive change. They compared this data to that of general intelligence levels, to ascertain whether brain function had diminished over time. Relationships between fasting morning plasma cortisol levels and cognitive ability and estimated cognitive change were tested. Models were adjusted for potential confounding and/or mediating variables including metabolic and cardiovascular variables.

The results indicated that in age-adjusted analyses, higher fasting cortisol levels were not associated with current g or with performance in individual cognitive domains. However, higher fasting cortisol levels were associated with greater estimated cognitive decline in g and in tests of working memory and processing speed, independent of mood, education, metabolic variables and cardiovascular disease (p<0.05). The researchers found that brain function slowed in those subjects with higher levels of the stress hormone, cortisol.

The investigators concluded that “High morning cortisol levels in elderly people with type 2 diabetes are associated with estimated age-related cognitive change,” the team urges that: “Strategies targeted at lowering cortisol action may be useful in ameliorating cognitive decline in individuals with type 2 diabetes.”[28]

2.2 Stress and office workers:

“Workload, work stress, and sickness absence in Swedish male and female white collar employees”, was studied by Krantz G, and Lundberg U, (2006). This study aimed to analyse, in a homogeneous population of highly educated men and women, gender differences in self-reported sickness absence as related to paid and unpaid work and combinations of these (double exposure), as well as to assess the perceived work stress and work-home conflict, i.e. conflict between demands from the home and work environment. A
total of 743 women and 596 men, full-time working white-collar employees randomly selected from the general Swedish population aged 32-58, were assessed by a Swedish total workload instrument. The influence of conditions in paid and unpaid work and combinations of these on self-reported sickness absence was investigated by multivariate regression analyses. Analysis of variance (ANOVA) was used to assess differences between men and women. The results indicated that overtime was associated with lower sickness absence, not only for men but also for women, and a double-exposure situation did not increase the risk of sick leave. Contrary to what was normally seen, conflict between demands did not emerge as a risk factor for sickness absence for women, but for men. The investigator concluded that their assumption that sickness absence patterns would be more similar for white-collar men and women than for the general population was not confirmed. However, the women working most hours were also the least sick-listed and assumed less responsibility for household chores. These women were mainly in top-level positions and therefore they concluded that men and women in these high-level positions seem to share household burdens more evenly, but they can also afford to employ someone to assist in the household. [29]

From the department of Occupational Therapy and Physiotherapy Holmgren K, Hensing G, Dahlin-Ivanoff S. (2009), conducted a study on “Development of a questionnaire assessing work-related stress in women- identifying individuals who risk being put on sick leave. The purpose of the study was: to develop a self-administered questionnaire assessing work-related stress in women, aiming to identify individuals that risk long-term sick leave, and to evaluate the reliability of the questionnaire. The methodology followed was to carry out study in two phases. The initial phase was to construct the questionnaire and to confirm its face validity. The second phase was to test the reliability of the questionnaire. A questionnaire was constructed from an empirical standpoint and based on a qualitative study. Two main themes were identified: One was related to factors at work and the other to the persons themselves. Eight categories were recognized from these themes and questions were then constructed. A pilot group confirmed the validity of the questions. The first version of the questionnaire was subjected to test-retest analysis and all unstable items were improved. The reliability of the revised version was found to be satisfactory. A simple questionnaire, containing 20 questions assessing work-related stress in women, with the purpose of identifying individuals that risk long-term sick leave was developed. The questionnaire was found to have good face validity and high reliability.
Since there was a need for preventive methods in identifying individuals that risk being put on sick leave, this questionnaire would be a useful tool for health professionals. [30]

“The prevalence of work-related stress and its association with self-perceived health and sick-leave, in a population of employed Swedish women”, studied by “Kristina Holmgren, Synneve Dahlin – Ivanoff, Cecilia Björkelund, and Gunnel Hensing (2009). It was noted that women report more occupational ill-health and are more sick-listed than men. Hence the researcher wanted to explore the women's working conditions as it seemed to be valuable. In this study the researchers investigated the prevalence of work-related stress and its association with self-perceived health and sick-leave in a population of employed, working Swedish women. This cross-sectional population study comprised of 424 employed, working women who answered questionnaires on work-related stress, self-perceived health and sick-leave. The odds ratio (OR) with 95% confidence interval (CI) was calculated in order to analyse the association between the exposure variables of work-related stress and outcome variables of ill-health symptoms, self-rated health and sick-leave.

The results of the study highlighted that, ten percent of the group reported high perceived stress owing to indistinct organisation and conflicts, and 25% high perceived stress owing to individual demands and commitment. Twenty-two percent reported low influence at work and 33% reported work interference with leisure time. All categories of overall work-related stress were significantly associated with increased odds of high level of illness symptoms, with the highest OR for high perceived stress owing to indistinct organisation and conflicts and high perceived stress owing to individual demands and commitment with an OR of 3.17 (CI = 1.51–6.62) and 4.53 (CI = 2.71–7.56) respectively. High perceived stress owing to indistinct organisation and conflicts and low influence at work were significantly associated with sick-leave with an OR of 3.85 (CI = 1.59–9.30) and 2.54 (CI = 1.17–5.48) respectively.

To conclude this study showed an association between, work-related stress on the one hand, and illness symptoms and sick leave on the other hand. When distinguishing between the occurrence of negative work characteristics, and the immediate perception of stress. Hence because of these, resulted in a broad view of women's working conditions and expanded knowledge of work-related stress in women. [25, 31]
In a European report from 2000, a study conducted by Paoli P, Merllie D, it was seen that 29% of female employees in Europe reported stress related to work. Professionals reported highest stress, 40% compared with 17% in elementary occupations.\[32\]

Two British studies, one of head teachers and one of police officers, conducted by Phillips S, Sen D, and et.al.(2007) and Collins P.A, Gibbs A.C,(2003) found the prevalence of self-reported work-related stress to be 43 and 41% respectively. They found few differences, however, between occupational classes, except for high individual demands and commitment where the prevalence was higher among the higher occupational classes. Furthermore, female head teachers reported more stress than male, and in both studies workload was a main stressor.\[33, 34\] Correspondingly, in Kristina Holmgren, et.al., studied the prevalence of increased workload was high with high perceived stress as a result.\[25, 31\] Research finds that high workload constitutes a risk of ill-health perception and sickness absence.\[35\] In a study conducted by Siegrist J, Starke D, et al.(2004) indicated that high effort and low reward, the so-called effort-reward imbalance, were also shown to have an adverse effect on self-reported health in a European comparative study.\[36\]

Information on job strain exposure among Malaysian workers in multinational companies was limited. “Job strain among Malaysian office workers of a multinational company”, was studied by H. Maizural, M. Retneswari, H. Moe, V. C. W. Hoe and A. Bulgiba (2010). The study aimed to investigate the prevalence and factors associated with high job strain among office workers of a multinational company in Malaysia. Methods used for the study was cross-sectional design. Data was collected from among 470 eligible workers. Respondents self-administered the Job Content Questionnaire downloaded from the company’s intranet. A median-split procedure was applied to create four groups according to the Job Demand–Control Model: active, passive, high and low job strain. Logistic regression models were used to investigate the associations between socio-demographic, occupational and psychosocial factors and high job strain. A total of 356 questionnaires were received (response rate 76%). Findings brought to light that twenty-one per cent of respondents were in the high job strain group, 35% were in the passive group, whereas 26% and 17% of workers were in the low strain and active groups, respectively. After controlling for confounders, three factors were found to be associated with high job strain: male workers (adjusted OR 1.94, 95% CI 1.04–3.64), working >48 hrs per week (adjusted OR 2.51, 95% CI 1.44–4.39) and job insecurity (adjusted OR 1.14, 95% CI 1.02–1.27). One protective
factor for high job strain was the scale ‘created skill’, which is part of skill discretion (adjusted OR 0.70, 95% CI 0.57–0.86). From the study it was summarized that about one in five workers in this study experienced high job strain. Work improvement measures included reducing long working hours and job insecurity and giving workers the opportunity to learn, use creativity and develop abilities. [37]

2.3 Stress and teachers:

Wu SY, Wang M Z, Li J, Zhang X F, (2006) conducted a “ study of the intervention measures for the occupational stress to the teachers in the primary and secondary school”, Objective of the study was to study the status of the occupational stress and the work ability of the teachers in the primary and secondary schools, then to take some integrated intervention measures to reduce the occupational stress and improve their work ability, and evaluate the intervening efficacy. The levels of stressor and strain was measured with the occupation stress inventory revised edition (OSI-R) and the work ability was measured with the work ability index (WAI) for the teachers in nine primary and secondary schools in Sichuan Province, then health educations about occupational stress was taken for the teachers in the study group, the same test was carried out after one year for the teachers in the nine schools to evaluate the effect of interventional measures.

The findings indicated:

(1) After intervening, among the six items of occupational role questionnaire, the scores of role overload, role boundary, responsibility and physical environment of the teachers in the study group significantly decreased, compared with the teachers in the control group, the scores of the role overload, role boundary and physical environment were significantly lower (P < 0.05).

(2) Among the four items of personal strain questionnaire, only the scores of interpersonal strain of the teachers in the study group significantly decreased (P < 0.05), compared with the teachers in the control group, the scores of the vocational strain and interpersonal strain were significantly lower (P < 0.05).

(3) Among the four items of personal resources questionnaire, the scores of the recreation, self-care and rational cognitive coping of the teachers in the study group significantly raised and were significantly higher than those of the teachers in the control group (P < 0.05).

(4) The score of WAI of the teachers in the study group significantly raised and was significantly higher than that of the teachers in the control group (P < 0.05).
The study concluded that the intervention measure were efficient to reduce the occupational stress of teachers, strengthen their coping resource and improve their work ability.\textsuperscript{[38]}

Phillips S J, Sen D, McNamee R, (2008) Studied “Risk factors for work-related stress and health in head teachers”, Work-related stress (WRS) was known to cause ill-health and decrease productivity. Work in the education sector was thought to be particularly stressful. Few studies had considered risk factors for WRS and health in head teachers. The study aimed to investigate health of head teachers in West Sussex. To determine personal risk factors most likely to predict cases of WRS and of poor health in head teachers. The methodology used was a cross-sectional study design, for a population of 290 head teachers and principals of colleges of further education, using a validated questionnaire, 'a short stress evaluation tool' (ASSET) and additional questions derived from earlier studies. Results were compared with the ASSET database 'norm' groups: a general population of workers (GPN) group and a group of managers and professionals (MPN). 'Caseness' was defined as respondents who felt work was 'very or extremely stressful'.

The results indicated that Head teachers had poor physical and mental health compared to the GPN group. Psychological well-being, particularly of females and primary head teachers was worse than a comparative group of managers and professionals. Teaching$<5$ h/week was a significant predictor of caseness and being female was the main risk factor for poor psychological well-being.

The researchers concluded that prevalence of self-reported stress in head teachers in West Sussex was high. Female head teachers had worse health outcomes. This study identified possible personal risk factors predicting WRS and/or poor health in head teachers.\textsuperscript{[39]}

Sun W, Wu H, Wang L, (2011), studied “Occupational stress and its related factors among university teachers in China”. As University teachers in China were expected to suffer serious occupational stress due to the expanding enrollment in universities without a proportional increase in teacher resources and the fact that all promotions for university teachers was determined based on not only teaching but also the outcome of scientific
research. This study was designed to assess the occupational stress among university teachers in China and clarify its risk factors.

Methodology used was, a cross-sectional study design was performed in Liaoning Province, the centralized area of higher education in Northeast China. Eight universities (2 multidiscipline and 6 specialized) and 10% of academic staff each were randomly selected. Questionnaires pertaining to occupational stress indicated by the Chinese Version Personal Strain Questionnaire (PSQ) and demographic characteristics, health status, work situations, and personal and social resources were distributed in October 2008. A total of 827 effective respondents (response rate 76.4%) were involved as participants for the study. The results indicated that the average raw score of PSQ was 91.0 among the university teachers. General linear model analysis showed that the factors significantly associated with the PSQ score was, with in standardized estimate (β) sequence, mental health, role overload, role insufficiency, social support, monthly income, role limitations due to physical problems, research finance and self-rated disease with adjustment for age and sex.

The investigators concluded from the study that, in comparison to work-related factors and social support, mental health is a prominent risk factor for occupational stress in university teachers in China. Improvement of mental health and organizational climate should be considered to lessen the occupational stress of university teachers.⁴⁰

2.4 Stress and Doctors:

Adam S,Torza P,Gyorffy Z,Voros K,Kalabay L,(2009),studied “Frequent high- level burn out among general practitioners and residents”. As General practitioners (GPs) play a central role in patient care and are exposed to high levels of work strain and consequent burnout due to the large number of stressful patient-doctor relationships. Despite the high likelihood of burnout among GPs, limited information was available regarding this topic. Hence the aim was: To explore the prevalence of burnout among GPs and residents in Hungary. The research approach used was Exploratory/ descriptive, cross-sectional study with self administered questionnaires among 453 GPs and 43 residents. To assess burnout, the Maslach Burnout Inventory (MBI-GS) was used. To evaluate the level of burnout, mean (+/- SD) scores on the emotional exhaustion, cynicism/depersonalization, and personal accomplishment dimensions of the MBI were determined among male and female GPs and residents. Differences in the level or degree of burnout (high, intermediate and low) in all
three burnout dimensions between male and female GPs and residents were examined by independent samples t-test and chi 2-tests. A Socio demographic antecedent to burnout was assessed by linear regression analyses.

The results indicated that Residents reported significantly lower cynicism/depersonalization \( t (df): 2.8(476); p < 0.01 \) and personal accomplishment \( t (df): 2.0 (485); p < 0.05 \) compared to GPs. No gender differences were identified in the level of burnout. Significantly more GPs then residents reported high \( \chi^2 (df) = 5.9 (1); p < 0.05 \) or intermediate \( \chi^2 (df) = 4.6 (1); p < 0.05 \) degree of depersonalization. Emotional exhaustion, depersonalization, and low personal accomplishment were reported by around 30%, 60%, and 100% of the physicians, respectively. Being a resident emerged as the strongest negative predictor of depersonalization \( (\beta = -0.09, 95\% CI -0.22 - -0.002) \). It was concluded that the prevalence of burnout was high among GPs, and almost all GPs reported low degree of personal accomplishment. Residency emerged as a significant protective correlate of depersonalization. These findings provide further data for cross-cultural burnout research.\(^{[41]}\)

Wu H, Zhao Y, Wang J N, Wang L,(2010), “Factors associated with occupational stress among Chinese doctors: A cross sectional survey, Doctors constitute the main workforce in hospitals and are known to experience occupational stress. High level of stress is believed to affect doctors' physical and mental health. Thus, it was essential to study doctors' occupational stress well to improve their quality of lives. The aim of this study was to explore factors associated with occupational stress among Chinese doctors in public hospitals.

A cross-sectional study was conducted during the period of May/June 2008. The study population comprised of 1989 doctors registered and working in the 20 national hospitals in Liaoning province, China. A questionnaire pertaining to occupational stress that was assessed based on the Chinese Version Personal Strain Questionnaire (PSQ), demographic characteristics, work situations, occupational roles, and personal resources was distributed to these doctors. A total of 1,587 effective respondents (673 men, 914 women) became the subjects (effective response rate 79.8%). The general linear model (GLM) was employed to explore the factors related to occupational stress. All data was analysis separately for men and women subjects of the study. The results brought out that, the average
PSQ score was 86.92 in the total study population, 89.4 in men and 85.1 in women among Chinese doctors. GLM showed that PSQ was significantly associated with, in standard estimate (beta) sequence, role boundary, role insufficiency, responsibility, social support, rational/cognitive coping, doctor-patient relationship and role overload in men; whereas with role insufficiency, role boundary, social support, responsibility, self-care, role overload, education, chronic disease, and doctor-patient relationship in women.

These results indicated that the major factors associated with occupational stress differed between male and female doctors in China. Overall, role boundary and role insufficient were the most crucial factors in male and female doctors, respectively. Therefore, occupational health education and occupational training programs with the purpose to improve doctor's knowledge and ability to copy with their task should be considered to lessen occupational stress among Chinese doctors.[42]

2.5 Stress and Police officials:

Collins P A, Gibbs A, C (2004) Studied, “Stress in police officers: a study of the origins, prevalence and severity of stress-related symptoms within a county police force”, Researchers noted that high levels of stress-related illness were a cause of concern across industry. Against a background of impending legislative moves to try to improve this situation, hence a need was felt to identify key work-related stressors. Police work tends to be regarded as inherently stressful because of the personal risk of exposure to confrontation and violence and the day-to-day involvement in a variety of traumatic incidents. As a result, high levels of stress-related symptoms could be expected in this population. The objective was to examine the sources of stress-related symptoms within police officers and measure the prevalence of significant associated mental ill health. The methodology used was cross-sectional design where in a survey was conducted using questionnaire. Survey of a population of 1206 police officers was performed to assess levels of strain associated with a series of potential home and work related stressors. The participants were then split into low and high scoring groups on the basis of a General Health Questionnaire (GHQ) threshold score in order to identify those stressors most associated with mental ill-health effects.

The results indicated that Occupational stressors ranking most highly within the population were not specific to policing, but to organizational issues such as the demands of work impinging upon home life, lack of consultation and communication, lack of control,
over workload, inadequate support and excess workload in general. The high scoring group constituted 41% of the population and differed significantly from those with low scores in perception of all stressors, ranking both personal and occupational stressors more highly, and from personality constraints appeared significantly more 'stress-prone'. A significant association between gender and mental ill-health was found, with females more likely to score more highly on the GHQ than males.

This study confirmed findings from previous studies that organizational culture and workload was the key issue in officer stress. Given that the degree of symptomatology appears to be worsening, management action was required. Further research was also indicated within the police population into a possible increased susceptibility in female officers. [43]

Yang XW, Wang ZM, Lan YJ, Wang MZ, (2004), compared the occupational stress and work ability among the police officers, doctors and teachers. Their objective was to compare the stress and work ability in doctors, police officers and teachers. Changes in occupational stress work ability were measured with revised occupational stress inventory (OSI-R) and work ability index (WAI) for 288 doctors, 191 police-officers and 343 teachers, and then comparative and correlation analyses were made. The results indicated:

1. The difference in occupational stress and strain between the groups was statistically significant (P < 0.01), and the score of the police-officers was higher than that of the doctors and teachers (P < 0.05), but the personal resources of police-officers were lower than those of the doctors and teachers (P < 0.05).

2. Analysis of the 6 items of occupational role questionnaire revealed that the scores of role ambiguity, role boundary and responsibility were obviously higher in police-officers than in doctors and teachers, while the scores of role overload and physical environment were higher in teachers (P < 0.05).

3. Analysis of all items of personal strain revealed that the scores of vocational strain, psychological strain, physical strain, but not of interpersonal strain, were significantly higher in police-officers than in doctors and teachers (P < 0.05).

4. As to the personal resource, the results indicated that recreation and self-care of doctors and teachers were superior to those of police-officers.
The score of social support was highest in doctors. The score of rational conduct was highest in teachers (P < 0.05). 5. Occupational role and personal strain were positively correlated, and both were correlated negatively to the personal resources (P < 0.01). The correlations of work ability, occupational stress and strain, and personal resources were significant in teachers (P < 0.01).

