

SOURCES OF STRESS IN CRITICAL CARE NURSING

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF NURSING

BY

MARY ELIZABETH BUNCH, R.N., B.S.N.

DENTON, TEXAS

AUGUST 1982

ACKNOWLEDGMENTS

Grateful appreciation is extended to my committee:
Dr. Carolyn Adamson, Chairman; Dr. Susan Tollett and
Dr. Vera Harmon, members.

A special thank-you is given to all the nurses who
took the time from their busy schedules to complete and
return the questionnaire.

There are many persons who have contributed in many
ways to this endeavor. Sincere thanks are offered to
them. Additionally, special thanks go to John McWilliams
for his support and transport, and Rosa Lee Bachtel for
her encouragement and contributions.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vi
Chapter	
1. INTRODUCTION	1
Problem of Study	2
Justification of Problem	3
Theoretical Framework	6
Assumptions	7
Research Question	8
Definition of Terms	8
Limitations	9
Summary	9
2. REVIEW OF LITERATURE	11
Concept of Stress	12
Causes of Psychological Stress in Nursing	15
Coping Strategies for Dealing with Stress	17
Summary	20
3. PROCEDURE FOR COLLECTION AND TREATMENT OF DATA	21
Setting	21
Population and Sample	22
Protection of Human Subjects	22
Instrument	23
Data Collection	24
Treatment of Data	25
Summary	25
4. ANALYSIS OF DATA	26
Description of Sample	26
Findings	31
Summary of Findings	50

Chapter

5. SUMMARY OF THE STUDY	56
Summary	56
Discussion of the Findings	58
Conclusions	62
Implications for Nursing Practice	63
Recommendations	64
APPENDIX A: PROTECTION OF HUMAN SUBJECTS	66
APPENDIX B: INSTRUMENT	68
REFERENCES	75

LIST OF TABLES

Table

1. Age, Marital Status and Number of Dependents of 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing . .	27
2. Position, Length of Employment, Shift Worked and Education of 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing	29
3. Attractors to ICU Nursing Ranked Highest by 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing	32
4. Reasons for Leaving Prior Critical Care Units Given by 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing.	33
5. Sources of Satisfaction in Nursing Given by 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing	36
6. Categories of Stressors for 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing	38
7. Ranked Sources of Stress Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	39
8. Nature of Direct Patient Care--Stressors and Satisfiers Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	43
9. Interpersonal Conflicts--Stressors and Satisfiers Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing . .	44
10. Management of the Unit--Stressors and Satisfiers Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing . .	45

Table

11.	Inadequate Knowledge and Technical Skills Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing . .	46
12.	Physical Work Environment--Stressors and Satisfiers Cited by 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	47
13.	Life Events--Stressors and Satisfiers from 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	48
14.	Lack of Administrative Rewards--Stressors and Satisfiers from 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	49
15.	Table of Ordered Means for Comparison Among Stressors as Cited by 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing	51
16.	A Comparison of Critical Care Units to Ascertain Significant Stress Levels in One Unit Over Another of 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing.	52
17.	Life Events by Unit Comparison in 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing	53

CHAPTER 1

INTRODUCTION

Critical care nurses are generally regarded as competitive, competent people who want respect and recognition. They prefer working in a fast paced environment, under high tension and in the midst of pain, delirium, and death, which continually demands the impossible (Miller, 1981). This environment may be dangerous to the nurse caring for critical patients day after day. The nurse becomes exhausted by the excessive demands made on her energy, strength, and resources. Her level of efficiency declines, initiative dampens, interest in work diminishes, and she becomes less effective in critical situations. As a result, nurses often use the terms stagnant, in a rut, ineffective, stressed-out, or resigned when referring to a person suffering from characteristic stress.

Stress, defined by Selye (1977) as "the nonspecific response of the body to any demand" (p. 35), may evoke a physical response through certain disease entities such as hypertension and cardiac disease, as well as gastric and duodenal ulcers. Stress is a physiological, psychological, social, and environmental phenomenon. Generally, a person responds to physical stress by an increase in sympathetic

nervous system activity. Blood pressure rises, the heart rate increases, and muscles tense for the "fight or flight" reflex (Cannon, 1929). The body may over-secrete glucocorticoids in response to stress (Selye, 1976). The psychological response to stress is exhibited by high frustration levels and hyperexcitability. Environmental stress for the nurse involves sensory overload; especially monotonous, continuous noises.

In critical care nursing, it has been suggested that stress is the major reason for staff frustration. Recognition of the stress and stressors affecting critical care nurses is of ultimate importance before the problem can be properly addressed.

Problem of Study

Since high stress levels may have a deleterious effect on the critical care nurse, it was important to first study stress. In this study, the problem addressed was: What are the sources of stress in critical care nursing?

