

A COMPARISON OF LEVELS AND SOURCES OF STRESS IN
CRITICAL CARE, EMERGENCY DEPARTMENT, AND FLIGHT NURSES

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To the Associate Vice President for Research and the Dean of the Graduate School:

I am submitting herewith a thesis written by Diana Hopkins Taylor RN, BSN entitled "A Comparison of Levels and Sources of Stress in Critical Care, Emergency Department, and Flight Nurses". I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Nursing.

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ABSTRACT

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A descriptive survey was conducted by mail to compare levels and sources of stress in critical care nurses (CC), emergency department nurses (ED), and flight nurses. The Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981) and a demographic information sheet were completed by a random sample of 148 nurses selected from the membership of three national organizations: The American Association of Critical Care Nurses, The Emergency Nurses' Association, and The National Flight Nurses' Association. Analysis of variance was used to compare the NSS between the three groups of nurses. Results showed that CC nurses experience significantly more work stress than flight nurses. There were no differences between ED nurses and the other groups. The total samples' stress scores were compared to certain demographic variables using Pearson correlation coefficients. These results indicated significant correlations between stress scores and level of education, nursing salaries, and shift worked.

CHAPTER 1

INTRODUCTION

That nurses experience occupational stress is a generally accepted notion. The majority of nursing research on stress in the profession has focused on specialty care areas. Many studies have reported that critical care nurses experience high levels of occupational stress (Bailey, Steffan & Grout, 1980; Cronin-Stubbs & Rooks, 1985; Oskins, 1979; Vincent & Coleman, 1984). Additionally, it has been reported that emergency department nurses experience high levels of occupational stress (Hammer, Jones, Lyons, Sixsmith & Afficiando, 1985; Keller, 1990; Melinek, Bluestone & Steinmuller, 1983; Numerof & Abrams, 1984).

There is very limited reported research which examines the perceptions of occupational stress experienced by flight nurses. Flight nurses can be compared to both critical care and emergency department nurses because all three groups experience exposure to life threatening crisis situations, complex technology, critical decision-making responsibilities, and an overstimulating environment. The purpose of this study was to compare levels and sources of occupational stress experienced by critical care nurses, emergency department nurses, and flight nurses. The relationship between levels and sources of occupational stress and the demographic variables of age, level of education, years of nursing experience, years of nursing experience in current specialty area, length of time at present job, salary and shift worked were also examined.

Problem of Study

In order to develop mechanisms to deal effectively with stress is important for nurses to explore various levels and sources of occupational stress. Failure to recognize and minimize the possible negative impact of occupational stress could cause erosion of nursing competence and continuance in high-stress specialty areas.

Rationale for Study

Nursing is an occupation with many inherent conflicts, often characterized by stress. The professional literature has reflected a growing recognition of the stress experienced by nursing staff in hospital settings (Ivancevich & Matteson, 1980; Numerof & Abrams, 1984). Many studies have focused on the high-stress specialties within nursing, particularly intensive or critical care areas and emergency departments (Caldwell & Weiner, 1981; Cassem & Hackett, 1975; Jacobsen, 1978). Both Cross and Fallon (1985) and Cronin-Stubbs and Rooks (1985) conducted a stressor comparison between four specialty areas of nursing. Each study highlighted the importance of examining the needs of separate nursing specialties. Cross and Fallon (1985) identified a significant relationship between stress and the demographic variables of age, years of nursing experience and experience in a specialty area. Level of education, salary and shift worked were not identified as significant predictors of stress in the study by Cronin-Stubbs and Rooks (1985).

There are few published studies examining reported stressors in flight nurses. However, it is the general practice of aeromedical

programs to hire flight nurses from either the critical care or emergency department environments because air medical transport services are a functional extension of hospital emergency and critical care services (Dyer, 1989; Eastes, 1989; ENA/NFNA Position Paper, 1986). Both the Emergency Nurses' Association and the National Flight Nurses' Association recognize that flight nurses must possess extensive experience and expertise in caring for critically ill and injured patients (ENA/NFNA Position Paper, 1986). Because of the similarities in practice, it is reasonable to assume that flight nurses will experience similar levels of stress to those experienced by intensive care and emergency nurses.

Identifying levels and sources of stress in flight nurses, critical care and emergency nurses can begin to channel management and educational efforts into preparing flight nurses for their role. By confirming the similarities in relationships of stress in flight nurses to other acute care specialty areas, managers and educators can begin to identify appropriate coping mechanisms and programs for minimizing occupational stress in flight nursing.

Theoretical Framework

The theoretical framework used for this study was developed by Hans Selye (1974). Selye refers to stress as a naturally occurring state to which all living things are susceptible. In humans, stress has the ability to enrich through growth or to damage by inhibiting growth. Stress is non-specific and depends in part on the type, quality, and

intensity of the demand. These demands are called stressors and, according to Selye, are the causative agents of stress.

Selye (1974) defines stress as a "nonspecific response of the body to any demand, whether it be caused by or results in pleasant or unpleasant conditions" (p. 74). Selye says manifestations of the stress state are a function of a person's coping or adapting ability. Adaptation is more than a biological response; it is a holistic response to the change imposed by the stressor. Any change, whether positive or negative, introduces stress to the individual and calls on the individual to adapt. Selye called this adaptation the General Adaptation Syndrome (GAS).

Selye describes three stages of the GAS: alarm reaction, resistance, and exhaustion. The alarm reaction stage prepares the body to fight or flee the stressor; the resistance stage allows the body to overcome the stressor; and if it does not, the exhaustion stage occurs when the body is overwhelmed by the stressor. Although it is unavoidable, too much stress for too long produces staggering changes in intellectual and emotional attitudes, as well as in health (Selye, 1974).

These concepts can be applied to occupational stress. Occupationally, the effects of stress are evidenced in aspects, such as physical and mental illness, increased accidents, lowered productivity, absenteeism, higher job turnover, and increased work errors (Calhoun, 1980). It has been shown that workers whose particular responsibility concerns the futures of other people seem to experience more

occupational stress than do individuals who are concerned with materials and goods. Therefore, it is not surprising that nurses should experience relatively high stress levels as compared to workers in other occupations (Calhoun, 1980; Ivancevich & Matteson, 1980; Weiman, 1977). Selye (1974) describes conscientious nursing of critically ill patients as highly distressful. Because critical care nurses, emergency nurses, and flight nurses are all concerned with caring for critically ill patients, Selye's theory offers an appropriate framework for looking at stress in the workplace.

Assumptions

For the purpose of this proposed study, the following assumptions were made:

1. Nurses involved in the care of critically ill or injured patients are subjected to psychological stress (Cronin-Stubbs & Rooks, 1985; Vincent & Coleman, 1986).
2. Prolonged or excessive exposure to psychological stress can cause an emotional, physiologic and/or behavioral response (Selye, 1974).
3. Individuals can perceive stressful situations (Selye, 1974).
4. Perceptions of psychological stress can be measured (Gray-Toft & Anderson, 1981).

Research Hypotheses

The purpose of this investigation was to identify, measure, and compare levels and sources of stress in critical care nurses, emergency

department nurses, and flight nurses. Furthermore, the study examined the relationships between stress and the demographic variables of age, level of education, years of nursing experience, years of nursing experience in current specialty area, length of time at present job, salary, and shift worked.

The following hypotheses were proposed:

1. There will be no difference in the levels and sources of occupational stress between critical care nurses, emergency department nurses, and flight nurses.
2. Reported levels of occupational stress in critical care nurses, emergency department nurses, and flight nurses will be inversely related to the demographic variables of age, years of nursing experience, years of nursing experience in current specialty area, and length of time at present job.
3. Level of education, salary, and shift worked will not be statistically significant predictors of reported levels of stress in critical care nurses, emergency department nurses, and flight nurses.