Thus it was concluded that for police-officers, doctors and teachers, different yet relevant measures should be taken to reduce the occupational stress so as to improve their work ability.[44] 

2.6 Stress and transport operators:

“Occupational stress factors and alcohol-related behaviour in urban transit operators” was studied by Ragland D R, Greiner B A, Yen I H, Fisher J M, (2000); the study is based on the assumption that if alcohol consumption mitigates psychological and physiological aspects of the response to stressors, then alcohol consumption might be elevated for individuals exposed to high occupational stressors. Frequency of work stressors and reaction to those stressors has been studied in relation to several alcohol related outcomes. During the period of 1993-1995, 1979 transit operators underwent medical examinations for commercial driver's license renewal. Questionnaire and interview data concerning occupational stress factors and alcohol-related outcomes which were available for 1386 (70.2%) of the transit operators was analysed. A positive association was found between the two job stressor-related measures and each of six alcohol-related outcomes. Of these 12 associations, ten were statistically significant. Individuals experiencing high self-reported frequency of job stressors and a higher perceived severity of those job stressors were more likely to drink and more likely to be heavy drinkers. They reported more consequences of alcohol consumption, reported increased consumption since beginning work as transit drivers, and were more likely to report drinking to deal with work stress. They also drank more, but this effect was not significant for either job stress measure. There was virtually no association between both stressor-related measure and alcohol dependency (CAGE). The researchers together with other published findings, suggested that there may be increased alcohol related outcomes in the presence of work stressors. This conclusion has potential implications for worksite health promotion and job design. As the findings were cross-sectional, further research was needed to clarify the causal nature of the work stressor-alcohol association. The researcher
recommended that further research also was needed to clarify the role of individual differences and context.\textsuperscript{[45]}

Sampaio R F, Coelho C M, Barbosa F B, Mancini MC , Parreira VF,(2009) studied “Work ability and stress in a bus transportation company in Belo Horizonte, Brazil. The investigators identified that demographic, occupational and psychosocial characteristics affect the health and occupational performance of workers. The objective of this study was to elaborate a profile of the work ability and factors that affect it in a bus transportation company in Belo Horizonte, Brazil. The instruments used included a socio-demographic and occupational questionnaire, the Work Ability Index and the Job Stress Scale. Demographic information revealed that 85.7% of the 126 employees of the company were active workers, 98% were males, with an average of 39 years of age (SD= 10) and 79 months working in the company (SD= 68); more than half reported having a low schooling level. In terms of personal habits, 88% were exposed to one or more risk factors, especially a sedentary lifestyle. The average strain value (as a consequence of stress) was 0.78 (SD= 0.2) and 75.3% reported episodes of violence at the workplace. The work ability was good to excellent among 89% of the workers. Results from the logistic regression analysis showed that strain was the only significant variable in relation to the Work Ability Index, (estimated odds ratio of 0.02). The results suggested that psychosocial factors presented the greatest association with work ability, and preventive and/or corrective measures need to be implemented.\textsuperscript{[46]}

2.7 Stress and farmers:

Kallioniemi M k, Simola A J, Kymalainen H R, Vesala H T, Louhelainen JK,(2008) studied “Stress among Finnish farm entrepreneurs”, The aims was to examine the prevalence of stress among Finnish full time farm entrepreneurs in 2004 (n = 1,182) and to compare the results with those for the general working population in 2003. The second aim was to analyze which factors were associated with the prevalence of stress. A stratified random sample of farm entrepreneurs gathered from the farm register was surveyed using computer-assisted telephone interviews. A binary logistic regression model was used to analyze the association with background factors. One third (34 %) of the examined farmers had experienced stress. This amount was lower than among the general working population (44%). The most common factors associated with farmers' stress were problems in social family relationships and mental support. Physical factors such as the strenuousness of agricultural work, illness and a low estimation of their own working ability were also related
to stress. Increased stress was also associated with economic problems. Health and extension services should pay special attention to encouraging farm entrepreneurs to maintain their social relationships. The relatively low level of stress observed may indicate that those who have continued within the agricultural sector have the psychological capacity to deal with stressful situations.

Stain H J, Kelly B, Lewin T J, Higginbotham N, Beard J R, Hourihan F,(2008) “Social networks and mental health among a farming population”. The study aimed to investigate the associations between mental health and measures of community support, social support networks, sense of place, adversity, and perceived problems in a rural Australian population. Methodology -Survey design was used, a survey Questionnaire was mailed to adults randomly selected from the Australian Electoral Roll and residing within four local government areas (LGAs) of varying remoteness in rural New South Wales (NSW). Survey measures included: support networks and community attachment; recent stressors (including drought-related stress); and measures of health and related functioning. The Kessler-10 provided an index of current psychological distress.

The results indicated that the sample (n = 449; response rate 24%) was predominantly female (58.4%) and 18.9% were farmers or farm workers. Moderate to very high psychological distress was reported for 20.7% of the sample. Half (56.1%) of all respondents, and specifically 71.8% of farmers or farm workers, reported high levels of perceived stress due to drought. Psychological distress was associated with recent adverse life events, increased alcohol use and functional impairment. Hierarchical regression analysis demonstrated an independent effect of the number of stressful life events including drought related stress, perceived social support (community and individual), alcohol use and physical functioning ability on levels of psychological distress. This model accounted for 43% of the variance in current levels of distress. Lower community support had a more marked impact on distress levels for non-farming than farming participants.

The study highlighted the association between unique rural community characteristics and rural stressors (such as drought) and measures of mental health, suggesting the important mediating role of social factors and community characteristics. The results illustrate the importance of addressing subgroup differences in the role of social capital in mental health.
Fortunately, research on job stress has greatly expanded in recent years. However, inspite of this attention, confusion still remains about the causes, effects, and prevention of job stress. All the above review studies have highlighted how an individual job or occupation has in it inherent factors that cause stress to the individual, which may be because of the job profile or work environment or colleagues.

2.8 Stress and Terrorism:
“Exposure to terrorism, stress-related mental symptoms, and coping behaviors among a national representative sample in Israel”, Bleich A, Gelkopf M, Solomon Z,(2003), The study was conducted in the context that terrorist attacks on Israeli society have been ongoing since September 2000. However, few studies have examined the impact of terrorism on nationally representative population samples, and no study has examined the psychological impact of ongoing terrorism in Israel. The objective was to determine the level of exposure to terrorist attacks and the prevalence of traumatic stress-related (TSR) symptoms, symptoms of posttraumatic stress disorder (PTSD), and sense of safety after 19 months of terrorism in Israel, and to identify correlates of the psychological sequelae and the modes of coping with the terrorism. Survey design was chosen, Telephonic survey was conducted between April-May 2002, using a strata sampling method, of 902 eligible households and a representative sample of 742 Israeli residents older than 18 years where contacted (82% contact rate) and the final list of participating samples was 512 (57%) samples. Tools were used to measure number of TSR symptoms, rates of those with symptom criteria for PTSD and acute stress disorder assessed by the Stanford Acute Stress Reaction Questionnaire, self-reported feelings of depression, optimism, sense of safety, help-seeking, and modes of coping.

The finding indicated that of 512 survey participants, 84 (16.4%) had been directly exposed to a terrorist attack and 191 (37.3%) had a family member or friend who had been exposed. Of 510 participants who responded to questions about TSR symptoms, 391 (76.7%) had at least 1 TSR symptom (mean, 4.0 [SD, 4.5]; range, 0-23; mean intensity, 0.8; range, 0-4).

Symptom criteria for PTSD were met by 48 participants (9.4%) and criteria for acute stress disorder, by 1 participant; 299 (58.6%) reported feeling depressed. The majority of respondents expressed optimism about their personal future (421/512 [82.2%]) and the future of Israel (307/509 [66.8%]), and expressed self-efficacy with regard to their ability to function in a terrorist attack (322/431 [74.6%]). Most individual’s expressed a low sense of
safety with respect to themselves (307/509 [60.4%]) and their relatives (345/507 [67.9%]). Few reported a need for professional help (27/506 [5.3%]). Female sex, sense of safety, and use of tranquilizers, alcohol, and cigarettes to cope were associated with TSR symptoms and symptom criteria for PTSD; level of exposure and objective risk were not. The most prevalent coping mechanisms were active information search about loved ones and social support. It may be concluded considering the nature and length of the Israeli traumatic experience, the psychological impact may be considered moderate. It was noted that although the survey participants showed distress and lowered sense of safety, they did not develop high levels of psychiatric distress. This may be related to a habituation process and to coping mechanisms.\cite{49}

In another study conducted by Bleich A, Gelkopf M, Melamed Y and Solomon Z\cite{2005} on “Emotional impact of exposure to terrorism among young- old and old-old Israeli citizens”, Since September 2000, continuous terrorist attacks have exposed Israeli society to trauma, and the impact of these events on the mental health of the elderly Israeli population remained unclear. The authors sought to assess the prevalence of posttraumatic stress-related symptoms of distress, depression, optimism, self-efficacy, and sense of safety of the young-old and old-old Jewish population after 19 months of intense terrorism in Israel, in order to identify correlates of the psychological sequelae and compare symptoms and coping methods of these populations with those of younger adults. The Investigators conducted a telephonic survey using stratified sampling with a national sample of young-old (65-74 years old), old-old (>74 years old) and a comparison group of younger adults (18-64 years old).

The finding of the study highlighted that there was no difference found in the level of exposure, traumatic stress symptoms, including probable PTSD, except for a non- significant tendency toward more depersonalization and emotional numbness in the elderly group, a tendency toward more sleeplessness, more re-experiencing of unwanted thoughts, hyper arousal, fewer avoidance symptoms, and less disengagement-coping in the old-old group. Younger adults were found to be significantly more optimistic. Young-old and old-old people used cigarettes/alcohol and tranquilizers more often to cope with the situation, and old-old people who used disengagement-coping felt less helped by it. Thus it was concluded that Young-old and old-old people do not differ significantly from the younger adult population with regard to their response to 19 months of intense and recurrent terrorism.\cite{50}
“Terrorism, acute stress and cardiovascular health: a 3year national study following the September 11th attack” (2008), was studied by Holman EA, Silver RC, Poulin M, Andersen J,Gil-Rivas V, McIntosh DN. The terrorist attacks of 9/11 (September 11, 2001) presented the researchers an unusual opportunity to examine prospectively the physical health impact of extreme stress in the national sample. The objective of the study was to examine the degree to which acute stress reactions to the 9/11 terrorist attacks predict cardiovascular outcomes in a national probability sample over the subsequent 3 years.

A national probability sample of 2729 adults (78.1% participation rate), 95.0% of whom had completed a health survey before 9/11 (final health sample, 2592), completed a Web-based assessment of acute stress responses approximately 9 to 14 days after the terrorist attacks. Follow-up health surveys reassessed physician-diagnosed cardiovascular ailments
1. (n = 1923, 84.3% participation rate),
2. (n = 1576, 74.2% participation rate), and
3. (n = 1950, 78.9% participation rate) years following the attacks.

The main outcome measured was the reports of physician-diagnosed cardiovascular ailments over the 3 years following the attacks. The findings indicated that acute stress responses to the 9/11 attacks were associated with a 53% increased incidence of cardiovascular ailments over the 3 subsequent years, even after adjusting for pre-9/11 cardiovascular and mental health status, degree of exposure to the attacks, cardiovascular risk factors (i.e., smoking, body mass index, and number of endocrine ailments), total number of physical health ailments, somatization, and demographics. Individuals reporting high levels of acute stress immediately following the attacks reported an increased incidence of physician-diagnosed hypertension (rate ratios, 2.15 at 1 year and 1.75 at 2 years) and heart problems (rate ratios, 2.98 at 1 year and 3.12 at 2 years) over 2 years. Among individuals reporting ongoing worry about terrorism post-9/11, high 9/11-related acute stress symptoms predicted increased risk of physician-diagnosed heart problems 2 to 3 years following the attacks (rate ratios, 4.67 at 2 years and 3.22 at 3 years).

It was concluded from the findings using health data collected before 9/11 as a baseline, that acute stress response to the terrorist attacks predicted an increased report of
physician-diagnosed cardiovascular ailments over a period of three years following the attacks.[51]

The above studies indicate that any untoward environmental situation like terrorism or attacks, which affect individual’s safety, can also induce stress. Mumbaikars to have had their share of terror attacks which had threatened the safety of the people residing in this city.

2.9 Effect of Stress on eating and weight:

Stress may contribute to changes in dietary behaviors that lead to weight change, with various effects related to sex, baseline body mass index, or cortisol reactivity in response to stress. These factors may cause some people to gain more weight under stressful circumstances, while others may gain less weight or even lose weight when stressed. It has been seen in Cross-sectional studies which have reported only weak associations between psychosocial stress and body mass index. Three longitudinal cohort studies conducted in populations outside the United States have produced mixed results. Kivimaki et.al. used the Whitehall study, a prospective cohort of British civil servants, to analyze the prospective association between work stress and weight change over 5 years. They found that greater job strain and lesser job control at baseline were associated with weight gain among men who were overweight or obese at baseline. Kivimaki et.al. also notes that men with higher baseline body mass indexes gained weight over 5 years if they experienced higher levels of work stress, but men with lower body mass indexes were more likely to lose weight under stressful job circumstances. Among women, weight gain was associated with higher job demand which was the main effect in models, but the association was no longer significant when an interaction with baseline body mass index was included. But a similar association was not observed among women.[52] Brunner et al. completed an additional analysis of the same cohort after further follow-up. They reported that men with chronic job strain, coupled with low social support among co-workers, were more likely to develop obesity (body mass index, ≥30 kg/m²) and central obesity (high waist circumference) than those with no job strain, >102 cm in men and >88 cm in women) than those who had no job strain. This association was not significant among women.[53]

In a Dutch cohort, Van Strien et al. evaluated the influence of negative life events in a cohort in the Netherlands. Which showed that men who were “emotional eaters” and experienced weight gain over the 6 months after a negative life event, such as death of a
family member, divorce or separation from a spouse, or financial difficulties. But no correlation was observed in case of women.\textsuperscript{54} Korkeila et al. in another large cohort study of monozygotic and same-sex dizygotic Finnish twins, it assessed associations of stress and personality type at baseline with weight gain of greater than 10 kg after follow-up of 6 years and 15 years. The only significant adjusted associations were between neuroticism and weight gain after 6 years among older women but this effect subsided after 15 years of follow-up and between extroversion and less weight gain among younger men.\textsuperscript{55}

According to Michaud C, Kahn JP, Musse N, et al., (1990) Stress appears to influence eating behaviors differently in both sexes as well. In a study of high school students aged 15–19 years, caloric consumption increased on days with stressful events for girls but not for boys; though boys did increase their fat intake.\textsuperscript{56}

In a laboratory experiment with postmenopausal women subjected to a stress-inducing protocol, Epel E.S, McEwen B., SeemanT. et al. discovered that women with high waist/hip ratios, regardless of body mass index, were more likely to display higher stress-induced cortisol levels. Women with high waist/hip ratios also felt more threatened under stress, and controlling for this high threat appraisal partially attenuated the association between waist/hip ratio and cortisol.\textsuperscript{57}

“Psychosocial Stress and Change in Weight Among US Adults”, was studied by Jason P. Block, Yulei H.E, Alan M. Zaslavsky, Lin Ding, and John Z. Ayanian, (2009) The association of psychosocial stress with weight gain may have important implications for clinical practice and workplace and public health interventions. To determine whether multiple domains of psychosocial stress were associated with weight gain from 1995 to 2004, the authors analyzed a nationally representative longitudinal cohort of 1,355 men and women in the United States. Change in body mass index was assessed for multiple domains of psychosocial stress related to work, personal relationships, life constraints, and finances, controlling for other factors associated with weight gain. The analysis was restricted to 2,570 respondents <65 years of age at baseline because of limited weight change in those aged ≥65 years. All analyses were stratified by sex and weighted to account for the complex survey design. Among men with high baseline body mass index, weight gain was associated with increasing levels of psychosocial stress related to job-related demands (\(P < 0.001\) for interaction with baseline body mass index), lack of skill discretion (\(P = 0.014\)), lack of
decision authority (P = 0.026), and difficulty paying bills (P = 0.004). Among women with high baseline body mass index, weight gain was associated with job-related demands (P < 0.001 for interaction with baseline body mass index), perceived constraints in life (P < 0.001), strain in relations with family (P = 0.016), and difficulty paying bills (P = 0.010). Several domains of psychosocial stress as well as anxiety and depression were associated with weight gain among men and women with higher body mass indexes.

Awareness of these associations may enable clinicians to help their overweight and obese patients avoid gaining further weight during stressful periods. Stress reduction may also be an important component of weight-loss interventions in worksites and in clinical and public health programs.\[58\]

The studies bring to light the relationship between stress, eating and weight gain. Literature also has indicated that when one is stressed there is a tendency to overeat as a measure of trying to cope with stress resulting often in weight gain.

2.10 Perception of stress:

In a study conducted by Ruth Chao, Assistant Professor, Department of Psychology, Tennessee State University “Ethnic Minority Clients’ Perceptions of Racism-Related Stress in Presenting Problems” The question sought the prevalence of racism-related stress among White and ethnic minority clients. Forty-one percent (n = 355) of ethnic minority clients, when requesting counseling help, reported that they had had experienced racism-related stress, as compared with 2% of White clients who reported racism-related stress. In other words, ethnic minority clients reported racism-related stress almost 20 times higher than the White clients did. Broken according to ethnicity, 42% African American clients, 28% Asian American clients, 30% Latino clients, 30% Native American clients, and 33% international students reported racism-related stress. At least one out of three ethnic minority clients who came to counseling center reported racism as one of their presenting problems. The second question identifies variables that distinguish ethnic minority clients with racism-related stress from those without such stress. The study indicated that ethnic minority clients with racism-related stress have significantly higher mean scores on 37 items of OQ than those without perceiving such stress. The means revealed that ethnic minority clients with racism-related stress reported more distress in each of these 37 presenting problems. For example, ethnic minority clients with racism-related stress have scores (M = 2.97, SD = 1.00) significantly
higher than those who without racism-related stress (M = 2.72, SD = 1.10) on the item “I feel stressed at school/work”, with t = 3.31, p < .01. Similarly, ethnic minority clients with racism-related stress have scores (M = 2.73, SD = 1.01) significantly higher than those who without racism-related stress (M = 2.46, SD = 1.13) on the item “I blame myself for things”, with t = 3.50, p < .001. The study indicated that ethnic minority clients have scores on 37 items significantly higher than they have those who did not report racism-related stress on 37 items significantly higher than those who did not report racism-related stress.

Among these 37 items presenting significant differences between the two groups of ethnic minority clients, 5 items are in Symptom Distress subscale, 2 in Interpersonal Relations subscale, and 1 in Social Role subscale. Because each subscale targets on respective dimension of the client’s functioning, the researcher further examined the differences between the clients who did perceive racism-related stress and those who did not. Ethnic minority clients who reported racism-related stress have scores (M = 46.23, SD = 16.94) in Symptom Distress subscale, significantly higher than those who did not report racism-related stress (M = 40.19, SD = 16.15), with t = 5.17, p < .001. In terms of Interpersonal Relations subscale, ethnic minority clients who reported racism-related stress have scores (M = 18.89, SD = 6.81) in Interpersonal Relations subscale, significantly higher than other clients not reporting racism-related stress (M = 15.90, SD = 6.95), with t = 6.13, p < .001. On Social Role subscale, ethnic minority clients who reported racism-related stress have scores (M = 16.21, SD = 4.99) in Social Role subscale, significantly higher than those not reporting racism-related stress (M = 13.88, SD = 4.98), with t = 6.67, p < .001. A survey conducted by American Psychological Association states that, young people in America are more stressed out about school pressure and family finances than their parents think according to a national survey of “Stress in America”. The study was built upon past research that found stress to be a top health concern for US youth in grades 9-12, they found that teens and tweens are more likely than parents to say that their stress had increased in the last year.

Nearly half (45%) of teens ages 13-17 say that they worried more this year, but only 28% of parents think their teen’s stress increased. One-fourth (26%) of tweens ages 8-12 say they worried more this year, but only 17% of parents believed their tweens stress had increased. Similarly, only 2-5% of parents rate their child’s stress as extreme (an 8, 9 or 10
on a 10-point scale) when 14% of tweens and 28% of teens say they worry a lot or a great deal.

Parents’ responses about sources of stress for their children were also out of sync with what children reported as sources of worry, the study found. Children are more likely to say they worried about their family’s financial difficulties than parents were to say this was a source of stress for their children (30% vs. 18% of parents). Results are similar for doing well in school (44% vs. 34% of parents). In general, children also are more likely to report having physical symptoms often associated with stress than parents were to say their children experienced these symptoms, including headaches, difficulty sleeping, and changes in appetite. Tweens (30%) and teens (42%) say they get headaches vs. 13% of parents who say their offspring get headaches. Tweens (39%) and teens (49%) cite difficulty sleeping vs. 13% of parents who say their kids have trouble. Tweens (27%) and teens (39%) report eating too much or too little vs. 8% of parents who say their children eat too much or too little.

“It’s clear that parents do not fully appreciate the impact that stress is having on their kids,” was stated by Katherine C. Nordal, PhD, APA’s executive director for professional practice. “What we’re seeing with stress is in line with existing research about parents’ perception of their kids’ engagement in risky behaviors. Parents often under report drug use, depression and sexual activity in their children. Now it appears the same may be true for stress.”

Perceptions of Stress in Adults: The survey results reveal that adults also continue to report high levels of stress and many reported that their stress has increased over the past year. Additionally, many adults were reporting physical symptoms of stress. Three-fourths (75%) of adults report experiencing moderate to high levels of stress in the past month (24% extreme, 51% moderate) and nearly half report that their stress has increased in the past year (42%). Two-fifths (43%) of adults say they eat too much or eat unhealthy foods as a result of stress and 37% report skipping a meal because they were under stress. In terms of stress relief, the study found that 44% of adults report that they exercise or walk to relieve stress, but more Americans also say they rely on more sedentary activities to manage stress (49% listen to music, 41% read, 36% watch TV or movies more than two hours per day, and 33% play video games.)

Overall, many adults say they have felt the physical effects of stress in the past month:

- 47% of all adults report that they have lain awake at night.
o 45% report irritability or anger.
o 43% report fatigue
o 40% report lack of interest, motivation or energy.
o 34% report headaches;
o 34% report feeling depressed or sad.
o 32% report feeling as though they could cry.
o 27% report upset stomach or indigestion as a result of stress.