Justification of the Problem

According to Cassell (1976), a new pattern of disease is attributed to the stresses brought on by affluence in our modern technological society. A study of major causes of death indicates this shift in disease patterns. Leading

causes of death in the early 1900s included pneumonia, tuberculosis, typhoid fever, and various dysenteries. The death rate was about 28 deaths per 1,000 people annually. Due to the development of antibiotics and other antimicrobials these diseases have been practically alleviated in the United States. In 1972 the death rate was about 9 deaths per 1,000 people annually and the leading causes of death included cardiovascular disease, cancer, accidents, pulmonary conditions, diabetes, cirrhosis of the liver, and suicides and homicides. This rapid increase in death due to stress related disorders is staggering. New approaches must be combined with traditional approaches to promote or maintain health (Cassell, 1976).

The Travis model of seven stages of development in stress related disease included: Stage one through four are asymptomatic escalations of a person's response to stress. The continuum goes from no stress, to at risk, to excessive stress, and progresses to early clinical signs. It is during stages one through four that preventive medicine may be effective in alleviating or curtailing disease. Stage five, the symptomatic level, usually occurs when traditional medicine intervenes. Stage six is actual disease and stage seven is death (Pelletier, 1977). Prevention of the symptomatic level of stress can only be accomplished if one first recognizes the sources of stress.

Selye (1979), who theorized that stress cannot be avoided, stated that "absolute freedom from stress is death" (p. 563). Selye suggested that stressors can be met more efficiently, however, and even enjoyed by learning more about their mechanism and adjusting one's philosophy of life accordingly. He noted that there is no one right way to face the stressors in life; the number of lifestyles alone is proof that no single solution is appropriate to all people. He further stated that the possession of a few scientifically founded criteria can help in finding one's own pathway.

Recently, a study was completed by the American Association of Critical Care Nurses (AACN) to begin identifying those criteria. For the study, 500 critical care nurses shared their perceptions about critical care work and environment (Stephen & Bailey, 1979). Sources of stress included interpersonal relationships, mainly, irresponsible nursing leadership, medical mismanagement of patients, lack of respect for physicians, and staff personality conflict. Secondly, management of the unit was listed as a stressor. This included inadequate staffing, inadequate apathetic float nurses, lack of time, shifts, interruptions, and secretarial duties. Direct patient care was cited as the third major stressor including death of

special patients, responsibilities and decision making, and caring for physically debilitated patients. This study replicated the AACN study. Identified stressors in the critical care areas at the hospital studied were compared to nurses' stressors studied by the AACN project. A comparison was made to determine if stressors were similar in the two groups.

The rationale for studying stress in the critical care environment was to alert nurse administrators to the complications of high stress levels. High stress levels prevent nurses from doing their job at their maximum potential. The identification of stressors may help nurse administrators deal with the stressors in a positive manner. Prevention is the most important key to stress but financing is required to enable nurses to practice stress reducing techniques. That money will only be made available when administrators recognize the need for these stress alleviating activities.

Theoretical Framework

As early as 1940, Selye was researching the effects of physiologic stress on the human body. In elucidating his findings in his treatise on the General Adaptation Syndrome (GAS), Selye (1976) stated that stress attacks the individual in three stages. The first stage is the alarm

reaction (AR) also known today as the sympathetic response. The second stage is the stage of resistance (SR) or the body's coping mechanism. The third stage is exhaustion (SE) when the body's defense mechanisms are no longer able to function.

Disease entities popularized by Selye as being diseases of adaptation include: hypertension, arteritis, arteriosclerosis, myocarditis, nephrosclerosis, and arthritis. He postulated that diseases occur in the body in response to the development of pathogenic situations such as: (a) the stressor effect of the pathogen; (b) adaptive hormones present in the body, or produced by stress; and (c) conditioning factors such as heredity, preexisting organ lesion, or the diet (Selye, 1976).

Although Selye's ideas were accepted by the medical community, her term "stress" was not readily accepted. Stress had long been a term used in physics to denote the sum of all forces which act against a resistance (Selye, 1976). For example, a rubber band during traction would exhibit a similar effect. Selye used the term stress, however, to describe both the agent producing the General Adaptation Syndrome (GAS) (for example, cold-stress), and the condition of the organism exposed. This led to the development of the term "stressor" for the agent and stress for the condition.

Today in nursing, these terms are frequently used to describe both psychological and physical stress. All nurses experience the alarm reaction to the general stress inherent in the critical care area. The secret of those who survive lies within the second stage or stage of resistance. In other words, some people have stronger coping mechanisms than others. Once the stage of exhaustion is reached, the critical care nurse usually leaves the system. The main thrust of this study was to identify sources of stress so that the stage of resistance may be strengthened.

Assumptions

Assumptions made in this study included:

1. Critical care nursing produces a climate of stress.
2. Diseases in the human body may result from high levels of stress over a prolonged period of time.
3. Stressors may produce both psychological and physical stress.
4. All nurses experience the alarm reaction inherent in critical care nursing.
5. The nurse's personal coping mechanism will dictate her reaction to stressors.

Research Question

In order to alleviate stressors in critical care nursing it is first necessary to identify them. The

research question addressed in this study was: What stressors are perceived as important by critical care nurses?