Definition of Terms

For the purpose of this study, the following terms were defined:

1. Stress - "a nonspecific response of the body to any demand, whether it be caused by or results in pleasant or unpleasant conditions (Selye, 1974, p. 74). The sources and levels of stress were measured using the respondents' score on the

Nursing Stress Scale (Gray-Toft & Anderson, 1981).

2. Critical care nurses - registered nurses responsible for the care of critically ill patients, who have the requisite knowledge and are adept in the skills of critical care nursing (AACN, 1981). The critical care nurses included in this study have current nursing licenses, were members of the American Association of Critical Care Nurses, and were currently employed in a critical care area.
3. Emergency department nurses - registered nurses who are committed to safe and effective emergency nursing practice (EDNA, 1983). The emergency department nurses included in this study had current nursing licenses, were members of the Emergency Nurses Association, and were currently employed in an emergency department
4. Flight nurses - registered nurses who are committed to providing safe and effective assessment, intervention, and transport of the critically ill or injured patient (NFNA, 1986). The flight nurses included in this study had current nursing licenses, were members of the National Flight Nurses Association, and were currently employed as a flight nurse.

Limitations

This study had the following limitations:

1. Personality or social variables of the individual participant were not examined, and, therefore, were not

controlled.

2. Survey research is subject to artificiality and has a number of weaknesses, including difficulty assessing people's attitudes, orientations, circumstances, and experiences (Babbie, 1979). Therefore, the data collected may not be valid.

Summary

Although numerous studies have examined the levels and sources of stress in both critical care and emergency nurses, few have examined the same in flight nurses. This study compared the levels and sources of stress between the nurses in these three specialty areas.

CHAPTER 2

REVIEW OF LITERATURE

This study was designed to compare levels and sources of stress between critical care nurses, emergency department nurses, and flight nurses. A review of the literature relevant to work-related stress in general and then in relationship to each of these three specialty areas was presented here.

Occupational Stress

That job-related stress can have serious consequences for both individuals and the organizations for which they work has long been recognized. Studies have shown that there is a relationship between level of stress and type of occupation. Colligan, Smith & Hurrell (1987) examined the admission records of community mental health centers throughout the entire state of Tennessee to determine the incidence rate of diagnosed mental health disorders for 130 major occupations. Only occupations employing 1,000 or more workers in the state were included. The records of all first admissions to the 22 participating mental health centers from 1972 through 1974 were examined. Cases were included in the sample if they had been employed in one of the state's major occupations within two years prior to admission. Data were recorded for a total of 450 cases. Two scores and one-tailed test were used to determine relative frequencies and significance levels.

Results showed that health technicians exhibited the highest incidence of mental health disorder admissions, followed by waiters and

waitresses, practical nurses, inspectors, and musicians. Of the top 22 occupations, six were related to hospital/health care occupations. They were: health technologists, practical nurses, clinical lab technicians, nurses' aides, health aides, and registered nurses. There was a significantly higher number of females than males seeking treatment.

Shinn, Rosario, Morch & Chestnut (1984) investigated types of work-related stress and coping strategies used in a cross section of human service workers. The sample consisted of 141 members of a professional society for human services workers with the members being from a variety of professions, including psychologists, social workers, psychiatrists, pastoral counselors, and nurses. The instrument consisted of eleven open-ended questions on job stress and coping, in addition to demographic information. The Cronbach's alpha for the questionnaire was .71. Two raters independently coded the presence or absence of stressors and coping strategies from each questionnaire. Stressors were separated into one of five categories: workload, lack of support, inadequate preparation, interpersonal conflicts involving other staff, and client conflicts. The greatest number of stressors (47%) fell into the category of workload. The second largest category of stressors (44%) was lack of support.

Respondents reported using a variety of individual coping strategies to combat job stress and burnout. The most common coping response reported by 64% of respondents involved focusing attention on family and friends or hobbies rather than the job. When asked what their agencies or co-workers actually did to keep them from burning out,

very few agency strategies were mentioned. Not one agency strategy was mentioned as frequently as the least mentioned individual strategy. However, 64% of the workers reported receiving social support from their co-workers.

Wolfgang (1988) conducted a study to compare the levels and sources of stress among different groups of health professionals. The Health Professions Stress Inventory (HPSI) was administered via a mailed questionnaire to 291 primary care physicians, 379 registered nurses, and 387 pharmacists randomly selected from national mailing lists.

According to HPSI scores, nurses reported significantly more stress than did either pharmacists or physicians; pharmacists had significantly higher mean stress scores than did physicians in the study. For all three groups, age was inversely related to levels of stress. Each group of professionals scored significantly higher than their colleagues on some individual HPSI items.

Weiman (1977) examined the relationship between occupational stress and major illness in chief officers of financial institutions. A non-experimental study of 1,540 chief officers was conducted. Each participant completed a questionnaire and had a physical exam. The questionnaire was developed by Weiman with the purpose of examining feelings in relationship to particular stressors on a Likert-type scale. There was no report of reliability or validity of the instrument. The results of the questionnaire were correlated with certain diseases using analysis of variance. The study showed there was significant difference ($p < .01$) between levels of stress scores and the incidence of disease.

Although levels and sources of stress differ from one occupation to the next, it was evident there is stress in the workplace. In order to be thorough, it was important to examine the literature relevant to work-related stress.

Stress in Critical Care Nursing

Prior to 1969, the majority of the literature on stress in critical care focused on the patient. A study outlining observation of a small sample of intensive care nurses in a four-bed intensive care unit (ICU) in Maryland was the first to examine nurses and their experience with stressors in the ICU setting (Vreeland & Allis, 1969). From observational data the following stressors for ICU nurses were identified: (1) interpersonal relationships with medical staff, other nurses, and visitors, (2) the patient's physical and psychological condition, (3) the physical environment, such as lack of space, and, (4) the need for advanced knowledge and skills. No information was given about the sample size or methods used in the report on this study.

Two physicians, Hay and Oken (1972) sought to explore the psychological stress of nursing in an ICU. Data were collected by interviews and detailed observations of nurses over a one year period in a 10-bed university hospital ICU. The researchers did not describe their sample with regard to size.

The following stressors were identified: (1) blows to self-esteem, such as fear of making errors, (2) guilt over mistakes, real and imagined, (3) threat of object-loss, (4) various pressures from co-

workers, and, (5) lack of support from patients, fellow nurses, physicians, and administrators. The investigators offered some possible solutions for the reduction of stress, including pay differentials, frequent opportunities for time off, regular staff meetings, and flexible scheduling.

Huckabay and Jagla (1979) conducted a study to identify, verify, measure, and rank order factors in the ICU the nurse perceives as stressful. The stressors identified were examined according to theoretical information relating to two mechanisms for coping with stress: knowledge about the stressor and degree of control over the situation. The four categories of stressors identified were knowledge base, ICU environment, patient care requirements, and interpersonal communication problems.

The study used a descriptive evaluative survey design. A convenience sample of 46 full-time ICU staff nurses obtained from six hospitals participated in the study. Each nurse was given two questionnaires, one for identification of stress factors in the ICU, and the other a demographic data sheet for analysis of relationships between age, educational background, years of nursing experience, years of ICU experience, marital status, religion, and the identified level of stress.

The most commonly identified stressor components were: workload, death of a patient, communication problems between staff and administration, and communication problems between staff and physicians. Also identified as stressful were: meeting the needs of families,

equipment failure, noise in the ICU, and, physical set-up of the ICU. The investigators found an inverse relationship between length of ICU experience and stress, implying that the new graduate or nurse with minimal ICU experience feels higher levels of stress. It is the belief of these investigators that if the true origins of stress in the ICU can be identified and controlled, improved nursing performance will lead to a consistent level of optimal patient care.

Oskins (1979) conducted a non-experimental study of 79 critical care nurses in five acute care hospitals. The purpose of this investigation was to identify specific perceptions dealing with stress and coping in a group of ICU nurses. The three objectives of the study were: (1) to identify the situational stressors perceived by the ICU nurse as present in the ICU environment, (2) to identify the coping methods used by the ICU nurse to manage stress, and, (3) to measure the amount of life-change stress in the ICU nurse.