“The prevalence with which Americans continue to report increasing and extreme stress levels is a real concern,” was stated by Nordal, who believes that the current healthcare system in the US does not do a very good job in helping Americans manage the symptoms or effects of their stress. Further, she added that the problem is being exacerbated by the fact that insurance companies “often don’t cover preventive services or the kinds of services people need in order to better manage chronic illness.” In terms of stress levels in specific cities, the survey revealed that more Denver residents than Americans nationwide say that their work, money and job stability are significant sources of stress. More than 75% of city residents report significant stress from work and money. The survey found that the number of Denverites who said their average stress level is in the extreme range is higher than those nationally. More than one-third (35%) rate their average stress levels as an 8, 9 or 10 on a 10-point scale (compared with 24% nationally), and nearly half (48%) said their stress has increased over the past year. Residents of Denver also more commonly report a variety of stress-related physical symptoms than others in the nation.

2.11 Lifestyle and Behavior Change:
Of perhaps more concern than just reports of stress alone, a full two-thirds (66%). A health-care provider has told US adults that they have one or more chronic conditions, most commonly high blood pressure or high cholesterol. While the vast majority of adults indicated that their health care provider recommended lifestyle and behavior changes (70%), few adults say their health care provider offers support to help them make lasting changes or follows up with them to see if the changes have been made.\[60\]

Van Eck M, Berkhof H, Nicolson N, Sulon J,(1996) studied The effects of perceived stress, traits, mood states and stressful daily events on salivary cortisol. The investigators examined the effects of perceived stress and related individual characteristics, mood states,
and stressful daily events on salivary cortisol levels. Forty-one "high stress" and 46 "low stress" subjects were selected on the basis of Perceived Stress Scale scores from a sample of male, white collar workers. Subjects completed Experience Sampling self-reports and collected saliva samples 10 times a day over 5 consecutive days. Multilevel analysis revealed that trait anxiety and depression, but not perceived stress, were associated with small but statistically significant cortisol elevation. No effects on cortisol were found for recent life events, chronic difficulties, trait anger, or psychosomatic symptoms. Distress, as reflected by the mood states Negative Affect and Agitation, was associated with higher cortisol levels, whereas Positive Affect had no statistically significant effect. Stressful daily events were associated with increased cortisol secretion, the magnitude of the effect depending on whether the event was still ongoing and on how frequently a similar kind of event had occurred previously. Although perceived stress, anxiety, and depression did not increase cortisol reactivity to daily events, we found evidence for reduced habituation to recurrent events in subjects scoring high on these traits. Mood appeared to play a mediating role in the relationship between stressful events and cortisol secretion. These results suggest that negative affectivity is not just a confounder but is related to elevated cortisol secretion during normal daily activities. The finding that even minor events and fluctuations in mood states were associated with increased adreno-cortical activity points to a possible mechanism linking subjective experience to health outcomes.[61]

Schneider. T. R., (2008), “Evaluations of stressful transactions: what's in an appraisal?” the investigator found that Appraisals were the portal to emotional experience and action. Past research had demonstrated that challenge and threat appraisals have different implications for psychological, physiological, and behavioral responses, typically relying on two-item assessments of appraisals. The present study investigated the predictive utility of a theoretically expanded appraisal measure. Both indexes were used to classify participants as either challenged (task demands were rated as commensurate with coping resources) or threatened (task demands were rated as exceeding resources). Group differences in stress responses were examined. The lengthened appraisal assessment was reliable. Furthermore, compared with the two-item measure, the expanded measure better distinguished differences in emotional experience and performance. Similar findings were obtained for cardiovascular stress responses. Enhancing the assessment of individual differences in stressor appraisals facilitates our understanding their nature and potential for modification, and the nature of the stress process. [62]
Metz U, Welke J, Esch T, Renneberg B, Braun V, Heintze C,(2009) conducted a study on “Perception of stress and quality of life in overweight and obese people-implications for preventive consultancies in primary care”. At the Institute for General Practice and Family Medicine, Berlin, Germany. The increasing prevalence of obesity requiring especially primary health care providers to act. General Practitioners (GP) in particular have the opportunity to motivate patients in early risk stages to follow weight reduction program before manifestation of associated diseases. In order to conduct preventive consultancies it was necessary to explore the individual physical and mental health status of patients. Aim of the study was to examine quality of life and perceived level of stress in overweight and obese patients treated in primary care.

Methodology used for the study involved including 123 patients, following a health check up realized by their GP, rated self-reported questionnaires regarding quality of life and perceived level of stress (SF-12, PSS). Following descriptive analysis, differences in dependent variables related to BMI, sex and age were tested using ANOVA and regression analysis (SPSSv15.0).Findings of the study indicated restrictions in all parameters of mental health for overweight and obese patients in primary care were shown. Especially patients with a BMI above 30 kg/m2 reported a decreased level of quality of life.

It was concluded that Health care providers should be aware of cumulative restrictions in mental health of their overweight patients. The findings provided essential implications for all health care professionals in primary care for doing preventive consultancies with obese clients.\textsuperscript{[63]}

Daisy I. Dimkpa and, Lydia A. Wilcox,(2010) studied ‘Married couples perception of stress’.This study investigated the perceptions of married couples in Ilorin Municipality, Kwara State of Nigeria towards family stress. A total of 200 purposively selected married couples from five institutions namely, churches, public and private secondary schools and the Ministry of Education responded to surveys related to their perceptions of family stress according to their sex and occupation. The main instrument used for data collection was the researchers’ ‘Family Stress Questionnaire’ (FSQ). Results of the findings analyzed using t-test and ANOVA statistics indicated that male and female married couples differed
significantly in their perceptions of family stress. It further showed that unemployed couples and those in public and private employment were significantly different.

The implications of the study revealed that married couples in Ilorin Municipality of Kwara State, Nigeria have a fairly high perception of family stress. Counsellors, social workers and behavioural scientists could be equipped with the knowledge from the findings of the study can help couples. Knowledge from this research can be used to assist couples gain better understanding of themselves and the prevailing circumstances around them. Couples can learn that success or failure of a marriage depends mainly upon the strength and flexibility of the relationship between the principal family figures - the husband and wife and not in the presence or absence of their sources of pressure.

This finding could also be helpful in pre-marital counselling. This would enable intending couples to realize that marriage is something more than erotic partnership that is a matter of home making, parenthood and economic cooperation. [64]

Hafner A and Stock A, (2010) studies the effect of “Time management training and perceived control of time at work. The purpose of the study was to examine the effects of time management training, which was based on psychological theory and research, on perceived control of time, perceived stress, and performance at work. The authors randomly assigned 71 employees to a training group (n = 35) or a waiting-list control group (n = 36). As hypothesized, time management training led to an increase in perceived control of time and a decrease in perceived stress. Time management training had no impact on different performance indicators. In particular, the authors explored the use and the perceived usefulness of the techniques taught. Participants judged the taught techniques as useful, but there were large differences concerning the actual use of the various techniques. [65]

The purpose of the study conducted by Asai M, Akizuki N, Akechi T et.al, (2010) was to identify psychiatric disorders and stress factors experienced by staff members in cancer hospitals who were referred to psychiatric consultation service, and to investigate the association between psychiatric disorders and stress factors. The investigators used a retrospective descriptive design to conduct the study. The study used clinical practice data on staff members referred to psychiatric consultation service, obtained over a period for 8 years. The study was conducted at two National Cancer Center Hospitals in Japan. Psychiatric
disorders were identified according to DSM-IV. Stress factors were extracted from a chief complaint at the initial visit in medical charts, using a coding approach, and grouped as job stress or personal stress. The frequencies of the stress factors were determined by two coders who were unaware of the categorized procedure. Fisher's exact test was used to determine the association between psychiatric disorders and stress factors.

The findings indicated that of 8077 psychiatric consultations, 65 (1%) staff members were referred. The most common psychiatric disorder was adjustment disorder (n = 26, 40%), followed by major depression (n = 17, 26%). Eight stress factors were identified from 76 meaning units and were grouped into five job stresses and three personal stresses. Of the five job stresses, four were most frequently experienced in adjustment disorders, and "failure to adapt to job environmental change" was significantly associated (p = 0.014). Two of the three personal stresses were most frequently experienced in psychiatric disorders other than major depressive disorder and adjustment disorders, and "suffering from mental disease" was significantly associated (p = 0.001).

The significance of results found by the investigators was that very few staff members were provided with psychiatric consultation service. A comprehensive support system for job stress might be needed to prevent adjustment disorders, as those are suggested to be the most common psychiatric disorders among staff members in cancer hospitals.[66]

Since there is a growing concern about stress during undergraduate medical training. However, studies about the same were lacking from Pakistani medical schools Shah M, Hasan S, Malik S,Sreeramareddy CT(2010),studied, “Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school” The objective of this study was to assess perceived stress, sources of stress and their severity and to assess the determinants of stressed cases. A cross-sectional, questionnaire-based survey was carried out among undergraduate medical students of CMH Lahore Medical College, Pakistan during January to March 2009.Perceived stress was assessed using the perceived stress scale. A 33 item questionnaire was used to assess sources of stress and their severity.

The results showed that overall response rate was 80.5% (161 out of 200 students). The overall mean perceived stress was 30.84 (SD = 7.01) and was significantly higher among female students. By logistic regression analysis, stressed cases were associated with
occurrence of psychosocial (OR 5.01, 95% CI 2.44-10.29) and academic related stressors (OR 3.17 95% CI 1.52-6.68). The most common source of stress was related to academic and psychosocial concerns. 'High parental expectations', 'frequency of examinations', 'vastness of academic curriculum', 'sleeping difficulties', 'worrying about the future', 'loneliness', 'becoming a doctor', 'performance in periodic examinations' were the most frequently and severely occurring sources of stress. There was a negative but insignificant correlation between perceived stress and academic performance (r = -0.099, p > 0.05).

To conclude a higher level of perceived stress was reported by the students. The main stressors were related to academic and psychosocial domains. They recommended further studies to test the association between stressed cases and gender, academic stressors and psychosocial stressors.[67]

In a study conducted by Baric H, Trkulja V.,(2012) ‘Declining health anxiety throughout medical studies. It is mainly about a more relaxed perception of the health-related concerns. Since reports on effects of advancing medical education on health anxiety are scarce and contradictory. The study aimed to evaluate a hypothesis that its components could be differently affected. Methodology used was a cross-sectional design to assessed the Health Anxiety Questionnaire (HAQ), Anxious Thoughts Inventory, and Somato-sensory Amplification Scale scores in medical (n = 214) and law (controls, n = 821) students at different study years. The results highlighted that, in the controls, all outcomes minimally differed across the study-year levels. Medical scores were similar to control scores at the lower and intermediate level and were significantly lower at higher study years. However, health worry, fear, and reassurance seeking only differed mildly between the medical study levels (adjusted effect sizes ≤0.23), whereas tendency toward amplification, meta-worry, social worry, and the HAQ interference with life score were significantly lower at higher than at the lower years (adjusted effect sizes 0.31-0.47). In the medical students, the HAQ interference with life score was affected mainly by the level of meta-worry, whereas in controls the major impact was that of health-related concerns.

It was concluded that studying medicine does not seem to relevantly affect the level of health-related concerns, but the degree by which they are perceived as disruptive declines as a specific function of advancing stages of education. This is closely related to progressively declining tendency toward amplification and levels of meta-worry.[68]
The above reviewed studies indicate that individual perceive stress from different point of reference and accordingly attribute meaning. Based on their perception they experience and manifest symptoms either physically or psychologically.

2.12 Coping with stress

In a study titled, “Coping with stress during childhood and adolescence: problems, progress, and potential in theory and research. Compas, Connor-Smith, et.al. (2001), it stated progress and issues in the study of coping with stress during childhood and adolescence which was reviewed by them. Definitions of coping was considered, and the relationship between coping and other aspects of responses to stress (e.g., temperament and stress reactivity) was described. A questionnaire, interview, and observation measure of child and adolescent coping was evaluated with regard to reliability and validity. Studies of the association of coping with symptoms of psychopathology, social and academic competence were reviewed. Initial progress was made in the conceptualization and measurement of coping, and substantial evidence was accumulated on the association between coping and adjustment. Problems still remained in the conceptualization and measurement of coping in young people, however, and aspects of the development and correlation of coping remained to be identified. An agenda for future research on child-adolescent coping was also outlined by them.[69]

Coping has also been conceptualized along dimensions such as information seeking versus information avoiding, approach versus avoidance, repressive versus sensitizing, monitoring versus blunting, and emotion-focused versus problem-focused (Blount, Davis, Powers, & Roberts, 1991; Rudolph, Denning, & Weisz (1995), [70,71]. Consistent with the different categorizations and definitions of coping, multiple measures have been developed.

Coping and stress exist within a complex framework, with the effectiveness of the particular coping strategies that are employed influencing subsequent adjustment outcomes (e.g., psycho social, emotional, and behavioral functioning; quality of life; and physical health), and potentially even leading to growth and greater well-being. Understanding the dynamic interplay among stress, coping, and bio-psychosocial outcomes can lead directly to the development of successful interventions.
According to Kariv D, Heiman T (2005), approaches in coping with stress are influenced by ethnic, cultural, and socioeconomic characteristics. For example, symptoms of stress increase with decreasing social status, and females tend to use emotional and avoidant coping strategies more than males do.\[72\]

“Stress, appraisal and coping following mild traumatic brain injury” (2007) conducted by Strom-T Q; Kosciulek-J. The present study tested a portion of the stress, appraisal and coping (SAC) model proposed by Godfrey, Knight and Partridge. Methodology: Using data gathered from 94 individuals who had sustained a traumatic brain injury, path analysis results indicated that a model based on Godfrey et al.’s SAC model did not fit the sample data. Based on relevant statistical output, previous research and theory, a re-specified model was tested. The results indicated that the final model should be shown to meet common statistical measures for establishing model fit. The final model indicated that higher levels of perceived stress were predictive of higher levels of self-reported depression, higher levels of depression were predictive of lower levels of dispositional hope and dispositional hope was predictive of increased life satisfaction and work productivity. It was concluded that the present findings of the study hold implications for both research and for clinical practice.

The findings do suggest the need for additional research to further clarify factors that contribute to emotional adjustment following traumatic brain injury.\[73\]

Stigma and negative societal views attached to schizophrenia can make the diagnosis distressing. There are evidence that poor insight into symptoms of the disorder and need for treatment may reflect the use of denial as a coping style. However, the relationships between insight and other coping styles have seldom been investigated. Hence Michael Coole, Emmanuella Peters, Dominic Fannon, Anantha P.P ,et.al.(2007), “Insight, distress and coping styles in schizophrenia”, They examined the associations between insight, distress and a number of coping styles in 65 outpatients with schizophrenia (final n = 57) in a cross-sectional study. They found that (i) awareness of symptoms and problems correlated with greater distress, (ii) ‘preference for positive reinterpretation and growth’ coping style correlated with lower distress and with lower symptom awareness (re-labelling), (iii) ‘preference for mental disengagement’ coping style correlated with greater distress and lower awareness of problems, and (iv) ‘social support-seeking’ coping style correlated with greater
awareness of illness, but not distress. No relationship occurred between the use of ‘denial’ as a coping style and insight or distress.

Their findings demonstrated that awareness of illness and related problems was associated with greater distress in schizophrenia. However, this investigation had not supported a simple psychological denial explanation for this relationship, as complex relationships emerged between different dimensions of insight and coping styles. The negative association between ‘positive reinterpretation and growth’ and distress suggests that adopting this style may lead to re-labelling symptoms in a less distressing way. Avoidant and isolating styles of coping both appeared unhelpful. They stated that psychological interventions should aim to promote more active coping such as discussing a mental health problem with others.\[74\]

In a study conducted by Dahlqvist-V; Soderberg-A; Norberg-A, (2008). “Dealing with stress: patterns of self-comfort among health care students”. It was found that Stress among health care students was a growing problem. As self-comfort was assumed to be a way of coping with stressful emotions, the aim of this study was to describe the patterns of self-comforting actions that healthcare students usually use in distress. One hundred and sixty-eight healthcare students volunteered to write down accounts of what they do when they comfort themselves. Their accounts were analyzed using qualitative content analysis. The findings reveal two themes: Ingressing and Transcending. Ingressing comprises the sub-themes, Unloading, Distracting, Nurturing one self, Withdrawing and Reassuring. Transcending comprises the sub-themes Opening up and Finding new perspectives. These findings are in line with some stress-reducing strategies described in the literature on stress management. Winnicott's theory about the phenomenon of transition was used to interpret the findings. In the light of Winnicott's theory, self-comforting measures can be comprehended as the ability to transfer early Childhood experiences of being nurtured and comforted into well-adapted strategies to effect relaxation and gain strength.\[75\]

Rodrigues A. B.,Chaves E C.,(2008), conducted a study on “Stressing factors and coping strategies used by oncology nurses”. Since in the oncology specialty, many factors can result in occupational stress in nursing professionals. As an attempt to controlling this situation, individuals may use coping strategies. Coping is a cognitive and behavioral effort one uses to face a stressful situation. The aim of this study was to identify the stressful factors regarding oncology nurses, and to verify what coping strategies they use. Two questionnaires
were used: a demographic data inventory, designed by the researcher, and the Folkman and Lazarus coping strategies inventory. The results showed that the main stressful factors for oncology nurses are patient death (28.6%), emergency situations (16.9%), relationship issues with the nursing team (15.5%), and work-process situations (15.5%). In the studied population, the main coping strategy used was positive reappraisal.\textsuperscript{[76]}

In another study conducted by Pryjmachuk S and Richards DA,\textsuperscript{(2008)} “Predicting stress in pre-registration midwifery students attending a university in Northern England”, The Objective was to determine which variables predict stress (psychological distress) in pre-registration midwifery students. A cross-sectional survey design was used, using a range of self-report measures bound together in a 'questionnaire pack'. The setting of the study was a wider investigation into stress among nursing and midwifery students, undertaken in the nursing and midwifery department of a large university in Northern England. 120 pre-registration midwifery students pursuing one of three diploma programmes: 'standard', 'enhanced' and 'short' participated in the study. Analysis technique used was a multivariate logistic regression. The variables used in the analyses undertaken were all derived from formal and study-specific, self-report measures included in the questionnaire pack. 'Stress' (whether a participant was psychologically distressed or not) was obtained via the General Health Questionnaire. Potential predictors of stress were collected from two formal measures (the Student Nurse Stress Index and the Coping Inventory for Stressful Situations) and from questions in the questionnaire pack designed to elicit demographic data and data of specific interest to nurse and midwife educators. The data was analyzed from the 102 questionnaire packs (85%) which were returned.