Definition of Terms

The following terms are used throughout the text, therefore, for clarity, one definition will apply.

1. Critical care nurses--nurses who are in a unit that requires a staffing ratio of one nurse for no more than three to four patients. Examples include: surgical intensive care, surgical intermediate care, burns, renal transplant, recovery room, medical intensive care, medical intermediate care, and cardiac care.
2. Nurse--an RN or LVN licensed to practice in the state of Texas who performs a service to sick or well individuals to help them cope with their health needs.
3. Stress--the condition of an organism exposed to an external strain or pressure.
4. Stressor--as perceived by the critical care nurse, an agent, external strain or pressure causing physical and psychological ramifications; the agent producing the General Adaptation Syndrome (GAS) as measured by the Intensive Care Nursing Questionnaire (ICNQ).

Limitations

The intervening variables that jeopardized the internal and external validity of this study and which were not controlled include:

1. The study was limited to a convenience sample and therefore the findings could not be generalized beyond the units sampled.
2. The respondents answered the questionnaire in the unit in which they worked, therefore they may have been affected positively or negatively by the particular day's activities.
3. Because the study was descriptive, no causal statements can be made about the findings.

Summary

Although the word stress seems to be an ambiguous term, this paper has identified that it is an all encompassing term having an effect on nurses' lives both physically and psychologically. Researchers study stress to teach people from all professions how to deal with stressors to their advantage.

In subsequent chapters the development of the sources of stress in critical care nursing are elucidated. In Chapter 2, three areas of interest are included. These are the concept of stress, psychological stress and coping

strategies to help nurses deal with stress. In Chapter 3, the setting for the study is described as well as the hospital in which the study was done. This chapter also includes a description of the questionnaire used in the study and how validity and reliability measurements were obtained. Data collection is described in detail as well as statistical treatment of the data. A typical nurse respondent is described in Chapter 4. Also delineated in this chapter is statistical information regarding the research question and sources of stress in critical care nursing. Chapter 5 reviews the problem of the study and a discussion of the findings follows. These findings are related to the original research and conclusions are stated. Chapter 5 also offers recommendations for follow-up to this study.

CHAPTER 2

LITERATURE REVIEW

The effects of stress on the human body have been studied for many years. As early as the 1930s Hans Selye examined the effects of physiological stress (Selye, 1976). Since that time, both physical and especially psychological stress have been scrutinized by medical and other health care professionals. During the past 10 years, from 1970 to 1980, a tremendous amount of descriptive studies have been written regarding stress (Caldwell & Weiner, 1981).

In reviewing the subject of stress in critical care nursing, three recurrent topics emerged from the literature. The first topic, the concept of stress, was composed of definitions and ideas regarding stress by leaders in the field. This concept was first noted and studied extensively by Hans Selye (1976) who incorporated the causes and effects of physiological stress on the human body. The second topic discusses causes of psychological stress in critical care nursing. The third topic addresses various coping strategies for nurses faced with the reality of stress and its effects.

The nursing profession has received increasing attention from physiologists, psychologists, and sociologists regarding the high degree of stress inherent in the field, particularly in the area of critical care. The ultimate goal of stress research appears to be the identification of methodologies which nurses can employ to effectively deal with stress. One very significant method of relieving stress is through the designation and development of sources of satisfaction in the workplace.

Concept of Stress

The study of stress began with the work of Hans Selye (1976), a physiologist who studied the effects of stress on body organs. Selye (1976) began his research on stress by first studying the endocrine system, specifically hormonal secretion. He noticed that when certain body organs were under stress the endocrine system secreted hormones to attempt to alleviate the stressor. When hormones were secreted over a period of time, damage to the organ eventually occurred. Selye (1976) named the diseases caused by this damage "diseases of adaptation." These diseases included high blood pressure, cardiovascular disease, kidney disease, gastric and duodenal ulcers and even insomnia. These diseases of adaptation are not necessarily exhibited during times of stress. For example, in

animals, overdosage with the hormone, deoxycorticosterone leads to ultimate death long after the drug has been discontinued. Death occurs due to self-sustained hypertension after discontinuance of the hormone (Selye, 1977).

Selye's (1977) definition of stress is "the non-specific response of the body to any demand made upon it" (p. 35). When the human body readjusts or adapts to a stimulus stress occurs. The stimulus may be good or bad, such as joy, sorrow, pain, heat or cold (Selye, 1979). Selye (1979) stated that "stress cannot be avoided" (p. 562). It is important to note that stress exerts a "non-specific" effect on the body. For example, all stressors produce a non-specific response which increases the body's need for readjustment (Selye, 1977). A similar definition of stress was described as any event in which environmental or internal demands (or both) tax or exceed the adaptive resources of an individual, social system or tissue system (Lazarus, Cohen, Folkman, Kanner, & Schaefer, 1980).