Six stressful situations were identified by 75% of the nurses studied: (1) staffing with a large number of "floaters", (2) being required to work during a personal crisis, (3) threat of a lawsuit by a patient's family, (4) inadequate staffing, (5) inadequate time to console a dying patient's family, and, (6) a very congested, busy, noisy ICU environment. The leading coping methods identified were of direct action modes and were based on perception of the stressor. As the nurse's perceptions of the stressful event were developed, it was noted that the nurse's anxiety rose and palliative modes of coping were used to minimize stress.

Bailey, Steffen & Grout (1980) conducted a study at the University of California School of Nursing to identify "stressors" and "satisfiers" of ICU nursing. Their sample consisted of 1,800 ICU nurses from three ICU populations: national, regional, or local. The regional sample was represented by 1,238 nurses from 89 ICUs in the San Francisco Bay area. The national sample was represented by 556 members of the American Association of Critical Care nurses, and the local sample was comprised of 129 ICU nurses from the Stanford University Hospital. The "Nursing Stress Audit", a tool developed by the researchers, was used to identify "stressors" and "satisfiers" among the three groups.

All three groups identified management of the unit, interpersonal relationships, and patient care as the three major stressors. The top three satisfiers identified by the groups were patient care, knowledge and skills, and interpersonal relationships. It is interesting to note that two of the stressors and satisfiers were the same. According to the authors, this finding may be significant because it points out that the perceptions and appraisals of the individual nurse are possibly a key in the identification of stressors. Thus, individual differences need to be considered in assisting nurses to manage stress more effectively.

Norbeck (1985) utilized a convenience sample of 180 critical care nurses from adult critical care units in eight different hospitals in a midwestern urban-suburban area. She examined the relationship between perceived job stress, job satisfaction, and psychological symptoms in critical care nurses. A descriptive design was used to study the

relationship among the variables. The Questionnaire of Stressful Factors in the Intensive Care Unit used by Huckabay and Jagla in 1979 was used here to measure perceived job stress. Mean stress scores were calculated. Significant relationships between perceived job stress, job satisfaction, and psychological symptoms were confirmed, thus supporting the hypothesis that high levels of perceived job stress were related to low levels of job satisfaction and high levels of psychological symptoms. The factors identified as being most stressful in the ICU setting were: (1) number of rapid decisions required, (2) cardiac arrests, (3) death of a patient, (4) the amount of knowledge needed, and, (5) workload.

Norbeck's sample included participants from 18 different critical care units varying in specialty. Hospital size ranged from 100 to 465 beds. The diversity of this sample allowed for excellent generalization.

Stress in Emergency Department Nurses

Limited studies have been reported on the subject of stress in Emergency Department nurses. Burns, Kirilloff & Close (1983) conducted a study to identify perceptions of stress and satisfaction from a convenience sample of 75 ENA members and 85 emergency department nurses employed in one large metropolitan area. The questionnaire used "The Nursing Stress Audit" developed by Bailey, et al. 1980. The questions focused on aspects of nursing practice which were perceived as producing the greatest stress and providing the greatest satisfaction. The

investigators also examined the relationship between years of emergency department experience and perceived levels of stress.

Responses were grouped into three categories of stressors: (1) unit management, (2) patient care, and, (3) interpersonal relationships. Within the category of unit management, the nurses ranked inadequate staffing and apathetic or inexperienced staff physicians as the greatest stressors. In the patient care category, emergencies, arrests, and uncontrolled patient volumes were the top stressors. The stressors related to interpersonal relationships were most frequently associated with nurse-physician and nurse-administration interactions. The emergency department nurses with less experience were overall less confident of their knowledge and care giving abilities and were less likely to identify themselves as part of a team.

Keller (1990) conducted a study to measure burnout levels in emergency nurses and to identify coping methods used by these nurses to deal with work-related stressors. A convenience sample of 137 emergency department nurses from 15 different hospitals was used. Three questionnaires, each with established reliability and validity, were used to collect data: the Emergency Nurse Questionnaire, the Maslach Burnout Inventory, and the Bell Coping Method Survey. Measures of emotional exhaustion, depersonalization, and personal accomplishment were identified by the Maslach Burnout Inventory. Sixty-five percent (65%) reported medium to high levels of emotional exhaustion and an even higher number (77%) reported feelings of depersonalization. The coping methods identified as used most frequently by the nurses who were

experiencing feelings of emotional exhaustion were: preparing for the worst, sleeping more than usual, crying, use of recreational drugs, eating, and ignoring the situation. Those used by nurses reporting feelings of depersonalization were crying, cursing, preparing for the worst, eating, and ignoring the situation. The study identified that nurses who reported high levels of frustration and exhaustion did not take definite action in stressful situations. They more typically used avoidance type coping methods as mentioned above.

Hawley (1992) studied a convenience sample of 69 emergency department nurses from the emergency departments of four urban Canadian hospitals. A general profile of emergency nurses' perceptions of stressors was obtained through the modified Stress Diagnostic Survey. Reliability and validity of the tool were previously established by Ivancevich and Matteson (1980) in their research on stress in the workplace. Forty-one items describing potentially stressful conditions in the work environment were rated by respondents according to frequency as sources of stress. Additionally, an open-ended question was added to the questionnaire asking respondents to describe the three greatest sources of stress for them in emergency nursing.

Data from this study suggest that emergency nurses perceive stress originating from a variety of sources in their working environment. The most prevalent stressors identified were: (1) staffing shortages, (2) lack of quality patient care due to staffing shortages, (3) misuse of the emergency department by "repeaters" and patients not needing emergency care, (4) delays in transferring patients to other units, (5)

incompetent medical staff, (6) complaints from patients and their families, (7) death and dying, and, (8) lack of human resources development opportunities. The author suggests that the creation of a workplace that fosters support and promotes professional growth might help reduce the impact of the work-related stressors.

Stress in Flight Nursing

There is a paucity of information in the literature on stress in flight nursing. Barger (1991) conducted a historical study of how military flight nurses cope with war. Twenty-five former U.S. Army flight nurses of World War II were interviewed to see how they coped with wartime situations they perceived as stressful or exceeding their resources. The purpose of this study was to describe those aspects of wartime nursing that flight nurses interviewed would like to have been different and, subsequently, what advice they would offer today's flight nurses.

The investigator conducted interviews with each of the 25 subjects. Most of the information obtained was anecdotal and individualized according to each nurse's particular experience. Some of the common stressors identified were fear of the unknown, lack of intellectual preparation and skills, and lack of supplies to adequately care for the wounded. Advice for future flight nurses included: stress the basics in preparation for duty, learn to be creative in use of limited supplies and equipment, and be creative in one's own communication skills.

Singh (1990) studied the relationship between occupational stress and social support in flight nurses. The sample consisted of 113 flight nurses selected randomly from the membership list of the National Flight Nurses Association. The Personal Resource Questionnaire Part II and the Revised Medical Personnel Stress Survey were used to measure social support and occupational stress. Both instruments had previously established reliability and validity.

Pearson coefficients computed between social support and occupational stress identified statistically significant negative correlations indicating that high social support correlates with low occupational stress. Examination of the individual scores revealed that 97.3% of the respondents scored high on social support and 95.5% scored low on occupational stress. The author suggests that aeromedical organizations could use these results to increase the levels of social support available to flight nurses, keeping in mind that support from supervisors and co-workers is as vital as support from family members.

A Comparison of Stress Between Nursing Specialty Areas

Several studies in the literature recognize the need to review stress specific to clinical areas of practice. Numerof and Abrams (1984) undertook to examine aspects of experienced stress as a function of position within the organization. They developed their own instrument, the Nursing Stress Inventory (NSI) to measure stress by structured interviews. The scores produced by the instrument accounted for both frequency of occurrence and degree of stress associated.