The findings indicated the prevalence of stress among participants was over 40%. A series of logistic regression analyses resulted in five competing regression models. Through a systematic selection process, two of these models were chosen for discussion. These models suggested that the key predictors of psychological distress in the population studied were self-report of stress levels, the type of midwifery programme being pursued, the use of 'task-oriented' coping and, possibly, whether or not a student smokes cigarettes. The investigators concluded that despite the prevalence rate of 40%, the prevalence of stress among midwifery students was generally no better or worse than that of other students or of qualified healthcare professionals. Those involved in midwifery education need to know how to manage student stress effectively. This could be achieved by ensuring that personal teachers (continue
to) play a key role in supporting students, especially when students self-report high levels of stress. Incorporating formal stress-management training into pre-registration midwifery programmers’ could be also useful. Sound knowledge of the issues associated with student stress during curriculum design; however, it may ultimately prove to be the most effective way of managing student stress. In a discipline such as midwifery, these issues were as divergent as the politics of midwifery, the processes used in recruitment and selection, the role of women in society, and the nature, quality and quantity of the learning experiences and the assessment strategies used. [77]

Y Kartalova-O’Doherty and D Tedstone Doherty (2008), studied “Coping strategies and styles of family carers of persons with enduring mental Illness: a mixed methods analysis”. This qualitative exploratory study investigated the experiences and needs of family carers of persons with enduring mental illness in Ireland. The current mixed-methods secondary study used content analysis and statistical procedures in order to identify and explore the coping strategies emerging from the original interviews. Majority of family carers reported use of ‘active behavioural coping strategies’ sometimes combined with ‘active cognitive’ or ‘avoidance strategies’. The percentage of cares reporting use of ‘active cognitive strategies’ was the lowest among those whose ill relative lived in their home, and the highest among those whose relative lived independently. Participants with identified active cognitive strategies often reported that their relative was employed or in training. The participants who reported use of ‘avoidance strategies’ were significantly younger, than the participants who did not report use of such strategies. The lowest percentage of ‘avoidance strategies’ was among participants whose ill relative lived independently, whereas the highest was among carers whose relative lived in their home. The findings of this study highlight the importance of a contextual approach to studying coping styles and processes. [78]

Puskar KR, Grabia BR in (2008), studied “Rural adolescents' coping responses: implications for behavioral health nurses”. The purpose of this paper was to identify coping responses of rural adolescents. The sample included 193 students attending three high schools in southwestern Pennsylvania. Family and peer relationships were the most common stressful situations described by the adolescents. Coping responses were measured by the Coping Responses Inventory-Youth Form (CRI-Y). The results indicated that males most often report the coping response of ‘logical analysis’ and females report the coping response of ‘cognitive
avoidance’ most often. The investigators implied that the mental health programs, led by behavioral health nurses, could teach a variety of coping strategies to rural adolescents. \[79\]

“Evidence-based Assessment of Coping and Stress in Pediatric Psychology” was conducted by Ronald L. Blount, Laura E. Simons, Katie A. Devine, Tiina Jaaniste, et.al (2008), with an objective to review selected measures of stress and coping in pediatric populations. Stress and coping were presented within a risk and resiliency framework. The Society of Pediatric Psychology (SPP) surveyed the membership to identify the most frequently used assessment instruments. Twelve measures of coping and three measures of stress were reviewed. These instruments were evaluated using the Stress and Coping workgroup's modification of the criteria developed by the SPP Assessment Task Force (SPP-ATF). Results indicated that one of the three measures of stress and five of the 12 measures of coping were Well-established measures that broaden understanding. Additionally, one of the coping measures was categorized as a Well-established measure that guides treatment. Merits of the individual measures were discussed. In their conclusion they have recommended for future research, included suggestions for the construction and use of measures. \[80\]

A study conducted by Chan CK, So W K, and Fong DY (2009) examined “Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice”. Two hundred five nursing students completed a self-administrative survey including demographics, Perceived Stress Scale, and Coping Behavior Inventory. Results showed that students perceived a moderate level of stress (\(M = 2.10, \ SD =0.44\)). The most common stressor was lack of professional knowledge and skills. Among the four types of coping strategies i.e. transference, stay optimistic, problem solving, and avoidance, ‘transference’ was the most frequently used strategy. Furthermore, senior students who perceived a higher level of stress from taking care of patients were more likely to choose ‘problem-solving’ strategies. Senior students who had no religious belief and perceived a higher level of stress from teachers and nursing staff were more likely to use ‘avoidance’ strategies.

The results provided valuable information for clinical educators in identifying students' needs, facilitating their learning in the clinical setting, and developing effective interventions to reduce stress. \[81\]
Chen, Chung-Kuang, Lin, Cecilia-Wang, Shu-Hui, Hou, Tung-Hsu (2009), conducted “A study of job, stress coping strategies, and job satisfaction for nurses working in middle-level hospital operating rooms”. The purpose of this study was to determine the stressors, the stress coping strategies, and the job satisfaction of nursing staff who worked in the OR and to evaluate influence of demographic characteristics on job stress, stress coping strategies, and job satisfaction. A cross-sectional research design was used to collect data. Participants included 121 nurses with more than 6 months of work experience at seven hospitals in Yunlin and Chiayi counties. Data was collected from March through May 2008. One hundred twelve questionnaires were returned, giving a response rate of 92.56%. The questionnaire included four parts designed to gather data on demographics and work-related information, job stress, stress coping strategies, and job satisfaction.

Major findings of this study were as follows: (a) stress level and frequency perception of OR nurses were significantly related to the type of hospital; (b) the most intense stressor perceived by nurses was patient safety; (c) the stressor most frequently perceived by OR nurses was administrative feedback; (d) although all job stressors were positively related to ‘destructive’ stress coping strategies, professional status, patient safety, and OR environment were also positively related to constructive stress coping strategies; (e) factors including work rewards, OR environment, and administrative management of job satisfaction were inversely related to ‘destructive’ stress coping strategies; and (f) factors including work rewards, OR environment, and administrative management of job satisfaction were inversely related to all job stressors.

Major suggestions of this study include the following: (a) hospitals should ensure set standard operating procedures for the OR, strengthen the designed-in security of the OR working environment, and provide adequate safety protection equipment to safeguard OR staff and patients; (b) the OR department should increase the quantity and the quality of stress relief courses; (c) the OR department should improve the OR environment and the administrative management skills; and (d) the OR department should offer self-esteem-related training programs to assist OR nursing staff to adopt ‘constructive’ stress coping strategies. 

Luo Y, Wang H (2009), “Correlation research on psychological health impact on nursing students against stress, coping way and social support”. The purpose of this study
was to explore the factors affecting nurse students' psychological status, and the interactions between mental symptoms and stressful factors, coping style and social support in their early clinical experiences. We assessed clinically 288 college nurse students during their first period by adopting College Seniors Stress Scale (CSSS), Trait Coping Style Questionnaire (TCSQ), Support Questionnaire and Symptom checklist 90 (SCL-90).

The result of this study was that (1) positive correlations were found between stressful events, negative coping style and the total scores of SCL-90 ($r=0.487, 0.462, p<0.01$), while negative correlations related to positive coping style, social support and the total scores of SCL-90 ($r=-0.192, -0.0135, p<0.05$) and (2) stressful factors, negative coping style and social support all have main effects on mental symptoms ($F=34.062, 16.090, 20.898, P<0.01$), and positive coping style has no main effect on mental symptoms ($F=1.853, P>0.05$), but interactions relate to stressful factors and positive coping style ($F=14.579, P<0.01$), as well as negative coping style and social support. In order to improve the psychological condition of nursing students, aside from reducing the stress incidents and avoiding negative coping, it is very necessary to enhance the social support systems and to encourage them to adopt the positive coping styles. [83]

In a study conducted by Zibell .S,Madansky.E., (2009), to study the “Impact of gum chewing on stress levels: online self-perception research study.” Reported that more participants (54% in study 1 [$p < or = 0.10$] and 57% in study 2 [$p < or = 0.05$]) reported that chewing gum reduced their stress level at least a little, compared with those who reported no effect on or an increase in stress. In both studies, mean STAI state scores increased significantly after the abstaining period, indicating an increase in the perceived level of stress, and decreased significantly after the gum-chewing period. Particular stress-specific emotions (e.g., not feeling relaxed, feeling tense) were reported to have significantly increased when participants abstained from chewing gum and to have decreased when they chewed. More severe levels of stress (e.g., being upset or frightened) were not affected by chewing or abstaining from chewing gum. The studies had several potential limitations, including self-reporting, a large initial recruitment, and the need for habit alteration. The findings point to a relationship between decreased stress and gum chewing and suggest chewing gum may help reduce perceived levels of everyday stress. [84]
Day A L, Gillan L, Francis L, Kelloway E K, Natarajan M,(2009) Studies the effect of “Massage therapy in the workplace: reducing employee strain and blood pressure”. The study aimed at understanding the effect of massage on physiological and psychological outcome. The investigators used a field experiment in which 28 participants were randomly assigned into either an experimental (n = 14) or control (n = 14) group. The experimental group received weekly massage treatments at work for a four week period while the control group did not. The findings indicated that both strain and blood pressure were significantly reduced during treatment for the experimental group but not for the control group. Hence it was concluded that this study provided the initial support for the effectiveness of workplace-based massage therapy as part of a comprehensive workplace health strategy. [85]

Overwhelmed family decision makers of chronically critically ill patients must comprehend vital information to make complex treatment decisions that are consistent with patients’ preferences. A Study on “Informational coping style and depressive symptoms in family decision makers”, was conducted by Hichman R.L.,Jr.,Daly B.J,Douglas S.L.,Clochesy J.M.(2010) The study aimed to explore informational coping styles of family decision makers which would yield evidence for tailored communication practices supporting the psychological and informational needs of family decision makers.

The objectives of the study was to describe patterns in the demographic characteristics and informational coping styles of family decision makers; to assess differences in informational satisfaction, role stress, and depressive symptoms between family decision makers classified as monitors and as blunter and to describe the predictive associations between informational coping styles, informational satisfaction, and role stress on depressive symptoms in family decision makers.

Methodology comprised of conducting a secondary data analysis of 210 family decision makers of cognitively impaired patients who required 3 days or more of mechanical ventilation. On enrollment, decision makers completed the abbreviated Miller Behavioral Style Scale to assess informational coping styles, the Critical Care Family Satisfaction Survey's informational subscale to assess informational satisfaction, a single-item measure of role stress, and the Center for Epidemiological Studies Depression scale to assess depressive symptoms.
The results indicated there were no associations which emerged between demographic characteristics and informational coping styles of family decision makers. Monitors had higher depression scores than did blun ters. Both information coping style and informational satisfaction influenced depressive symptoms; however, role stress was the most significant predictor.

The investigators concluded from the study that family decision makers classified as monitors were at higher risk for depression than were those who seem to avoid information. Targeting monitors with additional psychological and informational support may mitigate their psychological impairment.[86]

Chen Y.L and Francis A.J. (2010) studied “Relaxation and imagery for chronic, nonmalignant pain: effects on pain symptoms, quality of life and mental health”. It has been noted that non-pharmacologic treatments are being increasingly adopted as alternative or primary approaches to chronic pain management. The investigators present results of a pilot study examining the effect of a 6-week combined abbreviated progressive relaxation technique (APRT) and guided imagery (GI) intervention for the management of chronic pain (N=19) and, using power analysis, explore recommended sample sizes for future clinical trials. The results indicated consistent and clinically significant trends of improvement on pain (McGill Pain Questionnaire, visual analog scale), mental health (Depression Anxiety and Stress Scale), all domains of quality of life (RAND-36 Health Survey), and sleep for the treatment group only. Owing to inadequate power in this study, these results were not statistically significant. A methodologic concern, along with suggestions for an improved intervention protocol, was discussed. It was concluded that there was a strong preliminary evidence for the efficacy of APRT and GI as an adjunct to conventional treatment options for chronic pain.[87]

Decentering has been proposed as a potential mechanism of mindfulness-based interventions but has received limited empirical examination to date in experimental studies comparing mindfulness meditation to active comparison conditions. In a study conducted by Feldman G,Greeson J,and Senville J,(2010) on “Differential effects of mindful breathing, progressive muscle relaxation,and loving-kindness meditation on decentering and negative reactions to repetitive thoughts”. The study, the investigators compared the immediate effects of mindful breathing (MB) to two alternative stress-management techniques: progressive
muscle relaxation (PMR) and loving-kindness meditation (LKM) to test whether decentering is unique to mindfulness meditation or common across approaches. Novice meditators (190 female undergraduates) were randomly assigned to complete one of three 15-min stress-management exercises (MB, PMR, or LKM) presented by audio recording. Immediately after the exercise, participants completed measures of decentering, frequency of repetitive thoughts during the exercise, and degree of negative reaction to thoughts.

As predicted, participants in the MB condition reported greater decentering relative to the other two conditions. The association between frequency of repetitive thought and negative reactions to thoughts was relatively weaker in the MB condition than in the PMR and LKM conditions, in which these two variables were strongly and positively correlated. Consistent with the construct of decentering, the relative independence between these two variables in the MB condition suggests that mindful breathing may help to reduce reactivity to repetitive thoughts. The results helped to provide further evidence of decentering as a potential mechanism that distinguishes mindfulness practice from other credible stress-management approaches.[88]

In yet another study conducted by Kravits K, McAllister-Black R, Grant M, Kirk C, (2010) on “Self care strategies for nurses; A psycho-educational intervention for stress reduction and the prevention of burn out”. The purpose of this project was to develop and evaluate a psycho-educational program that assists nurses to develop stress management plans. Discussion of nursing-specific risk factors, practice with relaxation techniques, and exploration via art are used as interventions. Quantitative and qualitative measures of stress and burnout were conducted pre- and post course using the Maslach Burnout Inventory, Draw-a-Person-in-the-Rain Art Assessment, and wellness plans. Descriptive statistics was used, and preliminary analysis indicates that the course was useful in impacting levels of emotional exhaustion. There were opportunities for evolving the program so that more enduring change in self-care was generated.[89]

Flaxman P E, and Bond F W, (2010) in a comparative interventional study, on “A randomized worksite comparison of acceptance and commitment therapy and stress inoculation training”. Studied 107 working individuals with above average levels of distress, who were randomly assigned to one of three conditions: acceptance and commitment therapy (ACT; n = 37); stress inoculation training (SIT; n = 37); or a waitlist control group (n = 33).
The interventions were delivered to small groups in the workplace via two half-day training sessions. ACT and SIT were found to be equally effective in reducing psychological distress across a three month assessment period. Mediation analysis indicated that the beneficial impact of ACT on mental health resulted from an increase in psychological flexibility rather than from a change in dysfunctional cognitive content. Contrary to hypothesis, a reduction in dysfunctional cognitions did not mediate change in the SIT condition. Results suggest that the worksite may offer a useful, yet underutilized, arena for testing cognitive-behavioural theories of change.\[90\]

Chiauzzi E, Pujol L A, Wood M, Bond K, Black R, Yiu E, Zacharoff K, (2010) studied ‘Pain Action-back pain: a self-management website for people with chronic back pain. The objective was to determine whether an interactive self-management Website for people with chronic back pain would significantly improve emotional management, coping, self-efficacy to manage pain, pain levels, and physical functioning compared with standard text-based materials. The study utilized a pretest-posttest randomized controlled design comparing Website (pain ACTION-Back Pain) and control (text-based material) conditions at baseline and at 1, 3, and 6-month follow-ups.

Participants included two hundred and nine people with chronic back pain, who were recruited through dissemination of study information online and at a pain treatment clinic. The 6-month follow-up rates for the Website and control groups were 73% and 84%, respectively. Measures were based on the recommendations of the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials and included measures of pain intensity, physical functioning, emotional functioning, coping, self-efficacy, fear-avoidance, perceived improvement with treatment, self-efficacy, and catastrophizing.

The results of the study pointed out that as compared with controls, pain ACTION-Back Pain participants reported significantly: 1) lower stress; 2) increased coping self-statements; and 3) greater use of social support. Comparisons between groups suggested clinically significant differences in current pain intensity, depression, anxiety, stress, and global ratings of improvement. Among participants recruited online, those using the Website reported significantly: 1) lower "worst" pain; 2) lower "average" pain; and 3) increased coping self-statements, compared with controls. Participants recruited through the pain clinic evidenced no such differences.
The investigators concluded that an online self-management program for people with chronic back pain can lead to improvements in stress, coping, and social support, and produce clinically significant differences in pain, depression, anxiety, and global rates of improvement.\[91\]

Corolyn Garcia (2010) investigated, “Conceptualization and Measurement of Coping during adolescence: A review of the literature”. The purpose of this review was to examine the conceptualization and measurement of coping in adolescent research.

A review of the literature published and abstracted in four scientific databases was undertaken between July 2008 and June 2009 with the following key words: adolescent(s), cope/coping, stress (ors), and adaptation/psychological. A total of 367 articles were initially identified, and review of published abstracts yielded 104 empirical articles to retrieve and examine more closely for inclusion. Criteria for inclusion in the review were that the study (a) measured coping, (b) presented original data, (c) primarily targeted adolescent participants, (d) was reported in English, and (e) was published between 1998 and June 2009. Fifty-nine subsequent articles were organized using a matrix approach that facilitated cross-study comparisons of purpose, sample, and dependent variables.

Findings indicated that fewer than half of the studies reviewed included a specific statement defining coping. Instead, many authors described coping in the context of stress response by identifying particular types or ways of coping or naming specific coping strategies used. The theoretical frameworks guiding examination of coping varied across studies. A range of measures, congruent with adolescent developmental processes, were used to assess adolescent coping. A wide range of stress-related risks or conditions were examined, including psychological stressors such as eating disorders, suicidal ideation, and depression; physical stressors such as chronic illness, HIV infection, sports participation, violence, or sexual abuse; familial stressors such as domestic violence or inter parental conflict; social stressors such as romantic relationships or difficulties in settings such as school, prison, or a homeless shelter; and societal stressors such as discrimination.

They concluded that coping is an important construct in understanding how adolescents react to the extensive stressors and adjustments they experience. Coping is a
complex construct yet worthy of examination because it can be a critical point of intervention in the health trajectory of adolescents and young people. Research is needed to advance the conceptualization and measurement of adolescent coping such that interpretation of findings across studies is enhanced. In addition, that future research, including interventions targeting coping, could work synergistically to advance the science and adolescent well-being.

Clinical relevance brought out by the study was that Nursing and other healthcare providers working with adolescents understand the need for interventions that promote use of healthy coping strategies and minimize unhealthy coping. The findings from this study demonstrated the state of coping conceptualization and measurement in adolescent research and indicate a need for research that would advance the science and improve the usefulness of adolescent coping data. [92]

Cheryl L. Woods-Giscombe and Angela R. Black (2010), “Mind-Body Interventions to Reduce Risk for Health Disparities Related to Stress and Strength Among African American Women: The Potential of Mindfulness-Based Stress Reduction, Loving-Kindness, and the NTU Therapeutic Framework”. In this article, the authors examined the potential role of mind-body interventions for preventing or reducing health disparities in specific group-African American women. The authors first discuss how health disparities affected this group, including empirical evidence regarding the influence of bio-psychosocial processes (e.g., psychological stress and social context) on disparate health outcomes. They also detail how African American women's unique stress experiences as a result of distinct sociohistorical and cultural experiences related to race and gender potentially widen exposure to stressors and influence stress responses and coping behaviors. Using two independent, but related, frameworks (Superwoman Schema [SWS] and the Strong Black Woman Script [SBW-S]), they discuss how, for African American women, stress is affected by “strength” (vis-à-vis resilience, fortitude, and self-sufficiency) and the emergent health-compromising behaviors related to strength (e.g., emotional suppression, extraordinary care giving, and self-care postponement). The authors then describe the potential utility of three mind-body interventions, mindfulness-based stress reduction (MBSR), loving-kindness meditation (LKM), and NTU psychotherapy for specifically targeting the stress-, strength-, and contextually related factors that are thought to influence disparate outcomes for African American women.
Self-awareness, self-care, inter- and intrapersonal restorative healing and a redefinition of inner strength may manifest through developing a mindfulness practice to decrease stress-related responses; using LKM to cultivate compassion and forgiveness for self and others; and the balance of independence and interdependence as a grounding NTU principle for redefining strength. The authors conclude with a discussion of potential benefits for integrating key aspects of the interventions with recommendations for future research.\[93\\]

In another study conducted by the British College of Osteopathic Medicine (BCOM) reported that Britain is facing a stress epidemic as more than 77% of people surveyed by BCOM claim that the current risk of economic uncertainty has increased theirs or their partner's stress levels. A staggering 79% of those same respondents claimed to have lost their job or become aware that they are at risk of losing it within the past 3-6 months, even though, when pushed, only 29% of those respondents could say with any certainty that they or their partner had already lost their job or that they were liable to lose it, highlighting the gap between actual reality and anticipation of what could happen. Asked whether the media portrayal of the economic situation was creating more stress for them almost 79% claimed that it was. In addition, 72% said that the stress experienced by themselves or their partner was also manifesting itself physically. Asked for the way in which their stress was presenting itself the majority (45%) said they felt depressed, followed by 20% citing insomnia and 9% with 'chronic pain' such as back pain and Repetitive strain injury (RSI). Stress-induced headaches and migraine were cited by 8%, and 6% with psoriasis or eczema.

When asked how significant an impact the stress was having on close relationships with family friends, 14% said it was 'very significant', followed by 44% claiming it was 'fairly significant'. However, when asked what steps they were taking in order to combat the stress 55% claimed to be focused more on exercise and healthy diet, followed by 34% who simply said they were 'doing nothing'; 13% said they were using prescribed medication, compared with almost 7% on alternative medication. In terms of physical therapies, massage fared well with almost 13% claiming to use it to manage, and 2% using osteopathy specifically. When asked what would encourage them to take up a physical therapy to treat their stress 57% said the cost, 44% said better information, 33% said easier access to facilities and 22% said more widely publicized scientific results.\[94\\]
2.13 Studies related to use of different coping strategies to deal with stress.