Organs respond to stressful situations through three physical reactions: nervous, immunological and hormonal. First, the nervous system begins a conscious planning of defense, conditioned reflexes, and autonomic reactions which are mediated through neurohormones. The immunological mechanism involves antibody formation and activation of the

reticuloendothelial system. Lastly, the hormonal mechanism permits tolerance without attacking the pathogen. The body is thus able to meet various aggressions with the same adaptive-defensive mechanism (Selye, 1977).

The concept of stress is very old. Selye (1979) noted that even prehistoric man displayed symptoms of physiological stress. He described the symptoms of stress as a syndrome and called it the General Adaptation Syndrome (G-A-S). This syndrome consists of the alarm reaction, stage of resistance and stage of exhaustion. After hard labor, prolonged exposure or lack of food, prehistoric man first exhibited the alarm reaction. When this occurred, the body secreted hormones such as adrenalin to assist man in finding food. This aided him in building the stage of resistance. However, if food was not discovered, this stage of exhaustion was reached and finally the prehistoric man died.

The general affluence in our society today has helped alleviate stressors that cause physical discomfort. Americans usually have adequate food and water, heat for warmth and shelter. Research is aimed at addressing the social and emotional stressors of modern life (Selye, 1979). Stress, popularized in the 1970s, will continue to be the focal point of intensive study and examination.

Causes of Psychological Stress in Nursing

Most of the reports of psychological stress in nursing began with subjective statements and descriptive studies. One study showed that the psychological strain seen in critical care nurses seemed to be the result of situational stressors such as overwhelming workload, too much responsibility, poor communication with fellow workers and limited workspace (Gentry, Foster & Froehling, 1972).

A recent study agreed that the primary source of stress in the critical care unit is work overload, but in most cases it results from inadequate staffing. When adequate staffing is maintained nurses seem to be able to take frustrations in stride; conversely, when staffing is poor, the nurses' sensitivity increase with the same frustrations. The study shows that nurses can adapt to increased workloads. Experienced nurses exhibit less frustration and less overload than nonexperienced nurses (Nichols, 1981).

Selye (1977) stated that "it is not so much what happens to you but the way you take it" (p. 40) that is significant in producing stress. Individual perceptions of what creates stress is a major factor in how susceptible the individual will be to the various stress producing factors discussed. Certain uncontrollable stressors lead to anxiety which are projected by the nurses to another stressor. For example, the literature indicated that

patient deaths are a major stressor for critical care nurses and that working with dying patients takes its toll on the ICU nurse. For example, Campbell (1980) emphasized that conflicts among critical care staff may often be traced back to anxiety stemming from patient death. In Gentry et al.'s (1972) review, it was stated that death of patients often falls under the auspices of patient care problems. For some nurses, this creates more stress than work overload. Some nurses may even cite work overload as a stressor when in fact they are experiencing emotional overload.

Nichols, Springford, and Searle (1981) noted that social support, particularly that of ICU physicians and nursing supervisors, is critical to the ICU nurse's ability to cope with stress resulting from work overload and dying patients. Lack of support was one of the most frequently cited causes of discontent among ICU, medical/surgical and renal nurses. In Stephen and Bailey's (1979) study similar results were found. Conflicts between nurse and supervisor received the highest response. These conflicts usually involved the inability of head nurses to give positive feedback to their staff. Doctor-nurse conflicts usually involved a lack of respect from physicians regarding nurses' opinions related to patient care. Conflicts between nurses

were due to the competitive nature of critical care nurses and the lack of camaraderie between them.

Problems resulting from stress may be resolved differently depending on a person's genetic background, previous experiences and state of health (Selye, 1977). Since all nurses are not alike, the methods of treating their stress should be tailored to suit individual needs.

Coping Strategies for Dealing with Stress

Studies showed that the study of psychological stress is a relatively young field and not as well understood as Selye's physiological stress. Some people have described stress as nervous tension. Selye (1976) indicated this is not the case because stress occurs in lower animals which do not have nervous systems, and even in plants. People also describe stress as nervous exhaustion. Selye (1976) disagreed with this assertion and stated that the lack of emotional stimulation during isolation or social ostracism is extremely stressful.

Active people depend on finding outlets for energy and cannot relax or play without feeling they are wasting their time (Selye, 1979). Work, according to Selye (1979), is a biological need of man. This idea seems to be reiterated in a review of the results of a survey done in 1977 involving over 500 intensive care nurses (Stephen &

Bailey, 1979). The authors indicated that the major satisfier for ICU nurses was direct patient care. This was chosen by most nurses because patient improvement and recovery were viewed as important factors in ICU nursing. These factors became even more important to the ICU nurse when it was perceived that the nursing care administered played a large role in the patient's recovery. Focusing on patient improvement could be one way of coping with stress. Other important aspects of patient care that were a source of satisfaction included low nurse-patient ratios and the opportunity to provide total patient care. Nurses in the study also derived satisfaction from giving emotional support to patients and their families (Stephen & Bailey, 1979).

Interpersonal relationships were identified as the third greatest source of satisfaction in Stephen & Bailey's (1979) study. Important aspects of this category involved gaining respect and recognition from other nurses and physicians. A spirit of teamwork and the opportunity to work with interesting people were identified. They also saw staff development activities as a way to gain respect and recognition (Stephen & Bailey, 1979).