Validity was established, but they did not cite reliability properties. The convenience sample and setting included 154 nurses from a mid-sized hospital in a midwestern city. The nurses were evenly distributed among specialty areas.

The results of the study indicated that RNs experience a higher level of stress than LPNs. The findings indicated that nurses in ICU, medicine, psychiatry, and surgery experienced the greatest degree of stress, and nurses in the recovery room, obstetrics, pediatrics, and administration experience the lowest levels. The study also indicated that years of experience in a specialty area and degree of stress were inversely related, regardless of the specialty area.

A non-experimental study conducted by Cross and Fallon (1985) compared stressors between four specialty areas: critical care, surgical, obstetrics, and medical. The convenience sample consisted of 188 nurses, fairly evenly divided between the four specialty areas, and all from a 545 bed hospital in Australia. The instrument adopted to measure stressors was the "Nursing Stress Audit" which was first used by Bailey, Steffen, and Grout in 1980. Validity and reliability were established in the 1980 study.

Categories of variables were analyzed by multi-variate analysis of covariance (MANCOVA) to account for the differences in the various professional variables between the groups. Seven categories of stressor variables were measured throughout the four specialty areas in terms of occurrence, rank ordering, and personal distress experienced. The seven categories were: management of the ward, interpersonal relationships,

patient care, knowledge and skills, work environment, life events, and administrative rewards.

The critical care, surgical, and obstetric nurses reported management of the ward as being the greatest stressor. The medical nurses reported patient care issues as the greatest stressors. The critical care nurses reported the greatest frequencies of stressor occurrences, and the obstetrical nurses reported the least. The critical care nurses tended to experience the highest levels of personal distress on the ward, typically related to patient care issues. The general conclusions of this study were that each nursing specialty perceives various sources and levels of stress, and that further investigation into the professional and environment variables of nursing specialties was indicated.

The frequency with which a range of stressors occurred in different specialty areas was examined by using a nationwide sample of 2,500 New Zealand nurses in 1988 by Dewe. Through nursing interviews the investigator developed a 53 item questionnaire to identify the frequencies of stressor occurrences. There was no report of establishing reliability or validity of the instrument. Independent variables were measured using a demographic questionnaire.

Multiple regression analysis was performed with stressor frequency as the dependent variable and the demographic variables as the independent variables. The results strongly indicated that the most powerful predictor of stressor frequency was type of nursing ward. Critical care units were on average more likely to experience

"difficulties involved in nursing the critically ill" than other units, but medical, continuing care, and orthopedic units experienced in comparison more stressors more frequently. The author suggests that a systematic examination of the nature and type of stressors and their occurrence across different wards would be appropriate concerns for future investigation.

Gray-Toft & Anderson (1981) conducted a study to investigate the causes and effects of nursing stress in the hospital environment. It was hypothesized that the sources and levels of stress experienced by nurses were functions of the type of unit on which they worked, levels of training, and sociodemographic characterizations. Data were collected from a convenience sample of 122 nurses from five nursing units in a private general hospital using the Nursing Stress Scale, the IPAT Anxiety Scale, and a demographic questionnaire.

The Nursing Stress Scale was developed by the researchers to measure levels and sources of stress. Two estimates of reliability were determined: test-retest and internal consistency. The test-retest coefficient for the scale was 0.81 and four measures of internal consistency were satisfactory. The scale consisted of 34 items which have been identified as causing stress for nurses, and each of the 34 items can fit into one of seven major categories of stress. The seven major sources of stress identified were: a) death and dying, b) conflict with physicians, c) inadequate preparation, d) lack of support, e) conflict with other nurses and supervisors, f) workload, and g) uncertainty regarding treatment.

The 122 sample nurses came from one of five specialty areas: a) medicine, b) oncology, c) cardiovascular surgery, d) surgery, and e) hospice. Results indicated that nurses on the medical unit had the highest stress score and hospice nurses had the lowest. Stress resulting from different sources varied somewhat between the groups. The hospice and oncology nurses experienced the greatest amount of stress associated with death and dying, whereas the medicine nurses experienced the higher scores in conflict with physicians and other nurses and workload. Nurses on all units reported the highest levels of stress associated with workload, dying patients, and inadequate preparation.

The Nursing Stress Scale (Gray-Toft & Anderson, 1982) is an appropriate instrument for measuring levels and sources of stress in nurses. For the purpose of this study, it was used to measure levels and sources of stress between critical care, emergency department, and flight nurses.

Summary

The majority of the research on stress in nursing has focused on critical care nursing. Research related to stress in emergency department and flight nurses is limited. There were no studies which compared the levels and sources of stress between these three highly specialized areas of nursing. However, there was research which indicated that levels and sources of stress differed between specialty areas. (Cross & Fallon, 1985; Dewe, 1988; Gray-Toft & Anderson, 1981;

Numerof & Abrams, 1984). The demographic information obtained in the review indicates that generally nurses who are older and nurses with more experience exhibit a lower level of stress (Cross & Fallon, 1985; Gray-Toft & Anderson, 1981). No significant correlation was found between salary or level of education and levels of stress (Cronin-Stubbs & Rooks, 1985; Gray-Toft & Anderson, 1981). The assumption that critical care, emergency department, and flight nurses are the same in levels and sources of stress led the investigator in this study.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This proposed study was a non-experimental study conducted for the purpose of determining if there is a significant difference in the levels and sources of occupational stress in critical care, emergency department, and flight nurses. A non-experimental survey approach using questionnaires was used as the method for collecting data.

The target population was three groups of nurses: critical care nurses who were members of the AACN; emergency department nurses who were members of the ENA; and flight nurses who were members of the NFNA. Each of these three national organizations provided a random sample of 100 nurses from a list of all their members. Only critical care nurses who were currently providing care in a critical care area, emergency nurses who were currently providing care in an emergency department, and flight nurses who were currently providing care in a flight program were included. All nurses practicing in administration or education were excluded from the study. Questionnaires were sent to each of the 100 nurses in each of the three groups for a total possible sample size of 300 nurses.

Protection of Human Subjects

This study was exempt from Texas Woman's University Human Subjects Review Committee review because a questionnaire of volunteer, adult subjects was used. However, written permission and membership lists were obtained from each of the organizations used: AACN, ENA, and NFNA

and were destroyed following completion of the study.

A cover letter (Appendix A) included with the questionnaire informed the participant that completion and return of the questionnaire implied consent. Questionnaires were coded with numbers to identify in which organization each respondent was a member. Respondents' names were not recorded on the questionnaire. A minimum questionnaire return rate of 50% was considered adequate for analysis (Babbie, 1979).

Instrument

The instrument used for this study was the Nursing Stress Scale developed by Gray-Toft and Anderson (1981). Because the authors could not be located to provide permission for use of the instrument, the publisher provided permission (see Appendix B). It consists of 34 items that describe situations which have been identified as causing stress for nurses in the performance of their duties with the purpose of the tool being to measure the level and sources of stress reported by nurses.

The scale items had been factor analyzed using squared multiple correlations as initial estimates of commonalities. Quartimax and varimax rotation was used (Gray-Toft & Anderson, 1981).

To establish reliability, the scale was given to a sample of 122 nurses from five different nursing units (Gray-Toft & Anderson, 1981). Two estimates of reliability were determined: test-retest and internal consistency. The scale was readministered to a sample of 31 nurses after two weeks. This sample was taken proportionately from the five

units originally studied. The test-retest coefficient for the total scale was 0.81. Four measures of internal consistency were obtained: a Spearman-Brown coefficient of 0.79, a Guttman split-half coefficient of 0.79, a coefficient alpha of 0.89, and a standardized item alpha of 0.89. All four items indicated a satisfactory level of consistency (Polit & Hungler, 1987).