Puskar K, Lamb J (1991), “Life events, problems, stresses and coping methods of adolescents”. The purpose of this pilot study was to explore the life events, problems, stressful situations, and coping methods used by adolescents. A sample of 69 volunteer adolescents age 16-18 was obtained from a rural western Pennsylvania high school. The following instruments were administered: The Life Event Scale, senior high version (Coddington, 1972); Mooney Problem Checklist (1951); Stress Questionnaire (Lazarus & Folkman, 1984); and the Ways of Coping Questionnaire (Folkman & Lazarus, 1988). Descriptive statistics revealed the most frequent life event listed was breaking up with a boyfriend/girlfriend; most frequent problems were related to adjustment to school; and most common stress situations related to family. Coping methods were delineated with a few gender differences noted. The most common method of coping was self-control. The adolescent population has many issues to deal with during a time of psychosocial and physiological change and vulnerability. The psychiatric-mental health nurse specialist could be a valuable asset to help school systems teach health promotion and prevention concepts about mental health, identify students at high risk for mental health disorders, and offer counseling and guidance for students and consultative services for both teachers and parents. [95]

Groer MW, Thomas SP, Shoffner D (1992), studied “Adolescent stress and coping: a longitudinal study”. The purpose of this longitudinal panel study was to investigate developmental and gender influences on stress and coping in adolescents attending a suburban high school in Tennessee. Data were collected from the same 167 subjects during the freshman year and again during the senior year. Life events stress was measured through the Adolescent Life Change Event Scale (ALCES) and ways of coping were categorized from data gathered from an open-ended questionnaire. Girls reported more life events stress than boys. Life events stress was greater at senior testing for both girls and boys, but girls' scores increased more. The "gender intensification" phenomenon may account for the greater disparity in types of stress reported by boys and girls as seniors. Girls generally reported more life events associated with interpersonal and family relationships. Both girls and boys reported coping with stress mostly through active distraction techniques such as exercise. However, girls' use of active distraction decreased over time, while passive distraction increased. Self-destructive and aggressive coping behaviors increased for boys. There were
no relationships between amounts or types of life events stress and ways of coping for subjects at either time.[96]

Puskar KR, Lamb J M, Bartolovie M (1993), conducted a study on “Examining the common stressors and coping methods of rural adolescents”. The major objective of this study was to explore and examine common stressors and coping strategies of rural adolescents. Coping was defined as a cognitive and transactional process between a person and the person's environment. A survey of 222 normal adolescents attending a rural southwestern Pennsylvania high school reported experiencing stressful events related to school, family, friendship, health, and transportation. The coping strategy reported as being the most commonly used was optimistic. However, the coping strategy reported to be most effective in dealing with stressful events was support. The results of this study contribute to the limited information on adolescent coping in rural areas. This study should help health care providers further their understanding of this vulnerable population. Clinicians can enhance the effective coping and overall health of the rural adolescent by screening for and discussing coping strategies.[97]

Naquin MR, and Gilbert GG (1996) Studied “College student’s smoking behaviour, perceived stress and coping style”. The purpose of this study was to examine college students' smoking behavior as well as their current smoking status and its effects on perceived levels of stress and coping styles. Students from four universities completed the Perceived Stress Scale, the Coping Inventory for Stressful Situations and a smoking questionnaire. Of the 1330 students who participated in the study, 19 percent were current smokers. On the Perceived Stress Scale, current smokers' mean score was significantly higher than that of the students who had never smoked. In addition, the current smokers' mean score for ‘Emotion-oriented’ Coping was significantly higher than that of the students who had never smoked or formerly smoked. The former smokers' mean score on ‘Avoidance-oriented’ Coping was significantly lower than the never and the current smokers. Ten percent of the students smoked their first cigarette after high school, while 11 percent started to smoke on a daily basis after high school. Based on the findings, programs that focus on smoking prevention and cessation for college students was recommended.[98]

A similar study was conducted “Adolescents becoming smokers: the role of stress and coping methods,(2000)by Siqueira L, Diab M, Bodian C, Rolnitzky L. The purpose of
this study was to examine the relationship of stress and coping methods to smoking status (never-smoker, experimenter, and current smoker) among an inner-city, clinic-based, adolescent population, as well as to examine the prevalence of smoking and related behaviors in this population using a cross-sectional survey. The samples were administered a self-administered questionnaire that included the Perceived Stress Scale (PSS), negative life events (LES), and a coping measures scale was used for 954 clinic patients aged 12-21 years. Demographic characteristics were compared using analysis of variance and Chi-square test. The Kruskal-Wallis analysis of variance was used to compare the values of each scale among smoking-status groups. Logistic regression analysis was used to determine the relationship of smoking status to PSS, LES, and coping methods. The results indicated an overall prevalence of smoking in this population was 26%. The age of onset was 13.3 years for current smokers vs. 15.5 for experimenters (p<.01). Perceived stress and negative life events, adjusting for demographic variables, were highest among current smokers, less so in experimenters, and lowest in the never-smokers (p <.001). Stepwise logistic regression analysis showed that negative life events, perceived stress, greater use of the negative coping methods of anger and helplessness, and less use of the positive coping methods of parental support and cognitive coping were significantly and independently related to smoking status.

It was concluded that one in four inner-city youth report smoking. Higher levels of stress and greater use of negative coping methods was found in current smokers than in experimenters and never-smokers. [99]

Connor-Smith JK, Compas BE, Wadsworth ME, Thomsen AH, Saltzman H (2000) studied “Responses to stress in adolescence: measurement of coping and involuntary stress responses”. They developed a measure of coping and an involuntary stress response in adolescence also was described. The Responses to Stress Questionnaire (RSQ) reflected a conceptual model that included volitional coping efforts and involuntary responses to specific stressful events or specified domains of stress. The psychometric characteristic of the RSQ was examined across 4 domains of stress in 3 samples of adolescents and parent reports were obtained in 2 samples. The factor structure of the RSQ was tested and replicated with an adequate degree of fit using confirmatory factor analysis across 3 stressors in 2 samples. Internal consistency and retest reliability for the 5 factors was adequate to excellent. Concurrent validity was established through correlations with another measure of coping, heart rate reactivity, and correlations of self- and parent-reports. Significant correlations with
both adolescents' and parents' reports of internalizing and externalizing symptoms was consistent with hypotheses. [100]

Murphy DA, Moscicki AB, Vermund SH, Muenz LR, (2000) studied “Psychological distress among HIV (+) adolescents in the REACH study: effects of life stress, social support, and coping. The Adolescent Medicine, HIV/AIDS Research Network”. The purpose was to investigate the effects of life events, social support, and coping on anxiety and depression among human immunodeficiency virus (HIV)-infected adolescents. It was hypothesized that higher levels of stressful events would be associated with higher levels of anxiety and depression, but that this association would be moderated by satisfaction with social support and by adaptive coping. Study sample comprised of HIV-infected adolescents from 16 locations in 13 U.S. cities (N = 230, median age 16.09 years, standard deviation 1.2, range 13-19; 77% females) were recruited into the Reaching for Excellence in Adolescent Care and Health (REACH) project. REACH is the first large-scale disease progression study of HIV (+) adolescents infected through sexual behavior or injection drug use. The adolescent assessment was conducted by audio-computer assisted self-interview. A least squares regression was used to test hypotheses.

The results indicated that a life event with high impact was associated with higher levels of depression and anxiety. Frequently reported events included: being prescribed medications (74%), family financial problems (61%), and parental alcohol abuse (20%). Contrary to expectations, the buffering hypotheses of social support and adaptive coping were not supported. Satisfaction with social support and adaptive coping methods were both associated directly with lower levels of depression, but no association was detected between these two measures and anxiety.

It was concluded that although life event distress was directly associated with psychological distress, neither social support nor adaptive coping seemed to moderate this association. However, both satisfaction with support and adaptive coping were associated directly with depression in HIV-infected adolescents. [101]

Another study conducted by Lewis CL, Brown SC (2002), “Coping strategies of female adolescents with HIV/AIDS. This descriptive study was designed to assess coping strategies of female adolescents infected with Human Immunodeficiency Virus (HIV) or the
Acquired Immunodeficiency Syndrome (AIDS) (N = 30). Results from the Adolescent Coping Orientation for Problem Experiences Questionnaire (ACOPES) revealed that the most often utilized coping strategies identified by the adolescents were: listening to music, thinking about good things, making your own decisions, being close to someone you care about, sleeping, and trying on ones own to deal with problems, eating, watching television, daydreaming and praying. The adolescents also reported low utilization of certain maladaptive coping strategies such as alcohol and illicit drug usage. Chronic illnesses such as HIV, cancer and diabetes make it difficult for adolescents because of the unique developmental tasks needed to understand the psychological and social impact caused by chronic illnesses. The research presented illustrates the complexities of stress and the effects of coping on psychological well-being, health behavior, and health. This research explores specific coping strategies used by HIV-infected adolescents. Findings provided baseline data of the various coping strategies of female adolescents infected with HIV in an outpatient setting. These findings may serve as a foundation for future studies on coping strategies among females infected with HIV. Furthermore, the findings would also be useful in developing an outpatient behavior-modification/coping effectiveness training program that is both gender-specific and culturally appropriate.\[^{102}\]

Garcia-Grau E, Fuste A, Miro A, Saldana C, Bados A,(2002)“ Coping style and disturbed eating attitudes in adolescent girls”. The main goal of this work was to explore the relationship between coping styles and predisposition to eating disorders in a sample of adolescent girls. The study sample comprised 186 females (mean age 15.91 years) and the questionnaires used was the Eating Disorders Inventory-2 (EDI-2) and the Adolescent Coping Scale (ACS).The regression analyses indicated that the coping strategy most closely linked to the predisposition to develop an eating disorder was intropunitive avoidance, which explained the following percentage of variance: 29% of the total EDI-2 score, 23% of the personal factor, 28% of the social factor, and 4% of the bodily factor. On the other hand, the scale of intropunitive avoidance dimension with the most explanatory power was the tension reduction, which reflects emotional reactions to problems such as crying, shouting, or taking drugs. A cultural hypothesis was presented in an attempt to account for the low percentage of variance of bodily factor explained by intropunitive avoidance and emphasis is placed on the need for prevention programs for adolescents, particularly those at risk.\[^{103}\]
In study conducted by Steiner H, Erickson SJ, Hernandez NL, Pavelski R,(2002), on “Coping styles as correlates of health in high school students”. The purpose was to study a large, population-based sample of adolescents with the goal of expanding their knowledge base about the relationship of coping and health outcomes. They examined 1769 nonclinical, high school students of which 48% were girls, with mean age 16 years, predominantly white, using one class period to establish a link between coping styles, health problems, and health risk behaviors. Instrument employed included the Coping Response Inventory - Youth form (abbreviated version) and the Juvenile Wellness and Health Survey. ANCOVA was used to test the main effects of coping typology, gender, and their interaction on the five health domains.

The findings were consistent with previous research and showed that approach coping correlated negatively with indicators of health problems and health risk behaviors, while avoidance coping correlated positively with these domains. The presence of both forms of coping mitigated the negative effects of avoidance coping. It can be concluded that as early as mid-adolescence, habitual coping styles appear to be associated with significant health outcomes. In screening nonclinical samples the clinician can rely on habitual coping styles as indicators of potential health problems. [104]

“Life stressors, social resources, and coping skills in youth: applications to adolescents with chronic disorders”, was studies by Moos R H.(2002) .After setting out a conceptual framework that focuses on how personal and social resources aid adolescents in managing acute and chronic stressors, Moos described methods by which to assess adolescents' family environments and specific life stressors and social resources, and the approach and avoidance coping responses adolescents use to manage life stressors. Then reviewed some research that employs these concepts and methods to focus on the families and life contexts, and coping skills, of youth with chronic medical disorders, including juvenile rheumatic disease (JRD). Moos concluded by drawing implications for assessment and intervention and describing some fruitful areas for future research, such as examining the reciprocal linkages between parental and youth behavior, how adolescents' personal characteristics shape their life context, and how life crises and transitions enhance adolescents' development and maturation.[105]
Initial clinical practice is stressful. Nursing students entering clinical practice for the first time in a five-year associate degree program in Taiwan are young and have questionable coping skills, all of which can affect their own health. Hence Sheu S, Lin HS, Hwang, (2002), studied the “Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors”, this study examined the following:

1. The degree of stress perceived and types of stressful events;
2. The physio-psycho-social status of nursing students during the practice;
3. The coping behaviors of these students; and
4. The effect of different coping behaviors on their physio-psycho-social health.

The subjects selected were 561 nursing students who had completed their initial clinical practice at the largest nursing school in Taiwan. To collect data three measuring tools, were adopted Perceived Stress Scale (PSS), Physio-Psycho-Social Response Scale (PPSRS), and Coping Behavior Inventory (CBI). Results highlighted that stress for these students arose mainly from the lack of professional knowledge and skills as well as caring of patients. The most common response to stress was social behavioral symptoms. Staying optimistic was the main positive effect, which reduced the occurrence of physio-psycho-social symptoms and improved physio-psycho-social status. Finally, problem-solving behavior was also the main positive effect, while main negative effect was from avoidance, which deteriorated physio-psycho-social status. An important implication from this study was for nursing educators to help their students to overcome stress during clinical practice. [106]

Meijer SA, Sinnema G, Bijstra JO, Mellenbergh GJ, Wolters WH,(2002) studied “Coping styles and locus of control as predictors for psychological adjustment of adolescents with a chronic illness”. This study examined the way coping styles and locus of control contributes to the prediction of psychosocial adjustment in adolescents with a chronic illness. Psychosocial adjustment of 84 adolescents aged 13-16 years with a chronic illness was assessed with measures of social adjustment, global self-esteem and behavior problems. A linear regression was performed with demographic factors (age and gender) and stress-processing factors (coping style and locus of control) as predictor variables. Results indicated that coping styles were related to most aspects of social adjustment. The coping styles 'seeking social support' and 'confrontation' were important predictors for positive social adjustment; the coping style 'depression' was a predictor for poor adjustment, viz, low social
self-esteem and high social anxiety. Avoidance and locus of control were not strongly associated with psychosocial adjustment. Clinical implications of the findings of the study were discussed in terms of preventive interventions for adolescents with a chronic illness.\[^{107}\]

In another study conducted by Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, Khan S(2004), on “Students, stress and coping strategies: a case of Pakistani medical school” with the objective to assess the perception of stress amongst medical students and their coping strategies. Methodology/study design used was a cross sectional study using a semi-structured self administered questionnaire which was implemented over four weeks, using a small sample of students of all categories and classes of a medical college.

The study results indicated that of the total 264 students out of 300 (88%) filled in the questionnaire. Inability to cope, helplessness, increased psychological pressure, mental tension and too much workload are 'stress factors' for students. A considerable majority (> 90%) think that they have been stressed at one time or another. Ninety-four per cent of males have experienced stress. The senior students of the fourth and final year feel more stressed (95% and 98% respectively). Low moods, inability to concentrate, loss of temper were most common symptoms. Females reported more symptoms. Academics and exams were the most powerful stressors. Sports, Low moods, inability to concentrate, loss of temper were most common symptoms Finding highlighted that stress can affect the academic performance. If needed, students prefer to talk to a peer. They demanded more recreational activities on campus, revised schedule of academics and exams, better counseling facilities and improvement in student-teacher relationship.

It was concluded that the prevalence of perceived stress seems to be high among medical students, which tends to affect not only their academic performances but also all aspects of health. Review of academics and exam schedules, more leisure time activities, better interaction with the faculty and proper guidance, advisory services and peer counseling at the campus could do a lot to reduce their stress.\[^{108}\]

An important issue for the nursing education system in Taiwan was to reinforce nursing education to enhance competence levels for entry to nursing specialties. Consequently, to meet the prospective demands of technical manpower, not only do nursing students in college and vocational schools pursue further studies, but they also take
competitive entrance exams. Wang HF, Yeh MC ;( 2005), studied “Stress, coping and psychological health of vocational high school nursing students associated with a competitive entrance exam”. Using a descriptive cross-sectional design, the study examined the following among nursing students in vocational high schools:

1) Perception and sources of entrance exam stress and use of coping behaviors;
2) The effect of difference in entrance exam stress levels on coping behaviors used, and
3) Measurement of coping function to determine which coping behavior works best for buffering the impact of stress on psychological health during a preparatory stage of college and University entrance exam. 441 third-year nursing students of vocational high schools in Northern Taiwan were recruited by convenience sampling to participate in the study. Three measurements were adopted: Stress perceived scale, Coping behavior inventory, and a Chinese health questionnaire.

Results showed that the five main stressors of entrance exam stress, in descending order, were: taking tests, the student's own aspirations, learning tasks, teacher's aspirations and parent's aspirations. Students generally used problem-focused coping strategies including optimistic action and social support to deal with the entrance exam stress, but use of emotion-focused coping strategies including avoidance and emotional disturbance was significantly increased as perceived level of stress rose. Two-way analyses of variance (2-way ANOVA) revealed that problem-focused coping had a positive main effect of alleviating psychological distress. A significant interaction was observed between stress perceived and problem-focused coping used for psychological health. Further examination of the interaction effect showed that problem-focused coping behaviors were potentially more adaptive in relation to psychological health at the lower and moderate stress levels (25 - 75%T) than that at the extreme stress level (> 75%T). Conversely, emotion-focused coping had a negative main effect or impairing psychological health. No interaction effect was found between stress perceived and emotion-focused coping used, suggesting that the relationship between emotion-focused coping and psychological distress was consistent across various stress levels. [109]

Sawyer MG, Carbone JA , Whitham JN, Roberton DM, et.al. (2005), “The relationship between health-related quality of life, pain, and coping strategies in juvenile arthritis--a one year prospective study”. The aim of this 12-month prospective study was to compare reports describing the health-related quality of life (HRQL) of children with
Juvenile idiopathic arthritis (JIA) obtained from parents and children, to investigate the extent to which the children's HRQL changed over a 12-month period, and to describe the relationship between children's HRQL, and their experience of pain and use of pain coping strategies. Fifty-four children aged 8-18 years with JIA and their parents completed standard questionnaires assessing children's HRQL, pain intensity, and pain coping strategies at baseline, 6 months, and 12 months. In general, children reported that their HRQL was better than was reported by parents. Both informants described children's HRQL as being very stable over the 12 months of the study. Consistent with the Bio-behavioural Model of Pain, there was a significant negative relationship between children's HRQL and their experience of pain. However, there was little evidence that pain coping strategies mediated the relationship between children's experience of pain and their HRQL. [110]

Zanini DS, Forns M, & Kircher T (2005) Studied “Coping responses and problem appraisal in Spanish adolescents”. This study used Moos's Coping Responses Inventory (Youth Form, 1993) to examine coping behavior in Spanish adolescents. 1362 adolescents were recruited from the metropolitan area of Barcelona, Spain. All subjects were in high school and ages 12 to 16 years. The socio-economic status was primarily middle class. Adolescents' coping behaviors were examined by sex and age, and the relationship between problem appraisal and choice of coping strategy was analyzed. Girls used more approach, avoidance, and behavioral responses than boys, especially Logical Analysis, Seeking Guidance and Support, and Emotional Discharge strategies. At older ages, Logical Analysis and Emotional Discharge became more frequent in girls and Cognitive Avoidance less frequent in boys. The results also suggest that problem appraisal has only a limited effect on the selection of coping strategies and that only few strategies are related to the problems' outcomes. [111]

Yi JP, Smith RE, Vitaliano PP (2005) Studied “Stress-resilience, illness and coping: a person-focused investigation of young women athletes”, Coping correlates of resilience, defined as resistance to illness in the face of exposure to high numbers of negative life events, were studied in a sample of 404 young women high school athletes. Negative life events and coping strategies were assessed preseason, and daily illness data were collected during the course of the season. Among athletes with high levels of exposure to negative life events, resilient (no illness time loss) and non resilient (upper third of time loss distribution) groups were compared on 6 scales of the Ways of Coping Checklist. Coping profiles of the groups
differed significantly, with resilient athletes favoring Problem-focused Coping and Seeking Social Support, and non resilient athletes reporting greater use of Avoidance and Blaming Others. Correlations among Problem-focused Coping, Seeking Social Support, and Minimize Threat were higher in the resilient group. Results suggested that certain coping strategies may contribute to illness-resistance in the face of high life stress. [112]

Sung KM, Puskar KR, and Sereika S(2006), studied “Psychosocial factors and coping strategies of adolescents in a rural Pennsylvania high school”, Their objective was: To evaluate the coping levels of rural adolescents and gender differences of coping strategies and psychosocial factors. To identify the relationships of coping strategies with psychosocial factors of rural adolescents.

A cross-sectional study design was used, Samples were selected using convenience sampling; samples were of 72 students attending a rural high school in southwestern Pennsylvania. The study subjects completed the Coping Response Inventory-Youth (CRI-Y), the State-Trait Anger Expression Inventory (STAXI), the Screen for Child Anxiety Related Emotional Disorder (SCARED), the Reynolds Adolescent Depression Scale (RADS), and the Rosenberg Self-Esteem Scale (RSES).

The results brought out that a significant gender differences existed for psychosocial factors of depression, self-esteem, and anxiety. Several significant relationships were observed between coping strategies and psychosocial factors of rural adolescents. Additionally, using content analysis, seven categories were determined based on the content of the open-ended question on the CRI: familial factors, peer relationships, etc. Therefore it was concluded that these rural adolescents endorsed higher levels of avoidance coping than normative samples. Rural adolescents reported many problems needing proper coping skills in their everyday lives. This study provided information to public health professionals working with rural adolescents so that they could be helped to attain more effective coping strategies. [113]

Brown SL, Ireland CA, (2006), studied “Coping style and distress in newly incarcerated male adolescents”. The purpose of the study was to research relations between coping style and well-being in adolescent prisoners; previous researches suggested that the stress of incarceration may be moderated by coping style in adult prisoners. This research
examined links between coping style and distress in 133 male adolescent prisoners on two occasions over a six-week period shortly after the commencement of their imprisonment. The results indicated that anxiety and depression both declined over the period, with T1-T2 depression reduction negatively associated with T1 emotion-based coping and positively associated with T1 detachment. Emotion-coping declined over six weeks, whereas detachment coping increased. These changes were associated with improved depression and anxiety scores.