These sources of satisfaction for nurses are congruent with Caplan's (1981) statements regarding stress. He noted

that exposure to high stress with adequate support does not increase the risk of mental and physical illness. This idea is supported by other studies that suggest alleviating stress in ICU nurses through group support, counseling services, relaxation training and stress management education. The most frequently used coping strategy by nurses was found to be "talking it out" (Caldwell & Weiner, 1981).

Friedman and Hellerstein (1973) found in their study of psychosocial factors on coronary risk that upper echelon individuals in business, compared in a socioeconomic hierarchy, exhibit less coronary risk and more vigor and self-confidence than the lower socioeconomic groups.

Other studies have not agreed with the research as stated. Berman (1981) indicated that the lack of collegial relationships between physicians and nurses is a major source of stress for nurses. He suggested that corrective strategies for the nursing profession include improving relationships with physicians, starting with joint medical and nursing classes to foster increased communication and joint decision-making. Friedman (1982) believed alternative scheduling to attend professional meetings and to meet outside demands can increase the attractiveness of nursing as a profession.

With the increase of research on stressors in nursing there still seems to be an absence of research that assesses

the "outcomes" of the stressors, in terms of absenteeism, turnover, performance and levels of psychological distress. In addition, little investigation has been made concerning different coping strategies used by nurses and the effectiveness of these strategies.

Summary

In summary, Selye studied the effects of physiological stress on human beings. He then extrapolated the similarities of psychological and physiological stress. In the last decade, research on stress in ICU nursing has been popularized and is becoming more scientific. Although there is not one solution to the problem of stress in critical care nursing, research is providing nursing with several alternatives to be tested.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The purpose of the study was to define sources of stress as perceived by critical care nurses (Stephen & Bailey, 1979). The study was nonexperimental as all elements of the research were not directly controllable. The research was conducted in a hospital setting. A descriptive survey approach was used to study the sources of stress in critical care nursing. Demographic variables included personal characteristics of the nurse and the type of unit in which the critical care nurse worked.

Setting

The setting for this study was in the southwestern area of the United States, in a large metropolitan area of over two million inhabitants. The study was done in 10 adult critical care units in a hospital with over 500 beds and 150 critical care beds. The units surveyed included surgical intensive care, medical intensive care, cardiac care, burns, renal transplant, surgical intermediate care, medical intermediate care, recovery room, neurosurgical intensive care, and neurosurgical intermediate care. The questionnaires were completed in the

hospital setting on the nursing units. The typical unit at this institution is approximately 12 to 14 beds with a staffing ratio of one nurse for every two to four patients depending on patient acuity. The units have cardiac monitoring and patients are usually either patients with multiple injuries or medical emergencies. These patients required assistance with ventilation and intravenous therapy; they also required constant nursing surveillance.

Population and Sample

The population from which the sample was drawn consisted of critical care nurses in a large metropolitan hospital in a large city in the southwestern part of the United States. The population of approximately 150 nurses included registered and licensed vocational nurses working in one of 10 adult critical care areas. The nonprobability sampling technique, total population sampling, was used to select all nurses willing to participate in the study in the units surveyed. The final sample included those nurses who agreed to participate and complete the questionnaire.

Protection of Human Subjects

This study was submitted and approved by the institution's review committee. A consent form (Appendix A) for participation in this study was enclosed with the

questionnaire. No names were used. The nurses were voluntary participants in this study and were advised in their consent form that they were free to withdraw from the study at any time.

Instrument

The Intensive Care Nurses Questionnaire (ICNQ) (Appendix B) used in this study was initially designed for a stress management project at the University of California, San Francisco in 1978. The project was awarded a three year training demonstration grant to study nursing stress in the intensive care unit. The questionnaire was used in the initial stage of the project and baseline data were obtained from approximately 2,500 nurses. According to researchers on the project, the questionnaire proved to be fairly successful in providing information on sources of stress and satisfaction in intensive care nursing. Information was not available on validity or reliability testing (Stephen & Bailey, 1979).

In 1981, the questionnaire was given to six critical care head nurses and two critical care directors. This panel of experts agreed that the instrument indeed tests sources of stress and was therefore valid. Reliability testing was done on the sample for this study using Cronbach's coefficient alpha for questions 21 to 63. The tool

indeed proved reliable at a level of .63 for the Likert-type questions, 21 to 63.

The ICNQ consists of 65 questions. Questions 1 through 20 were tabulated to provide a demographic profile and to identify the initial attractors to critical care nursing and reasons for leaving prior critical care units. Questions 21 through 63 were statements concerning the variable, stress. The questions were answered using the Likert-type scale, i.e., rarely, occasionally, frequently, or almost always. Each answer was given a score of four for the most positive answer and one for the least positive answer. Scores were added for each statement. Statements were grouped into the following categories: (a) Inadequate Knowledge and Technical Skills, (b) Management of the Unit, (c) Nature of Direct Patient Care, (3) Interpersonal Conflicts, (e) Physical Work Environment, (f) Life Events, and (g) Lack of Administrative Rewards. The ICNQ took approximately 15 to 20 minutes to complete.