In 1987 McCranie, Lambert and Lambert used the Nursing Stress Scale to measure perceived occupational stress in a convenience sample of 107 registered nurses. Internal consistency ranged from .55 to .85 by alpha coefficient for the seven subscales with an internal consistency of .92 for the total scale.

For the Nursing Stress Scale validity was determined by Gray-Toft & Anderson (1981) by empirically investigating its relationship to other important criteria to which stress is theoretically related, namely, trait anxiety, state anxiety, job satisfaction, and turnover. It was hypothesized that there would be a positive correlation between stress and trait anxiety, state anxiety and turnover, and that there would be an inverse correlation between stress and job satisfaction. These variables were measured by the IPAT Anxiety Scale for trait anxiety; the Affect Rating Scale for state anxiety; and the Work Subscale of the Job Description Index for job satisfaction. Turnover rates of nursing staff for a five month period were examined on the five units included in the study. The theoretical hypotheses of positive correlations between stress and trait anxiety, state anxiety, and turnover were supported, as was an inverse correlation between stress and job satisfaction.

In scoring the instrument individual item responses were added together for groups of items and for all 34 items in order to obtain subscale scores and the total score, respectively. Four response categories were provided for each item: never (0), occasionally (1), frequently (2), and very frequently (3). The total score was indicative of the frequency with which nurses experience stress in the performance of their nursing duties. Scores could range from 0 to 102 with higher scores indicative of greater stress. There were not equal numbers of items in each subscale; therefore, subscale scores were analyzed by examining means and standard deviations in comparison to the total scale score.

Data Collection

The method used for the collection of data was the mailed survey approach. The instrument, along with demographic information sheet, was mailed to 100 nurses in each of the three membership groups described previously. A cover letter explaining the study and providing instructions for completion of the questionnaire was provided in each packet, along with a stamped, self-addressed envelope for returning the completed questionnaires to the investigator. A second mailing was planned if there was less than a 50% return rate; however, there was a 55% return rate, so a second mailing was not necessary.

Treatment of Data

The data was analyzed using a MANOVA technique to determine significant differences among the three groups of nurses in levels and

sources of stress. A 0.05 level of significance was set. Descriptive statistics of frequencies, ranges, means and standard deviations was used to describe the composite stress score, as well as the subscale scores. The relationships between stress and the demographic variables of age, level of education, years of nursing experience, years of nursing experience in current specialty area, length of time at present job, salary, and shift work were examined.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this study was to identify, measure, and compare levels and sources of stress in critical care nurses, emergency department nurses, and flight nurses. Additionally, the study examined the relationships between stress and the demographic variables of age, level of education, years of nursing experience, years of nursing experience in current specialty area, length of time at present job, salary, and shift worked. A description of the sample and findings related to the hypotheses are presented in this chapter.

Description of the Sample

The Nursing Stress Scale and a demographic information sheet were sent to a random sample of 300 nurses. One hundred nurses were randomly selected by each of three national organizations and a mailing label list supplied: The American Association of Critical Care Nurses, The Emergency Nurses Association, and The National Flight Nurses Association. One hundred sixty-five questionnaires were returned. Sixteen questionnaires could not be used because of incomplete data or failure to meet inclusion criteria. The overall response rate was 55%. The return rate of usable questionnaires was 49%. The final sample included 60 critical care nurses, 45 emergency department nurses, and 43 flight nurses.

The demographic data revealed 148 subjects who ranged in age from 23 - 58 with a mean age of 36.8. The sample was 83.0% (122) females and

17.0% (25) males. Of this sample, 43.9% (65) received their basic nursing education from a baccalaureate program, and 61.6% (91) had their highest attained degree from a baccalaureate program. There was 11.2% (17) of the sample with a master's degree either in nursing or another field. There were 81.9% (121) of the nurses with some type of advanced certification. The questionnaire did not allow for clear-cut identification of specific certifications. The nurses had worked an average of 12.5 years in nursing with a range from 1 - 38 years. The nurses had spent an average of 7.9 years in their specialty area and an average of 5.5 years in their current job. The average nursing salary was \$42,600 with a range from \$10,000 to \$75,000, and the average family salary was \$71,978 with a range from \$25,000 to \$600,000.

The flight nurses were the oldest group with a mean age of 37.7 years. The Critical Care (CC) nurses were the youngest with a mean age of 35.8, and the Emergency Department (ED) nurses fell in the middle with an average of 37.3 years. The flight nurse group had the largest number of males with 28.6% (12), and the CC group had the least with only 10% (6). (See Table 1).

The ED nurses were the most highly educated with the largest number of both baccalaureate and master's prepared nurses. All three groups of nurses were highly certified with the ED group having the largest number at 88.9% (132) and the ICU nurses with 76.7% (112).

Flight nurses had been in nursing longer than the other two groups, with an average of 13.8 years; they had been in their specialty and current jobs an average of 7.5 and 5.2 years respectively. The CC

nurses had been in nursing the least amount of time with an average of 11 years, and yet they had the highest averages for years in specialty and years at present job with 8.1 and 6.2 years respectively.

Table 1

Sex and Age for Critical Care Nurses (CCN),
Emergency Department Nurses (EDN), and Flight Nurses (FN)

Variable	CCN (n=60)		EDN (n=45)		FN (n=42)		Total (n=147)	
	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)
Sex:								
Female	54	(90.0)	38	(84.4)	30	(71.4)	122	(83.0)
Male	6	(10.0)	7	(15.6)	12	(28.6)	25	(17.0)
Age:								
21 - 25	3	(5.0)	2	(4.4)	0	(0.0)	5	(3.1)
26 - 30	12	(20.0)	6	(13.2)	5	(11.4)	23	(14.8)
31 - 35	17	(28.3)	6	(13.2)	11	(25.7)	34	(22.4)
36 - 40	15	(25.1)	17	(37.8)	11	(25.7)	43	(29.5)
41 - 45	6	(10.1)	9	(19.9)	12	(27.9)	27	(19.3)
46 - 50	3	(5.0)	2	(4.4)	4	(9.3)	10	(7.2)
51 - 55	2	(3.3)	2	(0.0)	0	(0.0)	4	(2.6)
56 - 60	2	(3.4)	0	(0.0)	0	(0.0)	2	(1.1)

The ED nurses had been in nursing an average of 13.3 years; they had been in their specialty an average of 7.8 years, and had been at their present job an average of 4.9 years (See Table 2).

In comparing salaries between the three groups, the flight nurses come out ahead of the other two groups in both nursing salary and family

salary. The average nursing salaries were \$40,207 for CC nurses, \$43,139 for ED nurses, and \$45,232 for flight nurses. The average family salaries were \$62,392 for ICU nurses, \$69,860 for ED nurses, and \$86,581 for flight nurses (See Table 3).

Table 2

Years in Nursing, Years in Specialty, and Years at Present Job for Critical Care Nurses (CCN), Emergency Department Nurses (EDN), and Flight Nurses (FN)

Variable	CCN (n=60)		EDN (n=45)		FN (n=43)		Total (n=148)	
	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)
Years in Nursing:								
1 - 5	13	(21.6)	5	(11.0)	4	(14.0)	22	(15.5)
6 - 10	19	(31.6)	13	(28.7)	9	(21.0)	41	(27.1)
11 - 15	16	(26.7)	7	(15.5)	14	(32.6)	37	(24.8)
> 15	12	(20.1)	20	(44.3)	16	(37.3)	48	(32.6)
Years in Specialty:								
1 - 5	22	(36.6)	17	(38.7)	21	(48.8)	60	(41.3)
6 - 10	19	(31.6)	15	(34.1)	11	(25.6)	45	(30.4)
11 - 15	15	(25.0)	8	(18.2)	6	(13.9)	29	(19.0)
16 - 20	4	(6.6)	4	(9.2)	5	(11.6)	13	(9.3)
Years at Present Job:								
1 - 5	35	(59.3)	27	(59.9)	28	(65.0)	90	(61.4)
6 - 10	11	(18.7)	15	(33.3)	10	(23.4)	36	(25.1)
11 - 15	11	(18.7)	2	(4.4)	5	(11.6)	18	(11.5)
> 15	2	(3.3)	1	(2.4)	0	(0.0)	3	(2.0)

As expected, the types of shifts worked by all groups of nurses were very diverse. The 7 AM - 7 PM shift was worked by 28.4% (42) of

the nurses. The 7 PM - 7 AM shift was worked by 25% (37) of the nurses. The 7 AM - 3 PM shift was the regular shift of 14.2% (21) of the respondents. Only 2.7% (4) of the respondents worked the 11 PM - 7 AM shift. The CC nurses worked twelve hour shifts 66.7% (99) of the time, evenly divided between day and night shifts. The ED nurses worked a fairly evenly distributed number of eight and twelve hour shifts. The majority of shifts worked by the flight nurses were 7 AM - 7 PM 23.3% of the time, multiple shifts 5.6%, and twenty-four hour shifts 18.6% (see Table 4).