It may be concluded that detachment and low emotional expression may assist incarcerated adolescents to adapt more positively to the initial period of imprisonment, and prisoners may adopt more effective coping styles over time. These findings were explained in terms of adaptation to stressors specific to the prison environment.\[114\]

According to Pryjmachuk S and Richards DA,(2007) “Mental health nursing students differ from other nursing students: Some observations from a study on stress and coping”. The investigators took up a wider investigation into stress among preregistration nursing students, in the nursing department of a large university in northern England. British nursing is divided into four specialties or 'branches': adult, mental health, children's, and learning disability nursing, and the aim of the study was to explore inter branch differences among the students in terms of the sources of stress they identify, the levels of stress they experience, and the ways in which they cope. A cross-sectional survey of all nursing students in the department's roll (n = 1362), using a range of self-report measures bound together in a 'questionnaire pack', was undertaken. The questionnaire pack contained formal measures of sources of stress (Student Nurse Stress Index), stress (specifically, psychological distress) (General Health Questionnaire) and coping (Coping Inventory for Stressful Situations), as well as a set of questions that enabled data on a range of pertinent variables, including the nursing branch being pursued, to be collected. The findings revealed that mental health nurses were notably different from the other three branches in terms of the quantity and characteristics of the sources of stress they faced, the levels of stress they experienced, and the ways in which they coped. These differences were largely advantageous to the students' well-being and speculations which were made as to whether the concept of 'hardiness'-especially its focus on a sense of being in control - plays a role in explaining the findings.\[115\]

In another study conducted by Nicholls AR, Polman R, Levy AR, Taylor J, Cobley S,(2007) on “Stressors, coping and Coping effectiveness: gender, type of sport, and skill
differences”. The aim of this study was to examine stressors, coping, and coping effectiveness as a function of gender, type of sport, and skill. The sample consisted of 749 undergraduate athletes (455 males, 294 females) aged 18-38 years (mean= 19.8 years). Skill was classified as international/national, county, university, and club standard. Participants completed a stressor and coping concept map (Novak & Gowin, 1984). The results revealed gender, type of sport, and skill differences in relation to stressor frequencies, coping strategy deployment, and coping effectiveness. In contrast to previous research, females used a variety of problem-focused (e.g. planning, communication, technique-orientated coping) strategies more frequently than males. Team sport athletes reported a variety of sport-specific stressors relating to the demands of playing in a team environment. The group of national/international athletes reported using more planning, blocking, and visualization, and also reported that their coping was more effective than that of less-skilled athletes. [116]

In yet another study conducted by Nicholls A R(2007), “Can an athlete be taught to cope more effectively? The experiences of an international-level adolescent golfer during a training program for coping”. The purpose of this descriptive paper was to examine the experiences of an internationally ranked golfer during a training program for coping. A 16-yr.-old male English golfer maintained an audio diary for seven competitive rounds over 21 days. He answered the same five questions after each competitive round concerning his experiences of stress and coping. The training program for coping was based upon the previous research of Nicholls and colleagues with adolescent golfers at the international level. The training program reduced the number of ineffective coping strategies that the participant used. [117]

Callaghan EE (2007) Studied “Achieving balance: a case study examination of an adolescent coping with life –limiting cancer”. A single-case study approach was used to provide an in-depth examination of the special events that take place in an early adolescent's family as the adolescent attempts to adapt to living with life-limiting cancer. Through symptom control, hope, denial, and the achievement of developmental tasks such as peer group identification, independence, and autonomy, the early adolescent was able to demonstrate positive coping and adaptation. In the context of the Calgary Family Systems Model, the adolescent achieved individual system balance, which in turn enabled his family's systems to balance. The health care professional played an integral role in enabling the
adolescent to accomplish his developmental tasks, which translated into facilitating adaptation. [118]

Kaye DK, Ekstrom AM, Johansson A, Bantebya G, Mirembe FM,(2007), “Escaping the triple trap: coping strategies of pregnant adolescent survivors of domestic violence in Mulago hospital, Uganda. The objective of the study was to find out why domestic violence survivors develop adverse outcomes following domestic violence during pregnancy was unclear, but may depend on how survivors cope with the stress of violence. The objective was to describe strategies pregnant adolescents employ in coping with domestic violence. This was a qualitative study involving 16 in-depth interviews with adolescent domestic violence survivors who attended the antenatal clinic in Mulago hospital, Kampala, Uganda, from January to May 2004. Theoretical sampling, necessitated by the emergent theory from sequential data collection and analysis, further provided diversity of experiences from adolescents of different ages, parity, pregnancy duration, and socioeconomic status until saturation was reached. Data were analyzed using grounded theory. The findings brought out that survivors described varied experiences of physical, sexual, and psychological violence. Coping strategies employed was analyzed as: Minimizing damage - decreasing impact and severity of violence, withdrawal - physical or social withdrawal, seeking help and retaliation (fighting back). Coping strategies was influenced by adolescence and pregnancy, and was explained in relation to theories of coping with stress. The investigators concluded that coping strategies adopted by pregnant adolescent survivors range from problem-focused approaches to emotion-focused approaches. Coping strategies were influenced markedly by adolescence and pregnancy. [119]

Jose Maria Augusto Landa, Esther Lopez-Zafr, M. Pilar berrios Martos, Maria del Carmen Aguilar-Luzon,(2008) studied, “The relationship between emotional intelligence, Occupational stress and health in nurses: A questionnaire survey”, Since nurses suffer from stress and health problems owing to the characteristics of their work and their contact with patients and death. Therefore emotions could have an effect on work outcomes; emotional intelligence (EI) could explain the individual differences in dealing with work stress. The objective of this study was to investigate the interrelationships between emotional intelligence, work stress and health. They also examined the impact of socio-demographic variables (e.g. age, gender, length of service,..) on stress and nurses’ health. A survey was
conducted using questionnaire to detect these interrelationships. The study setting was a general public hospital in Spain and the sample size was 180 nurses.

Data was gathered on demographic information, work, stress, health and EI. Gathered data was analysed using descriptive statistics, analyses of variance, mean differences and regression analyses was also computed.

Findings showed a differential effect of the EI components in stress and health. As far as stress was concerned, the results showed that the nurses who score high in clarity and emotional repair, report less stress, whereas those with high scores in attention to emotions experience greater levels of stress. Furthermore, the investigators found a positive relationship between age, length of service and stress, with younger nurses and those with a shorter length of service experiencing less stress. However, EI and health was not related to age or to length of service. Also, it was found that married nurses report better general health. Therefore, it could be concluded that emotional intelligence for nurse’s acts as a protective factor against stress and a facilitative factor for health (especially the Clarity and Repair dimensions). These comments of the investigator could be especially important in training future professionals in these abilities.\[120\]

Extensive research had shown that ethnic health disparities were prevalent and many psychological and social factors influence health disparities. Understanding what factors influence health disparities and how to eliminate health disparities had become a major research objective. The purpose of this study was to examine the impact of coping style, stress, socioeconomic status (SES), and discrimination on health disparities in a large urban multi-ethnic sample. Hence Watson JM, Logan HL, and Tomar SL, (2008) studied “The influence of active coping and perceived stress on health disparities in a multi-ethnic low income sample”. Data from 894 participants were collected via telephone interviews. Independent variables included: coping style, SES, sex, perceived stress, and perceived discrimination. Dependent variables included self-rated general and oral health status. Data analysis included multiple linear regression modeling. The results indicated that Coping style was related to oral health for Blacks (B = .23, p < .05) and for Whites there was a significant interaction (B = -.59, p < .05) between coping style and SES for oral health. For Blacks, active coping was associated with better self-reported health. For Whites, low active coping coupled with low SES was significantly associated with worse oral health. Coping style was not significantly related to general health. Higher perceived stress was a significant correlate
of poorer general health for all ethnoracial groups and poorer oral health for Hispanics and Blacks. SES was directly related to general health for Hispanics ($B = .27$, $p < .05$) and Whites ($B = .23$, $p < .05$) but this relationship was mediated by perceived stress.

It was concluded from the results that perceived stress is a critical component in understanding health outcomes for all ethnoracial groups. While SES related significantly to general health for Whites and Hispanics, this relationship was mediated by perceived stress. Active coping was associated only with oral health.\[^{121}\]

Nicholls AR, Jones CR, Polman RC, Borkoles E, (2009), “Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches”. The purpose of this study was to examine acute sport-related stressors, coping, and emotion among a sample of professional rugby union players during training and matches. Five professional rugby union players maintained diaries for 31 days. The diaries consisted of a stressor checklist and an open-ended stressor response section, an open-ended coping response section, a Likert-type evaluation of coping effectiveness, a best-of-fit emotional response section, and a Likert-type evaluation of emotional intensity. Six out of the 10 stressors reported had a higher mean frequency in training compared with matches. Blocking was the most frequently cited coping strategy on match days, whereas increased concentration was the most frequently cited coping strategy on training days. Coping effectiveness was significantly higher during training compared with matches. Additionally, higher levels of emotional intensity were significantly associated with lower levels of coping effectiveness. Significant individual differences were found for both coping effectiveness and emotional intensity.\[^{122}\]

“The relationships among self-esteem, stress, coping, eating behaviour, and depressive mood in adolescents” studied by Martyn-Nemeth P, Penckofer S, Gulanick M, Velsor-Friedrich B, Bryant FB, (2009). The prevalence of adolescent overweight is significant, almost 25% in some minorities, and often is associated with depressive symptoms. Psychological and psychosocial factors as well as ‘poor coping skills’ have been correlated with unhealthy eating and obesity. The purpose of this study was to examine relationships among self-esteem, stress, social support, and coping; and to test a model of their effects on eating behavior and depressive mood in a sample of 102 high school students (87% minority). Results indicate that (a) stress and low self-esteem were related to ‘avoidant
coping’ and depressive mood, and that (b) low self-esteem and avoidant coping were related to unhealthy eating behavior. Results suggest that teaching adolescent’s skills to reduce stress, build self-esteem, and use more positive approaches to coping may prevent unhealthy eating and subsequent obesity, and lower risk of depressive symptoms [123].

Rao K, (2009), conducted a study on “Recent research in stress, coping and women’s health”, the study was conducted to highlight recent publications in the area of stress and coping, with specific reference to women's physical health status. The finding indicated that the transactional model of stress and coping continues to be the mainstay of research in this area. Several longitudinal studies have demonstrated that stress appraisal and resultant coping responses affect health outcome and health-related quality of life in women. In addition to problem-focused coping, women often use distraction methods, seeking social support and faith or religious coping. Psychological interventions in chronic medical conditions need to move beyond education and incorporate more cognitive behavioral components; at the same time addressing women's specific needs. It was concluded that Coping behaviors in response to the negative threat appraisal of a chronic or severe medical illness serve to reduce psychological distress. However, it was still not clear how they impact at the physiological level. In addition, coping responses, which enhance positive effects and promote health-related quality of life, merit greater attention from researchers? There was a need for more gender comparative research to improve health outcomes in men and women. [124]

Braun-Lewensohn O, Celestin-Westreich S, Celestin LP, et.al.(2009), “Coping style as moderating the relationships between terrorist attacks and well-being outcomes”. This study aimed to explore use of coping strategies among adolescents and their relationships with well being in the context of ongoing terrorism. Furthermore, the aim was to explore to what extent coping styles in addition to exposure variables explain, well being of adolescents facing ongoing terror. During September 2003, after three years of ongoing terror attacks, 913 Israeli adolescents aged 12-18 years, completed the following questionnaires during regular class sessions: Demographics, Achenbach's Youth Self Report; Exposure to Terror and Post Traumatic Stress (PTS) questionnaire; Adolescent Coping Scale (ACS) and Brief Symptoms Inventory. Adolescents employed mainly ‘problem solving strategies’ which mean they have the capacity to cope well in spite of stressful events. ‘Emotional focused coping’ was associated with PTS and mental health problems. Regression analysis of different exposure and coping variables revealed that exposure, appraisal (subjective exposure) and
coping styles explained 26-37% of the variance of different psychological problems. The findings highlighted the importance of appraisal (subjective exposure) and coping strategies, for understanding adolescents' mental health outcomes. Moreover, these findings were relevant to the development of prevention/intervention programs that facilitate youth's cognitive and emotional adjustments to ongoing trauma risks and terror threats.\[125\]

Similarly in Malaysia, Sami Abdo Radman Al-Dubai, Redhwan Ahmed Al-Naggar, Mustafa Ahmed Alshagga and Krishna Gopal Rampal, (2011) studied “Stress and coping strategies of students in a medical faculty in Malaysia”, As Stress may affect students’ health and their academic performance. The coping strategies are specific efforts that individuals employ to manage stress. This study aimed to assess the perception of stress among medical students and their coping strategies. A cross-sectional study was conducted among 376 medical and medical sciences undergraduates in Management and Science University in Malaysia. Stress was assessed by a global rating of stress. Sources of stress were assessed using a 17-item questionnaire. The validated Brief COPE inventory was used to assess coping strategies.

The results indicated that majority of respondents were females (64.4%), aged 21 years or older (63.0%), and were Malaysian (68.9%). Forty-six percent felt stress. The most common stressor was worries of the future (71.0%), followed by financial difficulties (68.6%). Significant predictors of stress were smoking (OR = 2.9, 95% CI 1.3–6.8, P = 0.009), worries of the future (OR = 2.1, 95% CI 1.3–3.4, P = 0.005), self-blame (OR = 1.3, 95% CI 1.1–1.5, P = 0.001), lack of emotional support (OR = 0.8, 95% CI 0.7–0.9, P = 0.017), and lack of acceptance (OR = 0.8, 95% CI 0.6–0.9, P = 0.010). Students used active coping, religious coping reframing, planning, and acceptance to cope with stress. The investigators concluded that stressors reported by the students were mainly financial and academic issues. Students adopted ‘active’ coping strategies rather than ‘avoidance’. Students should receive consultation on how to manage and cope with stress.\[126\]

All the studies review in this section point to one fact that when ever an individual experiences stress they make effort to find alternative measure to cope with it to reduce or prevent its effect on their health and life.

2.14 Stress and Quality of life:

In recent years there has been a growing appreciation of the issues of quality of life and stresses involved medical training as this may affect their learning and academic
performance. However, such studies like “Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal” were lacking in medical schools of Nepal. Therefore, Sreeramareddy CT, Shankar PK, Binu VS, Mukhopadhyay C, Ray B, Menezes R G,(2007), carried out a study to assess the prevalence of “psychological morbidity, sources and severity of stress and coping strategies among medical students of Nepal”, in their integrated problem-stimulated undergraduate medical curriculum. A cross-sectional, questionnaire-based survey was carried out among the undergraduate medical students of Manipal College of Medical Sciences, Pokhara, Nepal during the time period August, 2005 to December, 2006. The psychological morbidity was assessed using General Health Questionnaire. A 24-item questionnaire was used to assess sources of stress and their severity. Coping strategies adopted was assessed using brief COPE inventory.

The results showed that the overall response rate was 75.8% (407 out of 525 students). The overall prevalence of psychological morbidity was 20.9% and was higher among students of basic sciences, Indian nationality and whose parents were medical doctors. By logistic regression analysis, GHQ-caseness was associated with occurrence of academic and health-related stressors. The most common sources of stress were related to academic and psychosocial concerns. The most important and severe sources of stress was staying in hostel, high parental expectations, vastness of syllabus, tests/exams, lack of time and facilities for entertainment. The students generally used active coping strategies and alcohol/drug was least used coping strategy. The coping strategies commonly used by students in this institution were positive reframing, planning, acceptance, active coping, self-distraction and emotional support. The coping strategies showed variation by GHQ-caseness, year of study, gender and parents' occupation.

Conclusion drawn was higher level of psychological morbidity warrants need for interventions like social and psychological support to improve the quality of life for these medical students. Student advisors and counselors may train students about stress management. There is also need to bring about academic changes in quality of teaching and evaluation system. A prospective study is necessary to study the association of psychological morbidity with demographic variables, sources of stress and coping strategies. [127]

Blake-H (2008) conducted a study on “Caregiver stress- in traumatic brain injury”. It was observed that many patients experience physical, behavioral, cognitive and emotional
problems following traumatic brain injury (TBI). They would require continuing care for many years, most of which was provided by informal caregivers, such as spouses, parents, or other family members. The care giving role was associated with a range of adverse effects including anxiety, depression, poor physical health and lowered quality of life. This researcher explored issues around caregiver stress; highlighting interventions for this group and areas for further research.

Research findings suggested that caregiver characteristics, coping strategies, their appraisal of the situation and social networks may be associated with the amount of distress experienced. Many caregivers had unmet needs such as respite care and information provision on TBI. It was felt by the researcher that providing information would help to alleviate strain. Community-based family therapies providing education, support and counseling could help to decrease distress and improve aspects of family functioning, although evidence for these was lacking. It was conclude that there was a need for more well designed, controlled studies evaluating the impact of interventions to alleviate caregiver strain. [128]

In a study conducted in China by Yang X, Ge C, Hu B, Chi T, Wang L,(2009) who studied the “Relationship between quality of life and occupational stress among teachers”. With major changes in the education system and limited resources supplied by the Government, it was observed by the researchers that Chinese teachers were suffering from greater occupational stress in recent years, which was believed to affect their physical and mental health. The aim of this study was to explore the relationship between quality of life and occupational stress in primary and middle school teachers.

A cross-sectional study was conducted using cluster sampling. The study population composed of 3570 school teachers working in 64 primary and middle schools in Heping District in Shenyang, China. A demographic questionnaire, a 36-item Short-Form Health Survey (SF-36) and the Occupational Stress Inventory Revised Edition was employed to collect demographic variables and assess quality of life and occupational stress. A multivariate stepwise linear regression analysis was performed to study the relationship between quality of life and occupational stress.
The results highlighted that mean scores for both male and female teachers in this study was significantly lower than those for the Chinese general population for all dimensions of quality of life, except mental health and vitality (P<0.05). Male teachers scored significantly higher than female teachers for physical functioning, bodily pain, vitality and physical health (P<0.05). Age, role overload, role insufficiency, vocational strain, psychological strain, physical strain, recreation and rational coping were significantly associated with both the physical and mental component summaries of the SF-36 (P<0.05). Gender, physical environment and self-care appeared to be robust indicators of physical health (P<0.05), while role insufficiency, interpersonal strain and social support were strong indicators of mental health (P<0.05).

It was concluded that in China, teachers have a lower health status than the general population. The quality of life of female teachers was worse than that of male teachers, and deteriorates with age. Occupational stress and strain induce worsening physical and mental conditions for teachers, while coping resources could promote their health.

This study suggested that having adequate coping resources, especially social support, in workplaces may be an important factor for improving teachers' quality of life. Moreover, psychological interventions should be set up for teachers, and psychological counseling should be provided to relieve stress and enhance quality of life.\[^{129}\]

Lipp M E, (2009) studied “Stress and quality of life of senior Brazilian police officers”. This study examines levels of occupational stress, quality of life, work-related stressors, and coping strategies among senior police officers in Brazil. A quantitative questionnaire survey was conducted among 418 senior members of the São Paulo Police Force which reveals that high-ranking Brazilian police officers perceive their profession as being very stressful. Large proportions (43%) of police officers were found to have significant stress symptoms. A greater proportion of females (54%) than males (40%) are found to have stress. The most frequently reported stressor is interaction with other departments within the police force. Quality of life is found to be deficient in the 'professional' and 'health' areas. This study was the first to show a clear association between high levels of emotional stress and poor quality of life in Brazilian police officers. A large number of stress symptoms and poor quality of life identified in this study indicates that there
is a need for preventive actions inside the Brazilian police force to motivate lifestyle changes, improve stress-management skills, and promote a better quality of life among high-ranking police officers.\textsuperscript{[130]}

Mancuso C A, Sayles W, Allegrante J P, (2010) studied ‘Knowledge, attitude, and self-efficacy in asthma self-management and quality of life’. As cognitive variables such as knowledge, attitude, and self-efficacy affect asthma patients' abilities to be effective self-managers. The objective of this cross-sectional analysis was to determine what patient and clinical factors were associated with these cognitive variables and to assess the contributions of these cognitive variables to clinical status.

Methodology involved interviewing Primary care asthma patients using the three domains of the Knowledge, Attitude, and Self-Efficacy Asthma Questionnaire (KASE), as well as established scales to measure social support, depressive symptoms, and ratings of asthma care. Clinical asthma status was measured with the Asthma Quality of Life Questionnaire (AQLQ).