Data Collection

Approximately 150 ICNQ were hand delivered to each adult critical care unit staff meeting with consent form attached. An explanation of the study was given, and the questionnaires distributed to all nurses. Within the consent form was an explanation of the study. Self-addressed

envelopes were delivered with the questionnaires. The nurses completed the questionnaires at their leisure and returned them to Nursing Staff Development in the envelope. After 50 ICNQ were returned, statistical analysis began.

Treatment of Data

The score of each subject on items within each category of stress was added and a mean score for the category was derived. Those categories with higher scores were perceived as stressful and those with lower scores as non-stressful by the nurses. Comparisons of mean ranks between the categories were done using a Friedman two-way analysis of variance. The scores were then compared between units using a Kruskal-Wallis one-way analysis of variance. Dunn's post-hoc test for a multiple comparison of mean ranks for significance between categories and units was done.

Summary

In summary, to define sources of stress in critical care nursing a nonexperimental, descriptive survey was done in a large metropolitan hospital in the southwestern United States. The questionnaire used consisted of 65 questions including demographic questions, narrative questions and a Likert-type scale. Fifty-two questionnaires were received and data analysis ensued.

CHAPTER 4

ANALYSIS OF DATA

The data gathered in this study to determine sources of stress in critical care nursing were analyzed; this analysis is presented here. The sample is described in quantitative terms with supporting tables. Included in the analysis of data is a description of the sample, a discussion of the findings, and a summary of the findings.

Description of Sample

The subjects of this study were 52 registered and licensed vocational nurses working in 1 of 10 adult critical care areas of a major metropolitan hospital in a large city in the southwestern region of the United States. Nearly all, 47 (90.4%), of the respondents were female; only 5 (9.6%) were male.

Thirty-seven (71.2%) of the respondents were less than 30 years old. Ten (19.2%) were between 30 and 40 years of age. Five (9.6%) of the respondents were between 40 and 60 years of age (Table 1).

Twenty-two (42.3%) respondents reported they were single, while 21 (40.4%) reported they were married. The remainder were either widowed or divorced. When asked

Table 1

Age, Marital Status and Number of Dependents of 52 Nurses
Who Participated in a Study of Sources of Stress
in Critical Care Nursing

Variable	N	%
<u>Age (Years)</u>		
20-25	12	23.1
26-30	25	48.1
31-35	5	9.6
36-40	5	9.6
Over 40	<u>5</u>	<u>9.6</u>
Total	52	100.0
<u>Marital Status</u>		
Single	22	42.3
Married	21	40.4
Widowed	1	1.9
Divorced	<u>8</u>	<u>15.4</u>
Total	52	100.0
<u>Number of Dependents</u>		
0 Dependents	38	73.1
1 Dependent	7	13.5
2 Dependents	5	9.6
3 Dependents	<u>2</u>	<u>3.8</u>
Total	52	100.0

about dependents, 38 (73.1%) of the nurses indicated they were not responsible for any dependents. Only two (3.8%) nurses had three dependents (Table 1).

Registered nurses comprised the majority, 49 (94.2%) of the sample. Thirty-five (67.4%) nurses classified themselves as staff nurses while only two nurses classified themselves as head nurses. One-half, or 26 (50%), of the respondents had been working in their present critical care unit for less than one year. Only five (9.6%) nurses had over five years experience in their present Intensive Care Unit. In addition, the majority, 29 (55.8%) of the respondents were working traditional shifts. However, 23 (44.3%) were working 12-hour day or 12-hour night shifts (Table 2).

Total years practicing as a registered nurse/licensed vocational nurse ranged from 1 to 30 years. Twenty-nine (56%) respondents had been practicing from 1 to 5 years, 14 (26%) 6 to 9 years, and 7 (13%) respondents had been practicing 11 to 18 years. Two (3.8%) subjects had been practicing 22 and 30 years, respectively. The mean years subjects practiced as registered nurses/licensed vocational nurses were 6.4. Thirty-seven (71.1%) nurses were below the mean and 15 (28.8%) nurses were above the mean of 6.4 years of practice.

Table 2

Position, Length of Employment, Shift Worked and
Education of 52 Nurses Who Participated in a
Study of Sources of Stress in Critical
Care Nursing

	N	%
<u>Position in ICU Unit</u>		
Head Nurse	2	3.8
Charge Nurse	15	28.8
Staff Nurse	<u>35</u>	<u>67.4</u>
Total	52	100.0
<u>Length of Employment in Present Intensive Care Unit</u>		
1-6 Months	17	32.7
7-12 Months	9	17.3
1-3 Years	20	38.5
3-5 Years	1	1.9
More than 5 Years	<u>5</u>	<u>9.6</u>
Total	52	100.0
<u>Length and Type of Shift Worked by Respondents</u>		
Day (7 am-3 pm)	16	30.7
Evening (3 pm-11 pm)	9	17.3
Night (11 pm-7 am)	4	7.7
12-hour Day (7 am-7 pm)	12	23.1
12-hour Night (7 pm-7 am)	<u>11</u>	<u>21.2</u>
Total	52	100.0
<u>Level of Educational Attainment</u>		
LVN Diploma	3	5.8
RN Associate Degree	9	17.3
RN Diploma	13	25.0
RN Degree	<u>27</u>	<u>51.9</u>
Total	52	100.0

The majority, 27 (51.9%), of the subjects were baccalaureate prepared nurses. Three (5.8%) subjects were prepared as licensed vocational nurses (Table 2).