Table 3

Nursing and Family Salaries for Critical Care Nurses (CCN),
Emergency Department Nurses (EDN), and Flight Nurses (FN)

Variable	CCN (n=57)		EDN (n=43)		FN (n=43)		Total (n=143)	
	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)
Nursing Salary:								
0 - 20,000	2	(3.6)	1	(2.3)	1	(2.3)	4	(2.7)
21,000 - 30,000	12	(21.2)	3	(7.0)	2	(4.6)	17	(10.9)
31,000 - 40,000	20	(35.3)	12	(27.9)	13	(30.3)	45	(31.1)
41,000 - 50,000	14	(24.6)	23	(53.6)	14	(32.7)	51	(36.9)
51,000 - 60,000	6	(10.6)	2	(4.6)	8	(18.7)	16	(11.3)
> 60,000	3	(4.7)	2	(4.6)	5	(11.4)	10	(7.1)
Family Salary:								
25,000 - 50,000	21	(37.8)	17	(39.5)	13	(30.2)	51	(36.6)
51,000 - 75,000	21	(37.8)	10	(23.3)	12	(27.9)	43	(30.2)
76,000 - 100,000	12	(21.5)	14	(33.5)	14	(32.5)	40	(28.1)
> 100,000	2	(2.9)	2	(5.0)	4	(9.4)	8	(5.1)

Findings

Results of the study relevant to each of the hypotheses are presented in this section:

The first hypothesis was: There will be no difference in the levels and sources of occupational stress between critical care (CC) nurses, emergency department (ED) nurses, and flight nurses (FN). Levels and sources of stress were measured using the Nursing Stress Scale (Gray-Toft & Anderson, 1981).

Table 4

Distribution of Shifts Worked Between Critical Care Nurses (CCN), Emergency Department Nurses (EDN), and Flight Nurses (FN)

Shift	CCN (n=60)		EDN (n=45)		FN (n=43)		Total (n=148)	
	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)	<u>n</u>	(%)
7A - 7P	21	(35.0)	11	(24.4)	10	(23.3)	42	(28.4)
7P - 7A	19	(31.7)	11	(24.4)	7	(16.3)	37	(25.0)
7A - 11P	7	(11.7)	9	(20.0)	5	(11.6)	21	(14.2)
3P - 7A	6	(10.0)	5	(11.1)	0	(0.0)	11	(7.4)
11P - 7A	4	(6.7)	0	(0.0)	0	(0.0)	4	(2.7)
24 Hour	0	(0.0)	0	(0.0)	8	(18.6)	8	(5.4)
Multiple	3	(5.0)	2	(4.4)	11	(25.6)	16	(10.8)
Other	0	(0.07)	7	(15.6)	2	(4.76)	9	(6.1)

The Nursing Stress Scale (NSS) mean score for all three groups was 42.5. The median score for the total sample was 43.0. The range was 58 with a minimum of 15 and a maximum of 73, and the standard deviation was 11.65. The analysis of variance indicated significant differences

between CC nurses and flight nurses on the total NSS score and on four of the seven subscales. Critical Care nurses scored significantly higher than flight nurses on total NSS scores and on the subscales; death and dying, inadequate preparation, workload, and uncertainty regarding treatment. There were no significant differences in total stress or subscale scores between the ED nurses and either of the other two nursing groups. There were no significant differences between any of the three groups on the subscales: conflict with physicians, lack of support, and conflict with other nurses. Generally, the CC nurses had the highest levels and sources of stress and the flight nurses had the lowest. The ED nurses generally fell between the other two groups' scores in levels and sources of stress (see Tables 5 and 6).

Table 5

Analysis of Variance of Nursing Specialty Area by Stress Scores

Variable		P	f value	S.D.
Total Stress Score	*	0.0007	7.68	11.65
Subscales:				
Death and Dying	*	0.006	5.30	2.67
Conflict with Physicians		0.1	2.33	2.21
Inadequate Preparation	*	0.027	3.68	1.67
Lack of Staff Support		0.113	2.20	3.21
Conflict with Nurses		0.9887	.012	1.39
Workload	*	0.0003	8.76	3.90
Uncertainty Concerning Tx	*	0.01	4.71	1.94

* Indicates level of significance at $p < .05$

The second hypothesis was: Reported levels of occupational stress

in critical care nurses, emergency department nurses and flight nurses will be inversely related to the demographic variables of age, years of nursing experience, years of nursing experience in current specialty area, and length of time at present job. Pearson's correlation coefficients were computed between total stress scores, the seven subscales, and the appropriate demographic. None of these demographic variables were found to be significantly related ($p < .05$) to the subscale scores or the total stress score. Thus, these demographic variables do not appear to influence the levels or sources of stress in this sample of nurse.

Table 6

Mean Scores and Total Possible Scores on Total
Stress Scores and Subscale Scores

Variable		CCN	EDN	FN	Total
Total Stress Score	*	46.28	42.15	37.55	102
Subscales:					
Death and Dying	*	7.53	6.62	5.86	15
Conflict with Physicians		7.05	6.97	6.16	15
Inadequate Preparation	*	4.40	4.37	3.58	12
Lack of Staff Support		7.63	6.48	6.53	21
Conflict with Nurses		2.18	2.22	2.18	6
Workload	*	11.56	10.20	8.46	21
Uncertainty Concerning Tx	*	4.76	5.26	5.91	12

* Indicates significant difference between Critical Care Nurses and Flight Nurses

The third hypothesis was: Level of education, salary, and shift worked will not be statistically significant predictors of reported

levels of stress in critical care nurses, emergency department nurses, and flight nurses. Relationships between the stress scores and level of education and salary were investigated with Pearson's correlation coefficients. Analysis of variance was used to compare the stress scores to the shift worked.

There was a significant correlation between level of education and the scores on the subscale: inadequate preparation ($r = -.2195$; $p = .014$). This correlation indicated that the higher the nurse's level of education, the higher the level of stress related to feeling inadequately prepared to care for patients.

There were significant inverse correlations ($p < .05$) between nursing salaries and the total NSS ($r = -.2392$; $p = .004$), as well as two of the subscales, uncertainty concerning treatment ($r = -.2616$; $p = .002$) and workload ($r = -.2562$; $p = .002$). These correlations indicate that the lower the nurse's salary, the higher their overall work stress. Additionally, the lower paid nurses experienced greater levels of stress from uncertainty regarding treatment and workload.

Analysis of variance was computed for the total NSS and the subscales in comparison to the nursing shift worked. There were eight possible shift choices: 1) 7A - 7P, 2) 7P - 7A, 3) 7A - 3P, 4) 3P - 11P, 5) 11P - 7A, 6) 24 hour shifts, 7) multiple shifts, and 8) other. The only significant differences found were in the subscale workload ($f = 2.89$; $p = .007$). The nurses working twenty-four hour shifts were significantly less stressed about their workload than the nurses working 7A - 7P, 7P - 7A, 11P - 7 A, and 7A - 3P. Interestingly, only the

flight nurse group worked twenty-four hour shifts.