The results highlighted that of the total, 180 patients who were enrolled, with a mean age of 43 years and 84% were women. Knowledge was low, with only 50% of patients answering half or more questions correctly (mean score = 52, possible range 0-100, higher is more knowledge). Attitude toward asthma was generally positive (mean score = 82, possible range 20-100, higher is more positive attitude) and self-efficacy was moderate (mean score = 76, possible range 20-100, higher is more self-efficacy). In separate multivariate analyses, younger age and higher education level were associated with more knowledge (p ≤ .005); more social support, fewer depressive symptoms, and more favorable prior results of asthma care were associated with more positive attitude (p ≤ .05); and favorable prior results, more satisfaction with asthma status, not having stress-related triggers, and not having had a recent emergency department visit for asthma were associated with more self-efficacy (p ≤ .07 for all variables). In additional multivariate analyses, more knowledge (p = .0005), more positive attitude (p = .02), and more self-efficacy (p = .01) were associated with better AQLQ scores.

It was concluded that different patient and clinical characteristics were associated with cognitive variables pertinent to self-management. These variables, in turn, were independently associated with asthma status. Thus, although fostering improvement in all
three variables would be desirable, interventions that improve any of these variables potentially could be beneficial. [131]

The above studies have highlighted the effect of stress on the quality of life and the strategies adopted to ensure quality of life is maintained.

2.15 Lifestyle Modifications to deal with Stress:

It’s important that ones lifestyle offers release from the pressures at work. It may seem impossibly difficult to adjust the stress-causing aspects of ones lifestyle, but a practical evaluation of the situation may show that improving ones ability to cope with stress takes less effort than one might have thought.

Ornish D, Brown SE, Scherwitz LW, Billing JH, Armstrong WT, Ports TA, Mc Lanahan SM, et.al.(1990) .“Can life style reverse coronary heart disease? The lifestyle heart Trial”. In a prospective, randomized, controlled trial to determine whether comprehensive lifestyle changes affect coronary atherosclerosis after 1 year, 28 patients were assigned to an experimental group (low-fat vegetarian diet, stopping smoking, stress management training, and moderate exercise) and 20 to a usual-care control group. 195 coronary artery lesions were analysed by quantitative coronary angiography. The average percentage diameter stenosis regressed from 40.0 (SD 16.9) % to 37.8 (16.5) % in the experimental group yet progressed from 42.7 (15.5) % to 46.1 (18.5) % in the control group. When only lesions greater than 50% stenosed were analysed, the average percentage diameter stenosis regressed from 61.1 (8.8) % to 55.8 (11.0) % in the experimental group and progressed from 61.7 (9.5) % to 64.4 (16.3) % in the control group. Overall, 82% of experimental-group patients had an average change towards regression. Comprehensive lifestyle changes may be able to bring about regression of even severe coronary atherosclerosis after only 1 year, without use of lipid-lowering drugs. [132]

Alexander CN, Schneider RH, Staggers F, Sheppard W, Clavborne BM, Rainforth M, et.al.(1996), “Trial of stress reduction for hypertension in older African Americans, II-Sex and risk subgroup analysis”. Their objective was to test the short-term efficacy and feasibility of two stress-reduction approaches for the treatment of hypertension in older African Americans, focusing on subgroup analysis by sex and by high and low risk on six measures of hypertension risk: psychosocial stress, obesity, alcohol use, physical inactivity, dietary
sodium-potassium ratio, and a composite measure. The study involved a follow-up subgroup analysis of a 3-month randomized, controlled, single-blind trial conducted in a primary care, inner-city health center. Subjects were 127 African American men and women, aged 55 to 85 years, with diastolic pressure of 90 to 104 mm Hg and systolic pressure less than or equal to 179 mm Hg. Of these, 16 did not complete follow-up blood pressure measurements. Mental and physical stress-reduction approaches—the Transcendental Meditation technique and progressive muscle relaxation, respectively—were compared with a life-style modification education control and with each other. Both systolic and diastolic pressures changed from baseline to follow-up for both sexes and for high and low risk level (defined by median split) on the six measures of hypertension risk. Compared with education control subjects, women practicing the Transcendental Meditation technique showed adjusted declines in systolic (10.4 mm Hg, \( P < .01 \)) and diastolic (5.9 mm Hg, \( P < .01 \)) pressures. Men in this treatment group also declined in both systolic (12.7 mm Hg, \( P < .01 \)) and diastolic (8.1 mm Hg, \( P < .001 \)) pressures compared with control subjects. Women practicing muscle relaxation did not show a significant decrease compared with control subjects, and men declined significantly in diastolic pressure only (6.2 mm Hg, \( P < .01 \)). For the measure of psychosocial stress, both the high and low risk subgroups using the Transcendental Meditation technique declined in systolic (high risk, \( P = .0003 \); low, \( P = .06 \)) and diastolic (high risk, \( P = .001 \); low, \( P = .008 \)) pressures compared with control subjects, whereas for muscle relaxation, blood pressure dropped significantly only in the high risk subgroup and only for systolic pressure (\( P = .03 \)) compared with control subjects. For each of the other five risk measures, Transcendental Meditation subjects in both the high and low risk groups declined significantly in systolic and diastolic pressures compared with control subjects. Effects of stress reduction on blood pressure were found to be generalizing to both sexes and diverse risk factor subgroups and were significantly greater in the Transcendental Meditation treatment group.

These effects along with high compliance even in individuals with multiple risk factors for hypertension clearly warrant longer-term investigation in this and other populations.\(^{[133]}\)

Thalina L, Lindquist; Lawrence J. Beilin; Matthew W. Knuiman, (1997) studied “Influence of Lifestyle, coping, and job stress on Blood Pressure in Men and women”. This study was taken up the investigators to clarify the role of work stress on long-term blood pressure control and in particular to investigate whether perceived work stress directly
affected resting blood pressure levels or whether there was indirect effects mediated by coping mechanisms and lifestyle. Men (n=337) and women (n=317) working in a government tax office completed questionnaires for assessment of work-related stress, coping strategies, and lifestyle. Seven resting blood pressure measurements were recorded serially on each of two occasions a week apart. Men had higher blood pressures (119.6/68.6 versus 110.9/65.6 mm Hg) than women; they used more "maladaptive" coping strategies, drank more alcohol, and ate less healthily but exercised more than women. There were no direct associations between measures of work stress and blood pressure. In univariate and regression analyses, both body mass index and lifestyle factors in the form of alcohol consumption, exercise, and diet were related to blood pressure in men and women. Various "adaptive" or "maladaptive" coping mechanisms were identified and independently related to both job stress and blood pressure levels. Women were more likely to use "healthier" or adaptive coping mechanisms than men. Thus, work stress per se had no direct effect on blood pressure, but the ways that individuals reported coping with stress were significantly related to blood pressure, with blood pressure elevation effects appearing to be mediated largely by dietary and drinking habits and physical inactivity.

The results point to the need to target individual coping strategies and lifestyle as much as the working environment in workplace cardiovascular health promotion programs. [134]

Long-Term Effects of Stress Reduction on Mortality in Persons ≥55 Years of Age With Systemic Hypertension was studied by Robert H.S, Charles N A, Frank S, Maxwell Rainforth, John W.S, et.al.(2005). The investigators state that, Psychosocial stress contributes to high blood pressure and subsequent cardiovascular morbidity and mortality. Previous controlled studies have associated decreasing stress with the ‘Transcendental Meditation’ (TM) program with lower blood pressure. The objective of this 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. They pooled patient data from 2 published randomized controlled trials that compared TM, other behavioral interventions, and usual therapy for high blood pressure. There were 202 subjects, including 77 whites (mean age 81 years) and 125 African-American (mean age 66 years) men and women. In these studies, average baseline blood pressure was in the pre hypertensive or stage I hypertension range. Follow-up of vital status and cause of death over a maximum of 18.8 years was
determined from the National Death Index. Survival analysis was used to compare intervention groups on mortality rates after adjusting for study location. Mean follow-up was 7.6 ± 3.5 years. Compared with combined controls, the TM group showed a 23% decrease in the primary outcome of all-cause mortality after maximum follow-up (relative risk 0.77, p = 0.039). Secondary analyses showed a 30% decrease in the rate of cardiovascular mortality (relative risk 0.70, p = 0.045) and a 49% decrease in the rate of mortality due to cancer (relative risk 0.49, p = 0.16) in the TM group compared with combined controls. These 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.\[135\]

The BP-lowering effect of TM has been further supported by two meta-analyses, each suggesting TM can reduce both SBP and DBP\[136,137\]. In another carefully controlled trial, Linden et al demonstrated that CBT decreased BP in un-medicated participants with hypertension.\[138\]

Barnes et.al. initiated one of the earliest studies investigating MBSR and BP; compared to control, those who participated in a 2-month meditation intervention based on MBSR techniques demonstrated lower SBP as measured by an automated device: -4 mm Hg (intervention) compared to +2 mm Hg (control).\[139\] Later a follow-up study by Barnes et.al using ambulatory blood pressure monitoring (ABPM) also found significant differences in BP reduction for the meditation group at specific time periods (e.g., after school).\[140\]

Van Wielingen et al reported that patients with breast cancer who participated in MBSR had lower automated home BP compared to those on wait-list control. Examining the treatment group alone, those with higher BP at baseline demonstrated a greater decrease in SBP compared to those with lower SBP at baseline.\[141\]

A similar treatment effect was described by Linden in subjects also starting with higher BP levels\[142\]. Two studies by Carlson et.al. demonstrated high rates of MBSR class attendance, compliance and home meditation,\[143,144\] with the follow-up study reporting consistent drops in clinic BP persisting up to 1 year.\[145\] A randomized controlled trial of an abbreviated 6-week programme using MBSR principles for pain tolerance in normotensive
university students found improved pain tolerance and lower DBP in both the treatment and control groups. \[146\]

Robert H. Schneider, Charles N. Alexander, Frank Staggers, David W. Orme-Johnson, et.al.(2005) “A Randomized controlled trail of stress reduction in African American treated for hypertension for over one year”. Psychosocial stress has been implicated in the disproportionately higher rates of hypertension among African Americans. This randomized controlled trial compared the effects of two stress reduction techniques and a health education control program on hypertension during a period of 1 year in African-American men and women (N = 150, mean age 49 ± 10 years, mean blood pressure (BP) = 142/95 mm Hg) at an urban community health center. The method involved interventions which included 20 min. twice a day of Transcendental Meditation (TM) or progressive muscle relaxation (PMR), or participation in conventional health education (HE) classes. All subjects continued usual medical care. Outcomes assessed were systolic BP and diastolic BP at 3, 6, 9, and 12 months after treatment, data was analyzed by repeated measures ANCOVA. The study focused on the following key words; stress reduction, clinical trial, lifestyle modification, transcendental meditation, and progressive muscle relaxation

The results indicated that the TM group showed decreases in systolic BP/diastolic BP of −3.1/−5.7 mm Hg as compared to −0.5/−2.9 mm Hg for PMR or HE, (P = .12 to .17 for systolic BP, P = .01 for diastolic BP). In addition the TM group demonstrated reduced use of antihypertensive medication relative to increases for PMR (P = .001) and HE (P = .09) groups. Group analysis by gender showed that women practicing TM had decreased BP (−7.3/−6.9 mm Hg) significantly more than women practicing PMR (0.7/−2.7 mm Hg) or HE (−0.07/−3.0 mm Hg) (P .01 to .03). The change in men practicing TM (0.2/−4.7 mm Hg) was greater than men practicing HE (−0.9/−2.0 mm Hg) for diastolic BP only (P = .09,) and not different from PMR men (−2.0/−3.1).

Conclusions drawn from the study was that a selected stress reduction approach, the Transcendental Meditation program, may be useful as an adjunct in the long-term treatment of hypertension in African Americans.\[147\]

In a study conducted in Korea by, Cho E Y, Lee Y W, Kim H S, (2005) on, “The effect of job stress and lifestyle on blood lipid levels in male aircrew personnel”. Cardiovascular disease has the potential to lead to sudden in-flight incapacitation and
permanent grounding. The aims of this study was to examine the relationships between lifestyle, job stress and blood lipid levels of male aircrew personnel of a Korean airline and to identify which factors influence their hyperlipidemia. Two hundred sixteen male aircrew personnel completed a questionnaire by self-report and consented to participate in the study. The questionnaire collected data related to job stress, lifestyle, serum cholesterol levels and general characteristics of the aircrew. The cholesterol levels of the subjects were collected from their most recent health check-up records. Subjects were divided into two groups (the desirable group and the risk group) based on their serum cholesterol level, 200 mg/dl. The findings indicated that the mean age and marital status were significantly different between the two groups. More subjects in the risk group had habits of eating high lipid foods, while more subjects in the desirable group exercised more frequently than the risk group. In logistic regression analysis, after controlling age and marital status, types of working situation (domestic duty or international duty, odds ratio=.390, p=.018), diet (odds ratio=.429, p=.037), and exercise (odds ratio=.320, p=.055) were influencing factors on aircrew's serum cholesterol levels.

Hence it may be concluded that the cholesterol level of aircrew personnel is closely related to their lifestyle, such as lipid diet and exercise. The type of work situations, e.g. staying in an airplane for long periods of time or staying abroad, may influence these diet patterns and exercise habits. [148]

“Stress Reduction Programs in Patients with Elevated Blood Pressure: A Systematic Review and Meta-analysis, was conducted by Maxwell V Rainforth, Robert H S, Sanford I N, Carolyn Gaylord - King, et.al.(2007) Substantial evidence indicates that psychosocial stress contributes to hypertension and cardiovascular disease (CVD). Previous meta-analyses of stress reduction and high blood pressure (BP) were outdated and/or methodologically limited. Therefore, they conducted an updated systematic review of the published literature and identified 107 studies on stress reduction and BP. Seventeen trials with 23 treatment comparisons and 960 participants with elevated BP met criteria for well-designed randomized controlled trials and were replicated within intervention categories. Meta-analysis was used to calculate BP changes for biofeedback, -0.8/-2.0 mm Hg (P = NS); relaxation-assisted biofeedback, +4.3/+2.4 mm Hg (P = NS); progressive muscle relaxation, -1.9/-1.4 mm Hg (P = NS); stress management training, −2.3/− 1.3 mm (P = NS); and the Transcendental Meditation program, −5.0/−2.8 mm Hg (P = 0.002/ 0.02). Available evidence indicates that
among stress reduction approaches, the Transcendental Meditation program is associated with significant reductions in BP. Related data suggest improvements in other CVD risk factors and clinical outcomes. [149]

“Current perspective on the use of Meditation to reduce Blood Pressure”, (2012) was studies by Carly M Goldstein, Richard Josephson, Susan Xie and Joel W. Hughes. Meditation techniques are increasingly popular practices that may be useful in preventing or reducing elevated blood pressure. The investigators reviewed landmark studies and recent literature concerning the use of meditation for reducing blood pressure in pre-hypertensive and hypertensive individuals. They sought to highlight underlying assumptions, identify strengths and weaknesses of the research, and suggest avenues for further research, reporting of results, and dissemination of findings. Meditation techniques appear to produce small yet meaningful reductions in blood pressure either as mono therapy or in conjunction with traditional pharmacotherapy. Transcendental meditation and mindfulness-based stress reduction might produce clinically significant reductions in systolic and diastolic blood pressure.

The investigators strongly recommended that more randomized clinical trials were necessary before the use of ‘Meditation’ for high BP could be made. [150]

It may be concluded from the studies review that individuals experiencing stress use different strategies to alleviate stress in term of non pharmacological measure and changes in their lifestyle.

2.16 Qualitative research methodology:

2.16.1 Studies using focus group:

Berland A, Natvig G K, Gundersen D., (2008) conducted “Patient safety and job-related stress: a focus group study” This study focused on work-related stress among nurses working with critically ill patients. The aim of the study was to examine the effects of work-related stress with regard to patient safety. The study uses a qualitative design based on focus group interviews with nurses who work with acute, critically ill patients in hospitals. Two regional hospitals were chosen. Inclusion criteria for the focus group panels included the following: nurses with advanced training in anesthesiology, intensive care, or operating-room nursing. Twenty-three nurses were chosen and they were divided into four groups. This study
shows that a demanding work environment together with minimal control and social support from colleagues results in increased stress that can often have an effect on patient safety.\textsuperscript{[151]}

In an article cited in ‘Evidence Based Nursing’ journal (2008) on “Smoking cessation was difficult for adolescents because of daily life stressors and the need for major lifestyle changes” by Haines R J, Question posed was, “What are the beliefs and experiences of adolescents related to quitting smoking?”

Research design used for the study was Grounded theory. The settings of the study were 3 high schools in New York City and 6 community-based organizations. The participants were 54 adolescents 16-18 years of age (63% men) who had smoked >100 cigarettes in their lifetime and had attempted to quit smoking at least once.

Method for data collect in the study involved ‘interview’ and ‘focus group sessions’. In which 46 adolescents participated in individual interviews which lasted for 45-60 min, and 31 participated in focus group sessions which lasted for 60-75 min. Interviews and focus groups addressed different aspects of quitting smoking, including what quitting meant, history of smoking and respite from the views of caregiver’s of people with ABI. Some of these factors included the stress level of the caregiver and severity of disability. Other factors existed that influenced use of other support services. Persons with ABI indicated reported several expectations of respite, for example, they preferred a wider range and more flexible respite options, and more trained and qualified staff. They also reported lack of sufficient respite. Respite service planning and allocation need to consider the views of people with ABI and to respond to the inequities in respite service delivery.\textsuperscript{[152]}

Farkhondeh Sharif and Sara Masoumi, (2005) conducted, ‘ A qualitative study of nursing student experiences of clinical practice’. As nursing student's experiences of their clinical practice provide greater insight to develop an effective clinical teaching strategy in nursing education. The main objective of this study was to investigate student nurses' experience about their clinical practice.

The investigators used focus groups to obtain students' opinion and experiences about their clinical practice. 90 baccalaureate nursing students at Shiraz University of Medical Sciences (Faculty of Nursing and Midwifery) were selected randomly from two hundred
students and were arranged in 9 groups of ten students. To analyze the data the method used to code and categories focus group data were adapted from approaches to qualitative data analysis.

The results brought out four themes from the focus group data. From the students' point of view, "initial clinical anxiety", "theory-practice gap", "clinical supervision", professional role", was considered as important factors in clinical experience.

It was concluded from the results of this study that nursing students were not satisfied with the clinical component of their education. They experienced anxiety as a result of feeling incompetent and lack of professional nursing skills and knowledge to take care of various patients in the clinical setting.[153]

2.16.2 Studies using Ethnographic method:

A study was conducted by Gold M.A, and Friedman S.B (2000) by the Pediatric department of Children’s Hospital of Pittsburgh, on “Cadet basic training: an ethnographic study of stress and coping” Cadet basic training (CBT) at the U.S. Military Academy at West Point is an initial cadet experience designed to transition freshmen (new cadets) into the military. Challenge is an inherent component of CBT, and some challenging activities may be stressful. However, the nature and the impact of stress on health status have not been systematically investigated. An ethnographic technique, participant observation, was used to identify stressors and coping strategies among cadets aged 18 to 21 years participating in CBT. A company of 183 cadets, consisting of 123 new cadets and 60 supervising upper class cadets from the U.S. Military Academy, were followed throughout the 6-week CBT in the summer of 1993. The investigator observed daily activities and participated in select field training experiences. Daily field observations were taped, and field notes were generated chronicling the experience. After CBT, 10 of the 60 upper class cadets participated in a 20-minute structured interview. Field and interview notes were systematically reviewed to identify and categorize stressors and coping techniques. Stressors included anticipatory stress, time management pressures, sleep deprivation, performance evaluations, conflicts between teamwork and competitive grading, and inexperience in the leadership role. Coping techniques identified included perceiving social support, humor, and rationalization.[154]
Mercedes Bern-Klug,(2008) conducted a study using ethnographic method, “A Framework for Categorizing Social Interactions Related to End-of-Life Care in Nursing Homes” The purpose of the study was to develop a framework for organizing social interactions related to end-of-life care and to characterize the social construction of dying in two nursing As almost half of people age 85 and older die annually in the United States die as nursing home residents, yet because it is not always clear who is close to death, not all residents who might benefit from end-of-life care receive it. Research design used was Secondary analysis of qualitative ethnographic data collected before the death of 45 residents who were selected for the study on account of their “declining” health status.