Two (3.8%) nurses who participated in this study were certified as critical care registered nurses (CCRN's). The nurses participating in the study were asked how often they worked with physician residents. Thirty-eight (73.1%) respondents worked with residents 40 hours a week, whereas 11 (21.1%) respondents reported less than 40 contact hours per week with residents. Similarly, 32 (61.5%) respondents reported not working with nursing students, while 16 (30.7%) participants worked with nursing students up to 20 hours per week, and 1 (1.9%) participant worked with nursing students 40 hours a week.

The nurses were then asked how long they had resided in their current geographical area. Twelve (23%) of the respondents indicated that they had been in their present geographical location one year or less. Fifteen (28.8%) of the respondents had been in their present geographical area from one to two years. The third largest category of respondents, 12 (23%), had been living in their current location from two to five years. The years dropped sharply showing 6 (11%) in current area for 8 to 17 years and 7 (13%) for 25 to 35 years.

Findings

To arrive at an answer to the question, "what are the sources of stress in ICU nursing," the Intensive Care Nurses Questionnaire (ICNQ) first examined original attractors to ICU nursing. These attractors were ranked by the respondents in order of importance (Table 3). The category of Opportunities for Learning was chosen by 22 (42.3%) as the first attraction to ICU nursing, while 11 (21.2%) nurses chose a similar response, Intellectual Challenge, as their first attraction to this unit.

The second source of attraction included both the categories of Intellectual Challenge and Proficient Use of Skills. Eleven (21.2%) respondents chose these two categories respectively as their number two attraction. Eight (15.4%) nurses chose Handling Emergencies as their second choice. The third source of attraction to ICU nursing was divided among three categories: Proficient Team Skills--9 (17.3%); Learning to Handle Emergencies--8 (15.4%); and Intellectual Challenge--9 (17.3%). The categories chosen rarely included: Nurses-Patient Ratio of 1:3 or Less, and Recognition and Respect.

In addition to eliciting attractors to ICU nursing, three narrative questions were asked: (1) Reason for leaving prior critical care areas, (2) Major sources of

Table 3

Attractors to ICU Nursing Ranked Highest by 52 Nurses
Who Participated in a Study of Sources of Stress
in Critical Care Nursing

	N ^a	%
<u>Number One Attractor</u>		
Opportunities for Learning	22	42.3
Intellectual Challenge	11	21.2
Handling Emergencies	5	9.6
Variety and Excitement	5	9.6
Others	9	17.3
<u>Number Two Attractor</u>		
Intellectual Challenge	11	21.2
Proficient Use of Skills	11	21.2
Handling Emergencies	8	15.4
Others	22	42.2
<u>Number Three Attractor</u>		
Proficient Team Skills	9	17.3
Learning to Handle Emergencies	8	15.4
Intellectual Challenge	9	17.3
Others	26	60.0

^aTotal N varies with non-response.

stress, and (3) Major sources of satisfaction in ICU nursing. The responses given to question 1, "reasons for leaving prior critical care units," were divided into three major categories: personal, professional and administrative (Table 4). A total of 61 reasons by the 52

Table 4

Reasons for Leaving Prior Critical Care Units Given by
52 Nurses Who Participated in a Study of Sources of
Stress in Critical Care Nursing

	N ^a	%
<u>Personal Reasons</u>		
Relocating Closer to Home	2	3.3
City Relocation	20	32.8
Failed State Boards	1	1.6
Boredom/Lack of Advancement	3	4.9
Travel to Europe	1	1.6
Change Shifts	2	3.3
Change Patients	1	1.6
Transfer Units	1	1.6
Not Challenged	1	1.6
Burned Out	1	1.6
Rotations	<u>1</u>	<u>1.6</u>
Total	34	56.0
<u>Professional Reasons</u>		
Financial and Educational	1	1.6
Experience Gain in a New Area	6	9.9
Increase Nursing Knowledge	1	1.6
Job Change	<u>10</u>	<u>16.3</u>
Total	18	29.4
<u>Administrative Reasons</u>		
Lack of Administrative Back-up	3	4.9
Promotion	3	4.9
Better Position	1	1.6
Poor Working Conditions/Poor Staffing	1	1.6
Dispute with Head Nurse	<u>1</u>	<u>1.6</u>
Total	9	14.6
Cumulative Total	61	100.0

^aTotal N varies with non-responses.

respondents were given for leaving prior critical care units.