Summary

This study sought to compare levels and sources of stress between three groups of nurses, and, additionally, examined the relationship between stress and certain demographic variables. It was found that CC nurses feel significantly more work stress than flight nurses. However, there were no significant differences between ED nurses and the other two groups. Additionally, it was found that the demographic variables of salary, level of education, and shift worked were significantly related to increased levels of stress. However, there were no significant differences between level of stress and the other demographic variables of age, years of nursing experience, years of nursing in current specialty area, and length of time at present job.

CHAPTER 5

SUMMARY OF THE STUDY

The purpose of this study was to compare levels and sources of stress between critical care nurses, emergency department nurses, and flight nurses. A secondary purpose was to identify relationships between stress and certain demographic variables in this sample of nurses. This chapter presents a summary of the study, a discussion of the findings, presentation of conclusions and implications, and offers recommendations for further study.

Summary

A descriptive survey was conducted by mail to compare levels and sources of stress in three groups of nurses. The Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981) and a demographic information sheet were completed by a random sample of 148 nurses from one of three national organizations: The American Association of Critical Care Nurses (60), The Emergency Nurses' Association (45), and The National Flight Nurses' Association (43). The theoretical framework used for this study was developed by Hans Selye (1974).

Analysis of variance was used to compare the total NSS and each of the subscales scores between the three groups. The seven subscales were: 1) death and dying, 2) conflict with physicians, 3) inadequate preparation, 4) lack of support, 5) conflict with other nurses, 6) uncertainty regarding treatment, and 7) workload. The results showed that the CC nurses experienced significantly more work stress than the

flight nurses. They scored significantly higher than the flight nurses in the total NSS and on the subscales, death and dying, inadequate preparation, uncertainty regarding treatment, and workload. There were no significant differences between the ED nurses and the other two groups.

Correlation coefficients were used to examine the total sample's NSS scores and subscale scores in comparison to the demographic variables. The demographic variables examined in the study were: age, years of nursing experience, years of nursing experience in current specialty area, length of time at present job, level of education, salary, and shift worked. There were significant correlations between level of education and the subscale, inadequate preparation. Additionally, there were significant correlations between nursing salaries and the total NSS score, as well as two of the subscales, uncertainty concerning treatment and workload. In examination of shifts worked, the only significant differences were found in the subscale, workload. The nurses working 24 hour shifts were significantly less stressed about their workload than the nurses working 7A - 7P, 7P - 7A, 11P - 7A, and 7A - 3P.

Discussion of Findings

The investigator's first hypothesis that there would be no significant differences in levels and sources of occupational stress between the three groups of nurses was not completely supported. The flight nurse group experienced significantly lower levels of stress than

the CC nurse group. There was an abundance of evidence in the literature to support the thought that critical care nurses experience stress in the work environment (Bailey, Steffan & Grout, 1980; Cronin-Stubbs & Rooks, 1985; Oskins, 1979; Vincent & Coleman, 1984). However, there was virtually no literature to indicate what level of stress flight nurses experience. Because both critical care nurses and flight nurses experience exposure to life-threatening crises situations, complex technology, critical decision-making responsibilities, and an overstimulating environment the investigator felt they would experience similar levels of stress. Some possible explanations for the difference could be that the flight nurse group in general is older, has more years in nursing, and has a higher salary. Wolfgang (1988) in his study compared levels of stress between three groups of medical professionals and found that age was inversely related to stress levels. Additionally, Huckabay and Jagla (1979) found an inverse relationship between years in nursing and level of stress.

The findings of this study were consistent with the findings of Gray-Toft and Anderson (1981) who noted that nurses, regardless of specialty type, experience similar sources of stress. They compared levels and sources of stress between five nursing specialty areas and found that these nurses reported experiencing the most stress from the same three sources: workload, feeling uncertain regarding treatment, and death and dying. This is comparable to the results found here. The critical care nurses experienced the greatest stress from workload, death and dying, and uncertainty regarding treatment. The ER nurses

reported the greatest stress from workload, conflict with physicians, and death and dying. The flight nurse group's greatest stressors were conflict with physicians, workload, and uncertainty regarding treatment. Overall, workload was the greatest source of stress for all three groups. This is consistent with the literature which suggests that workload is one of the greatest sources of stress among nurses (Hawley, 1992; Huckabay & Jagla, 1979; Norbeck, 1985).

The second hypothesis, that there would be an inverse relationship between level of stress and the demographic variables of age, years of nursing experience, years of nursing in current specialty area, and length of time at present job, was not supported in this study. There were no significant correlations between level of stress and these demographic variables; therefore, this hypothesis was not supported. This is not consistent with the literature which indicates a strong relationship between stress and these variables (Cross & Fallon, 1985; Numerof & Abrams, 1984). In the study by Numerof and Abrams (1984), the sample consisted of a cross-section of nurses, including emergency and critical care, from a medium-sized midwestern hospital. The study by Cross and Fallon (1985) examines stress in four nursing specialty areas: critical care, obstetrics, surgical, and medical. These studies examined an appropriate population of nurses to lend support to the hypothesis as stated. It is unclear why there is a contradiction in the literature and the findings here.

The third hypothesis, that level of education, salary, and shift worked would not be predictors of stress, was also not supported in this

study. Studies by Cronin-Stubbs and Rooks (1985) and Cross and Fallon (1985) found no significant relationship between level of stress and salary or shift worked. The literature also indicated there was no relationship between stress and level of education (Norbeck, 1985; Numerof & Abrams, 1984). However, in this study there were significant correlations between stress and these three variables.

There was a significant correlation between level of education and the scores on the subscale, inadequate preparation. This suggests that the more highly educated nurses experience greater stress from feeling inadequately prepared to care for patients. A possible explanation of this finding is that the previous comparative studies were only examining level of education with regard to associate degree, diploma and bachelor's-prepared nurses, and, in contrast, this study included master's-prepared nurses in the sample (11.2%). Although all nurses in the sample spend at least 50% of their time in patient care, it is feasible that the master's nurses spend less time than the other nurses in direct patient care because of other duties, such as education and committee work. It is also possible that nurses who seek higher education may, in fact, be more critical of their knowledge level and expect more of their performance.

There was also a significant negative correlation between nursing salaries and the total NSS, as well as two of the subscales, uncertainty concerning treatment and workload. This indicates that the lower the nurse's salary, the higher the overall work stress, stress from uncertainty regarding treatment, and from workload. A possible

explanation for this could be that nurses who are paid less feel less valued or have lower professional self-esteem. According to Selye (1974), this can lead to maladaptation.

With regard to shift worked, the nurses who worked 24 hour shifts were significantly less stressed in the workload subscale than nurses on other shifts. This makes perfect sense because the nurses who work 24 hour shifts generally work two shifts per week and are able to sleep for at least part of their shift. This allows for more rest and more time off.

It is important to note that in the studies addressed in the literature review relevant to the demographic variables, the data were obtained from convenience samples whereas in this study, the sample was obtained randomly. Additionally, the sample sizes were smaller in all but two studies (Bailey, et al., 1980; Norbeck, 1985). The larger size and random sampling of this study should allow for better generalization of findings.

Conclusions and Implications

From the findings of this study, the following conclusions and implications seem warranted:

1. The perception of stress may be greater in some nursing specialty areas than others; however, similar specialty areas experience similar sources of stress. Therefore, nurse managers and educators can begin to channel stress relief activities and workshops towards groups of nurses in similar

specialty areas.

2. There are unidentified variables related to workplace stress that were not identified in this study. Therefore, nursing managers should focus their efforts on identifying specific sources of stress in their particular environment in order to help their nurses deal more effectively with stress.
3. Advanced educational preparation of specialty area nurses is not synonymous with confidence and ease in providing patient care. Since this was an unexpected finding, this investigator believes that nurse managers should be alert to the needs for mentorship and fostering of these more highly educated nurses.