Methodology involved gathering data from field notes, medical chart data, and transcribed interviews corresponding to 45 residents in two nursing homes in a large Midwestern city which was analyzed using qualitative descriptive methods guided by symbolic interaction and role theory. The data was also grouped by resident to facilitate the development of cases that illustrate the categories of social interactions. A second reader also categorized all the resident cases into one of five categories as a means of verifying the model. Finding a new framework of five categories to name the stance toward the possibility of dying was presented and illustrated with cases. The categories include: dying allowed (13 residents), dying contested (3 residents), mixed message dying (10 residents), not dying (4 residents), and not enough information (15 residents). Cases were provided to illustrate the importance of recognizing the impact that social interactions can have on care. Over half the resident cases were classified as mixed message dying or not enough information, which speaks of the ambiguity regarding care plan goals found in the two nursing homes in the study. Implication of the study was that Social interactions related to the health care and dying status of a nursing home resident help to construct a social reality, and that social reality can affect the care the nursing home resident receives. Conversations about goals of care, and how these goals would be operationalized was an important issues for discussion among residents (to the extent able), family, staff, and physicians.

Social interactions or the lack thereof matter. The Key areas highlighted in the study were Palliative care, Social constructionism, Symbolic interaction, Role theory, Qualitative, Goals of care. [155]

“Struggles, strengths & strategies: an ethnographic study exploring the experiences of adolescents living with an ostomy” was conducted by D.B. Nicholas, S. R. Swan, T. J. Gerstle, T. Allan and A.M. Griffiths(2008). Adolescents with IBD requiring ostomy surgery
experience peri-operative needs that may exceed those of patients experiencing other major abdominal surgery were included in the study. This procedure required ongoing and vigilant daily care and management. Gastrointestinal symptoms and complications impose psychological and social stresses on young patients, and the procedure results in body image changes and daily regimens of self-care. This study aimed to explore adolescents’ experiences and quality of life following ostomy surgery. The research method used was, Ethnographic interviews and a subsequent focus group were conducted with 20 adolescents with an ostomy or j-pouch being treated at the Hospital for Sick Children in Toronto, Canada. Interviews were transcribed verbatim and subjected to theme generation.

The study findings suggested that adolescents were profoundly affected by their ostomy. Adolescents convey strength as well as adjustment struggles. Identified impacts include body intrusion and body image changes, decreased independence, secrecy about the ostomy, adjustment over time, challenges for the family, and strategies for constructively moving forward. It may be concluded that implications need to address the importance of ensuring meaningful opportunities to understand and reframe the stresses of illness. An ongoing clinical challenge involves the promotion of a healthy self-esteem and psychosocial adjustment for these adolescents and their families. Finding effective ways to minimize stress and embarrassment and reframe personal shame, constitute important clinical priorities. Opportunities for peer support and family dialogue may assist in clarifying worries and easing the burden carried by these young persons. Flexible and adequately funded resources are advocated in fostering quality of life. \[156\]

Another study conducted by Anette Storesunda, Anne Mc Murray, (2009), on ‘Quality of practice in an intensive care unit (ICU): A mini-ethnographic case study’. They studied Nurses’ perspectives of maintaining quality practice which is important in the context of today’s safety and quality agenda. The study provided a snapshot of registered nurses’ perspectives on practice quality in one Australian ICU.

A mini-ethnographic case study was used to examine how quality is embedded in the culture of ICU nursing. A semi-structured interview of 10 informants was analyzed using Spradley's ethnographic guidelines. Findings of the study highlighted three major themes which influenced nursing quality: maintaining cohesiveness in a complex and stressful
environment; rapid, effective and respectful communication, and specialist knowledge gained through experience and formal learning.

The study concluded that nurses reported satisfaction with the quality of their ICU practice, but revealed factors that could diminish quality and contribute to job dissatisfaction. It also brought out the current recruitment and retention issues and the link between satisfaction and retention, and that it's important to consider these factors in advancing the knowledge base for workforce planning. The key word involved in the study were Intensive care the area of study and other areas focused were, Quality, Workforce, Clinical practice, using Ethnography design. [157]

Lorraine Brown,(2009), conducted “An ethnographic study of the friendship patterns of international students in England: An attempt to recreate home through conational interaction”, This study reported findings using an ethnographic method, the adjustment experience of a group of postgraduate international students at a university in the South of England. Friendship emerged as a major theme in this study; of particular importance to students was the desire and need to mix with conational friends. This desire was driven by the urge to obtain the comfort offered by shared language, shared heritage and access to instrumental support. It was also informed by fear of discrimination and compounded by an absence of host contact which was a source of deep disillusionment for students. The negative impact of segregated friendship groups on the improvement of linguistic and cultural knowledge was understood, but only a handful of students broke away from the confines of the mono ethnic ghetto. The study focused on key areas that are friendship, segregation, shared language, shared culture, instrumental support and restricting cultural learning. [158]

Maggie Zralya, Laetitia Nyirazinyoye (2010), conducted a study,” Don't let the suffering make you fade away: An ethnographic study of resilience among survivors of genocide-rape in southern Rwanda”, Rape has been used in contemporary armed conflicts to inflict physical, psychological, cultural and social damage. In endeavoring to address the psychological damage of collective violence, some researchers and global health practitioners are turning toward post-conflict mental health promotion approaches that centrally feature resilience. Though previous findings from resilience and coping research are robust, few studies have actually investigated resilience among genocide-rape survivors in cultural context in non-Western settings. This paper presented ethnographic data gathered over 14
months (September 2005 to November 2006) in southern Rwanda on resilience among genocide-rape survivors who were members of two women's genocide survivor associations. Study methods included a content analysis of a stratified purposive sample of 44 semi-structured interviews, as well as participant, and non-participant observation. Resilience among genocide-rape survivors in this context was found to be shaped by the cultural-linguistic specific concepts of kwihangana (withstanding), kwongera kubaho (living again), and gukomeza ubuzima (continuing life/health), and comprised of multiple socio-cultural processes that enabled ongoing social connection with like others in order to make meaning, establish normalcy, and endure suffering in daily life.

The results of this research show that the process of resilience among genocide-rape survivors was the same regardless of whether genocide survivor association membership was organized around the identity of genocide-rape survivorship or the identity of widowhood. However, the genocide-rape survivors' association members were more involved with directing resilience specifically toward addressing problems associated with genocide-rape compared to the members of the genocide widows' association.

The findings from this research suggest that ethnographic methods can be employed to support resilience-based post-conflict mental health promotion efforts through facilitating collective sexual violence survivors to safely socially connect around their shared experiences of rape, neutralizing social threats of stigma and marginalization. Key aspects in this study which focused were, Rwanda the setting of the study Resilience, Global mental health, Post-conflict, Rape, Women, Genocide, Mental health promotion. [159]

Irena Anna Frei, and Rosemary Mander, (2011) conducted a study on, “The relationship between first-time mothers and care providers in the early postnatal phase: an ethnographic study in a Swiss postnatal unit.” The researcher’s objective was to consider the relationship between first-time mothers and care providers in an organizational context. The researcher used ethnographic approach to study the views and behaviors of providers and recipients of postnatal care. Fieldwork involved mainly conversations or qualitative interviews and observation. The study was conducted in a postnatal unit in a tertiary referral hospital in Switzerland. The sample consisted of 10 child-bearing women and the care providers assigned to them. The data was analyzed by organizing the women’s expectations of care and the maternity unit’s mission statement. Thematic analysis centered around two
main themes: the experience of ‘being on a postnatal journey’ and ‘caring relationships’. It was noted that the findings of the study fell within the framework of the second theme. A caring relationship was established through ‘weaving the net’. This relationship was then maintained through ‘keeping the thread’. The relationship was eventually ended through ‘finishing off’.

The study concluded that the quality of the caring relationship between a woman and a care provider influences satisfaction with received care. It determines the extent to which women feel in control of their situation at discharge. Organizational and professional factors influence this relationship, which in turn can influence a nurse's level of job satisfaction. The finding of the study implied for practice was changes in the provision of postnatal care which may involve organisational as well as clinical interventions to ensure continuous and consistent care. The study focused on the following key words Institutionalized postnatal care, First-time mothers, Woman–nurse relationship, using Ethnographic study. [160]

2.16.3 Studies using Grounded theory methodology:
In an article by Heath H and Cowley S. (2004), “Developing a grounded theory approach: a comparison of Glaser and Strauss”, They state that novice qualitative researchers are often unsure regarding the analysis of their data and, where grounded theory is chosen, they may be uncertain regarding the differences that now exist between the approaches of Glaser and Strauss, who together first described the method.

They state the two approaches which are compared in relation to roots and divergences, role of induction, deduction and verification, ways in which data are coded and the format of generated theory. Personal experience of developing as a ground theorist was used by them to illustrate some of the key differences. They conclude that, rather than debate relative merits of the two approaches, they suggests that novice researchers need to select the method that best suits their cognitive style and develop analytic skills through doing research. [161]

Walker D, Myrick F (2006) in their article, “Grounded theory: an exploration of process and procedure,” state that, grounded theory, is an evolving qualitative research method, which is a product of its history as well as of its epistemology. Within the literature, there have been a number of discussions focusing on the differences between Glaser's (1978,
1992) and Strauss's (1987, 1990) versions of grounded theory. The purpose of this article was to add a level of depth and breadth to this discussion through specifically exploring the Glaser-Strauss debate by comparing the data analysis procedures and processes advocated by Glaser and by Strauss. To accomplish this task, the authors present the article in two sections. First, they provide relevant background information on grounded theory as a research method. Second, they pursue a more in-depth discussion of the positions of Glaser, using Glaser's work, and Strauss, using Strauss's and Strauss and Corbin's (1990) work, regarding the different phases of data analysis, specifically addressing the coding procedures, verification, and the issue of forcing versus emergence.\[162\]

“Evolving Grounded Theory Methodology: towards a discursive approach”, an article by McCreaddie M and Payne S, (2010) state that Grounded Theory Methodology (GTM) is a widely cited research approach based upon symbolic interaction with a focus on interaction, action and processes. Relatively recently, Discursive Psychology; a language-based interaction research approach also based on symbolic interaction, emerged. At present Discursive Psychology is principally cited in the social sciences literature. Given Discursive Psychology's symbolic interaction foundations, what relevance does this approach have for evolving GTM? A number of methodological challenges were posed by a study looking at humour in Clinical Nurse Specialist-patient interactions. The study had use the phenomenon of spontaneous humour in healthcare interactions to illustrate the potential for a new form of GTM drawing on discursive approaches; Discursive GTM. First, the challenges presented by a study looking at spontaneous humour in Clinical Nurse Specialist-patient interactions are presented. Second, the research approach adopted to meet these challenges, Discursive GTM (DGTM) - is explicated and the results of the study are outlined. Third, the different GTM approaches and Discursive Psychology are compared and contrasted in relation to the DGTM approach adopted. Finally, the challenges and tensions of using DGTM as well as the opportunities afforded by the use of naturally occurring data are reviewed. The authors contend that a DGTM approach may be appropriate in analyzing certain phenomena. In particular, the author highlights the potential contribution of naturally occurring data as an adjunct to researcher-elicited data. Thus, when exploring particular phenomena, a DGTM approach may address the potentially under-developed symbolic interaction tenet of language.\[163\]

McCreaddie M and Wiggins S, conducted a study, “Reconciling the good patient persona with problematic and non-problematic humour: a grounded theory”. The authors
stated that humour is a complex phenomenon, incorporating cognitive, emotional, behavioural, physiological and social aspects. They state that research to date has concentrated on reviewing (rehearsed) humour and 'healthy' individuals via correlation studies using personality-trait based measurements, principally on psychology students in laboratory conditions. They state Nurses are key participants in modern healthcare interactions however, little was known about their (spontaneous) humour use. The aim of the study was a middle-range theory that accounted for humour use in CNS-patients interactions. The study reviewed the antecedents of humour exploring the use of humour in relation to (motivational) humour theories. In the study twenty Clinical Nurse Specialist participated and their patient interactions were recorded in the United Kingdom.

The method evolved constructivist grounded theory approach which investigated a complex and dynamic phenomenon in situated contexts. Naturally occurring interactions provided the basis of the data corpus with follow-up interviews, focus groups, observation and field notes. A constant comparative approach to data collection and analysis was applied until theoretical sufficiency incorporating an innovative interpretative and illustrative framework. This research reports the grounded theory and is principally based upon 20 CNS-patient interactions and follow-up data. Findings of the study highlights that the theory purports that patients' use humour to reconcile a good patient persona. The core category of the good patient persona, has two constituent elements (compliance, sycophancy), conditions under which it emerges and how this relates to the use of humour are outlined and discussed. In seeking to establish and maintain a meaningful and therapeutic interaction with the CNS, patients enact a good patient persona to varying degrees depending upon the situated context. The good patient persona needs to be maintained within the interaction and is therefore reconciled with potentially problematic or non-problematic humour use. Humour is therefore used to deferentially package concerns (potentially problematic humour) or affiliate (potentially non-problematic humour).This study reviewed the good patient persona (compliance, sycophancy), potentially problematic humour (self-disparaging, gallows) and briefly, non-problematic humour (incongruity).

From the study it is concluded that the middle range theory differentiates potentially problematic humour from non-problematic humour and notes that how humour is identified and addressed is central to whether patients concerns are resolved or not. The study provided a robust review of humour in healthcare interactions with important implications for practice.
Further, this study has developed and extended humour research and contributed to an evolved application of constructivist grounded theory. [164]

Williams A M,(1998) conducted a study on “The delivery of quality nursing care :a grounded theory study of the nurse’s perspective”, This grounded theory study explored and described the delivery of quality nursing care from the perspective of nurses. Data was gathered by tape recorded interviews, published literature and some participant observation. Ten registered nurses from an acute-care public hospital located in Perth, Western Australia were interviewed. Twelve additional transcripts from interviews conducted by postgraduate students were also used.

Finds indicate quality nursing care was perceived to relate to the degree to which patients' physical, psychosocial, and extra care needs were met. The consequences of quality care were interpreted as 'therapeutic effectiveness', where the therapy provided by nurses was perceived to positively affect patients' healing. This was gauged by the patient's psychosocial and physical response to illness, safety, and satisfaction. Therapeutic effectiveness was facilitated by the development of positive relationships between nurses and patients, nurse's positive attributes and competent practices, as well as a functional nursing team. The problem of nurses' inability to consistently provide quality nursing care to all patients was identified. Insufficient time (caused by a lack of human and physical resources) was perceived as the main reason for this. Dissatisfaction and stress in nurses was related to this problem. To deal with this, nurses used a process named 'selective focusing'. Work was planned to most effectively utilize the time available, within the parameters of safety. [165]

Alexandra Sbaraini, Stacy M Carter ,R Wendell Evans and AnthonyBlinkhorn ,(2011) conducted a study as a worked out example, “How to do a grounded study: a worked example of a study of dental practices” The authors have stated that qualitative research was increasingly popular in health and medicine. In recent decades, qualitative researchers in health and medicine have founded specialist journals, such as Qualitative Health Research, established in 1991, and specialist conferences such as the Qualitative Health Research conference of the International Institute for Qualitative Methodology, established in 1994, and the Global Congress for Qualitative Health Research, established in 2011, Journals such as the British Medical Journal have published series about qualitative methodology (1995 and 2008).
Since qualitative methodologies are increasingly popular in medical research. Grounded theory was the methodology most-often cited by authors of qualitative studies in medicine, but it has been suggested that many 'grounded theory' studies are not concordant with the methodology. Hence in this paper they have provided a worked example of a grounded theory project. Their aim was to provide a model for practice, to connect medical researchers with a useful methodology, and to increase the quality of 'grounded theory' research published in the medical literature.

The researchers discovered that Australian private dental practices in the intervention arm were not implementing the preventive protocols uniformly. Why had the outcomes of these systematically implemented protocols been so different? The study aimed to answer this question which was the starting point for their grounded theory study. It aimed to understand how the protocols had been implemented, including the conditions and consequences of variation in the process. Hence they documented a worked example of using grounded theory methodology in practice. The researchers sought to learn from participants how the MPP (Monitor dental process Program) worked and how they made sense of it. They wanted to answer a practical social problem: how do dentists persist in drilling and filling early stages of tooth decay, when they could be applying preventive care?

The research questions asked were open, and focused on social processes. Their initial research questions were:- 1). What was the process of implementing (or not-implementing) the protocols (from the perspective of dentists, practice staff, and patients)? 2). How did this process vary? Study participants include 22 private dental practices. From the one selected area one dentist, five dental assistants who consented were interviewed. The researchers then recruited 12 patients who had been enrolled in the MPP, based on their clinically measured risk of developing tooth decay: they selected some patients whose risk status had gotten better, some whose risk had worsened and some whose risk had stayed the same. This purposive sample was designed to provide maximum variation in patients' adoption of preventive dental care. Data was analyzed through coding and memos. At the end of the study the researchers were able to develop a detailed model of the process of adapting preventive protocols into dental practice, and analysed the variation in this process in different dental practices. Transferring evidence-based preventive protocols into these dental practices entailed a slow process of adapting the evidence to the existing practices logistics.
Important practical, philosophical and historical elements as well as barriers and facilitators were present during a complex adaptation process. Time was needed to allow dentists and practice staff to go through this process of slowly adapting their practices to this new way of working. Patients also needed time to incorporate home care activities and more frequent visits to dentists into their daily routines. Despite being able to adapt or not, all dentists trusted the concrete clinical evidence that they have produced, that is, seeing results in their patients' mouths made them believe in a specific treatment approach.

Having used this method the researchers were able to explain how these steps were consistent with grounded theory methodology, and show how they related to one another. Grounded theory methodology assisted them to develop a detailed model of the process of adapting preventive protocols into dental practice, and to analyze variation in this process in different dental practices.

The conclusions drawn from this study is that by employing grounded theory methodology rigorously, medical researchers can better design and justify their methods, and produce high-quality findings that will be more useful to patients, professionals and the research community. [166]

Horne G, Seymour J, Payne S (2011) conducted a study, “Maintaining integrity in the face of death: A grounded theory to explain the perspective of people affected by lung cancer about the expression of wishes for end of life care. The study placed emphasis on patient choice in health and social care and underpins a growing interest in advance care planning. So far few studies have explored the views and experiences of people with advanced lung cancer about discussing their wishes or preferences for end of life care. Evidence suggests that some people may want nurses and other health professionals to initiate discussions about the future. However, there was a lack of evidence about what priority patients facing death give to their preferences and wishes, and how these shape their views about end of life. The objective of the study was to explore the views and experiences of people affected by lung cancer about discussing preferences and wishes for end of life care and treatment. The research design was qualitative, using semi-structured interviews and constant comparative method of analysis to develop a grounded theory. The study was conducted in one multi-cultural city and one post-industrial town in northern England, UK. Data were collected between 2006 and 2008. 25 patients were participants of the study with lung cancer and 19
family members. Interviews technique was used. Research method used for the study was, qualitative constructivist grounded theory.

Findings of the study indicated that preferences and wishes for future care and treatment was not the main concern of people with cancer; rather, if any concerns for the future, was about the social aspects of death. A theory 'maintaining integrity in the face of death' was proposed. This theory purports that patients with advanced lung cancer and their families focus on acting and talking as 'normal' to help them balance living in the present whilst facing death. Participants talked about their experiences of facing death whilst striving to live in the present. Planning for one's own dying and eventual death was not something that people with lung cancer reported having discussed, except when, out of concern for their families, practical arrangements needed to be made following death.

From the study it could be concluded that people facing the end of their life primarily focus on living in the present. The findings suggest that nurses need to develop ways of helping people prepare for the 'social' rather than just the physical or 'medicalised' aspects of death. [167]

Another study conducted by Duncan V, Holtslander L, (2012) on “Utilizing grounded theory to explore the information-seeking behaviour of senior nursing students,” Since the ability to find and retrieve information efficiently was an important skill for undergraduate nursing students. Yet a number of studies reveal that nursing students are not confident in their library searching skills and encounter barriers to retrieving relevant information for assignments. Hence the objective of this grounded theory study was to examine strategies used by students to locate information for class assignments and identified barriers to their success. Samples were selected using purposive sampling, to recruit eleven students, who were asked to record their searching processes while completing a class assignment and semi-structured, open-ended, audio taped interviews was conducted to discuss the students' journals and solicit additional data. Methods of information seeking, strategies used to find information, and barriers to searching were identified.

The findings of the study brought out that students’ main concern was frustration caused by the challenge of choosing appropriate words or phrases to query databases. The central theme that united all categories and explained most of the variation among the data
was "discovering vocabulary." The study concludes that teaching strategies to identify possible words and phrases to use when querying information sources should be emphasized more in the information literacy training of undergraduate nursing students. [168]

The studies related to methodology helped the research to clarify her concept in terms of using individual interview, focus group and Qualitative research.

The review of literature helped to understand the scientific work done by different researchers the methodology used, helped to clarify concept of stress, coping strategies, lifestyle modification and quality of life. The review of literature also helped to frame questions for the interview. It also convinced the researcher the need to study stress from the Mumbai context as only literature available was in terms of stress perceived by those who were suffering from different diseases and the coping strategies adopted by them.
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