Recommendations

The findings of this study indicate a need for future research in several areas. These include:

1. A replication of the study with a larger sample size would further validate the results found in the study.
2. Redesign the study to include an examination of certain personality traits, such as hardiness, to attempt to identify why some nurses experience more work stress than others.
3. Further look at the relationship between salary and work stress since much of past literature emphasizes buffering variables other than pay.
4. Examine the relationship between stress and level of education in this sample of nurses.

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APPENDIX A
QUESTIONNAIRE PACKET

April 12, 1993

Dear Colleague:

I am a graduate student in nursing at Texas Woman's University in Houston, Texas. I am conducting research to compare levels and sources of stress among critical care, emergency department, and flight nurses. The study will examine levels, sources, and relationships of stress to various personal, interpersonal, and environmental variables.

Your name was selected randomly from a membership list from one of three national organizations: either the American Association of Critical Care Nurses, the Emergency Nurses' Association, or the National Flight Nurses' Association. I would greatly appreciate your participation in this study but in no way are you required to do so. Participation is voluntary and you may withdraw at any time. There is no potential risk for participating. Identifying levels and sources of stress in these three groups of nurses can begin to channel management and educational efforts into preparing these nurses for their role. Your participation will greatly enhance the merit of this research for the nursing profession.

If you choose to participate please complete the Nursing Stress Scale and the demographic information sheet and return them in the enclosed, self-addressed stamped envelope within two weeks. It will take approximately 15 minutes to complete the Nursing Stress Scale and the demographic information sheet. The return of the completed instruments will imply consent to participate. Your individual responses will be strictly confidential. The instruments are coded with a 1, 2, or 3 to indicate from which nursing group the responses came and will be used for statistical analysis only.

I wish to have participants in my study who are currently providing patient care. Therefore, if you are not in a position where you are a patient care provider, thank you for reading this letter but do not complete the enclosed instruments. Please mail them back to me uncompleted.

Thank you in advance for participating in this study. Results of this thesis may be obtained, upon completion and publication, from the Jesse H. Jones Library, Houston, Texas. If you have any questions concerning the study you may contact me at (713) 797-1762.

Sincerely,

Diana H. Taylor, R.N., BSN
4424 Lafayette
Bellaire, TX 77401

DEMOGRAPHIC SHEET

1. AGE: _____ (in years)
2. SEX: M F (circle one)
3. Circle basic nursing education: Diploma A.D. B.S.
4. Circle all degrees awarded: A.D. B.S. M.S. Other
 M.S. Nursing Ed.D. Ph.D. D.N.Sc.
5. Years in nursing practice: _____
6. Specialty area: (circle area of current practice)
 Emergency Room Critical Care Area Flight Nursing
7. Your primary job responsibility (circle one)
 Clinical Practice Administration Education
8. Current certification credentials _____
9. Years in current specialty: _____ (i.e., E.R.,
 Critical Care, Flight Nursing).
10. Months and years at present job: _____ Years
 _____ Months (i.e., 02 Years, 06 Months)
11. Your current annual salary: _____,000 (per year)
12. Your family's annual income: _____,000 (per year)
13. Usual shift worked: (circle one)
 7A-7P 7P-7A 7A-3P
 3P-11P 11P-7A 7A-7A (24 hr shift)

THE NURSING STRESS SCALE

Below is a list of situations that commonly occur on a hospital unit. For each item indicate how often in your present department you have found the situations to be stressful. Your responses are strictly confidential.

- | | 0 | 1 | 2 | 3 |
|-------|-------|---|------------|-----------------|
| | Never | Occasionally | Frequently | Very Frequently |
| _____ | 1. | Breakdown of computer. | | |
| _____ | 2. | Criticism by a physician. | | |
| _____ | 3. | Performing procedures that patients experience as painful. | | |
| _____ | 4. | Feeling helpless in the case of a patient who fails to improve. | | |
| _____ | 5. | Conflict with a supervisor. | | |
| _____ | 6. | Listening or talking to a patient about his/her approaching death. | | |
| _____ | 7. | Lack of an opportunity to talk openly with other unit personnel about problems on the unit. | | |
| _____ | 8. | The death of a patient. | | |
| _____ | 9. | Conflict with a physician. | | |
| _____ | 10. | Fear of making a mistake in treating a patient. | | |
| _____ | 11. | Lack of an opportunity to share experiences and feelings with other personnel on the unit. | | |
| _____ | 12. | The death of a patient with whom you developed a close relationship. | | |
| _____ | 13. | Physician not being present when a patient dies. | | |
| _____ | 14. | Disagreement concerning the treatment of a patient. | | |
| _____ | 15. | Feeling inadequately prepared to help with the emotional needs of a patient's family. | | |

- _____ 16. Lack of an opportunity to express to other personnel on the unit my negative feelings toward patients.
- _____ 17. Inadequate information from a physician regarding the medical condition of a patient.
- _____ 18. Being asked a question by a patient for which I do not have a satisfactory answer.
- _____ 19. Making a decision concerning a patient when the physician is unavailable.
- _____ 20. Floating to other units that are short-staffed.
- _____ 21. Watching a patient suffer.
- _____ 22. Difficulty in working with a particular nurse (or nurses) outside the unit.
- _____ 23. Feeling inadequately prepared to help with the emotional needs of a patient.
- _____ 24. Criticism by a supervisor.
- _____ 25. Unpredictable staffing and scheduling.
- _____ 26. A physician ordering what appears to be inappropriate treatment for a patient.
- _____ 27. Too many non-nursing tasks required, such as clerical work.
- _____ 28. Not enough time to provide emotional support to a patient.
- _____ 29. Difficulty in working with a particular nurse (or nurses) on the unit.
- _____ 30. Not enough time to complete all of my nursing tasks.
- _____ 31. A physician not being present in a medical emergency.
- _____ 32. Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment.
- _____ 33. Uncertainty regarding the operation and functioning of specialized equipment.
- _____ 34. Not enough staff to adequately cover the unit.

APPENDIX B
PUBLISHER APPROVAL

December 9, 1992

Georgia Prince
Plenum Publishing Corporation
233 Spring Street
New York, NY 10013-1578

Dear Ms. Prince:

I would like permission to utilize a scale published in 1981 in the Journal of Behavioral Assessment, Volume 3, Number 1. The article is entitled, The Nursing Stress Scale: Development of an Instrument by Pamela Gray-Toft and James Anderson. The scale is "The Nursing Stress Scale". I have enclosed an abstract describing the research project in which I will use the scale. Please call me if you have any questions.

Sincerely,

Diane H. Taylor

Diane H. Taylor, R.N.
7 Pembroke Ct.
Bellaire, TX 77401

PERMISSION GRANTED provided that material has appeared in our work without credit to another source; you obtain the consent of the author(s); you credit the original publication; and reproduction is confined to the purpose for which permission is hereby given.

Georgia Prince 12/14/92
Georgia Prince Date

Office of Rights/Permissions, Plenum
Publishing Corp, 233 Spring Street
New York, NY 10013

March 8, 1993

Georgia Prince
Plenum Publishing Corporation
233 Spring Street
New York, NY 10013-1578

Dear Ms. Prince:

Enclosed is a copy of the correspondence between us this past December.

I spoke with you in January about my inability to locate the authors of the publication in question. You gave me verbal permission to utilize the "Nursing Stress Scale" without further attempts to obtain permission from the authors. I need your written permission in order to proceed. It would be sufficient for my purposes if you just sign this letter and send it back to me. Thank you for your time.

Sincerely,

Diane
Diane H. Taylor
7900 N. Stadium Drive #6
Houston, TX 77030

*We want the
Stipulation that you
obtain author's permission
since we are unable to
provide current address.
K. Prince
3/23/93*