Personal reasons comprised over half, or 34 (56%), of the total reasons for leaving prior critical care units as reported by the 52 nurses. In the Personal Reasons category, the majority of the respondents, 20 (32.8%) cited relocation without any further explanation. Other nurses cited boredom and a change in shifts as their reason for leaving. General burn-out of the nurses, change in patients, and shift rotations were also reasons given for leaving prior critical care units in this category.

Professional reasons were cited by 18 (29.4%) of the total nurse respondents as reasons for leaving prior critical care units. The majority of this category, 10 (16.3%), listed job change as their primary reason for leaving. Others, 6 (9.9%), indicated they left to gain experience in a new area, or for financial and educational reasons, and to increase nursing knowledge, 1 (1.6%) each, respectively.

Administrative reasons for leaving comprised only 9 (14.6%) of the responses. Promotions and a better position comprised approximately half of the reasons in this category (3 responses, or 4.9%, each), while lack of administrative back-up, poor working conditions and staffing were also cited by 1 (1.6%) each as reasons for leaving.

In general, personal rather than professional or administrative reasons seemed to be the most frequently cited causes for nurse respondents to have left prior critical care units. City relocation seemed to be the foremost reason that nurses left their previous employment.

Nurses were then asked to list the three greatest sources of satisfaction in ICU nursing. These responses were classified according to six major categories developed by Stephen and Bailey (1979). Responses were discussed within the context of these categories. A total of 142 responses were given by the 52 nurse respondents. The category of Direct Patient Care was found to be the major satisfier in ICU nursing (Table 5). The response, Patient Improvement and Recovery, ranked first. Other satisfiers included: Patient and Family Thanks, Low Patient-Staff Ratios, Constant Observation of Patients, and the feeling of achievement derived from Quality Patient Care. One respondent also stated that Family Contact was important as a satisfier in the ICU. There was a total of 61 (43.0%) respondents who ranked this satisfier first.

The second major satisfier for 29 (20.4%) of the ICU nurse respondents was the Acquisition of Knowledge. Learning about specific skills, theories and techniques, and application of knowledge and judgement in the care of patients were listed as satisfiers.

Table 5

Sources of Satisfaction in Nursing Given by 52 Nurses
Who Participated in a Study of Sources of
Stress in Critical Care Nursing

	N ^a	%
<u>Direct Patient Care</u>		
Patient Improvement and Recovery	37	26.1
Patient, Family Thanks	8	5.6
Low Patient-Staff Ratio	7	4.9
Constant Observation of Patients	5	3.5
Quality Patient Care	3	2.1
Family Contact/Support	<u>1</u>	<u>.7</u>
Total	61	43.0
<u>Acquisition of Knowledge</u>		
Learning Specific Skills, Theory, Techniques	20	14.1
Use of Knowledge and Judgement	<u>9</u>	<u>6.3</u>
Total	29	20.4
<u>Interpersonal Relationships</u>		
Cooperative, Helpful Co-workers	13	9.2
Respect from Doctors, Residents, Interns	11	7.7
Receptive Head Nurse	<u>1</u>	<u>.7</u>
Total	25	17.6
<u>ICU Environment</u>		
Variety of Patients	5	3.5
Excitement	4	2.8
Challenge	3	2.1
Pace	<u>1</u>	<u>.7</u>
Total	13	9.2

Table 5 (Continued)

	N ^a	%
<u>Performance and Use of Skills</u>		
Optimum Performance	5	3.5
Satisfactory Completion of Work	3	2.1
Handling Emergencies	2	1.4
Successfully Anticipating Situations	<u>1</u>	<u>.7</u>
Total	11	7.7
<u>Reward System</u>		
Pay	2	1.4
Administrative Duties	<u>1</u>	<u>.7</u>
Total	3	2.1

^aN = 142 responses.

Interpersonal Relationships were found to be the third major category of satisfaction for 25 (17.6%) ICU nurses. Cooperative, Helpful Co-workers and Respect from Doctors and Interns were identified by the nurses as satisfactory interpersonal relationships. A Receptive Head Nurse was also seen as an important source of satisfaction by one respondent. Only three (2.1%) responses in the category of reward systems showed Pay or Administrative Duties as a source of satisfaction.

Responses to sources of stress were classified in major stress categories developed by Stephen and Bailey (1979).

Responses are discussed within the context of the major categories. Total responses were 144 (Table 6). Inadequate Staffing was identified as the single greatest source of stress in the category of Management of the Unit (Table 7). Workload, Lack of Time, and Floating Out of the Home Unit were also considered stressors.

Table 6

Categories of Stressors for 52 Nurses Who Participated
in a Study of Sources of Stress in
Critical Care Nursing

Category	N ^a	%
Management of the Unit	47	33.0
Interpersonal Conflict	42	29.0
Direct Patient Care	21	14.5
Physical Work Environment	19	13.0
Inadequate Knowledge and Skills	10	7.0
Life Events	5	3.5

^aN = 144 responses.

The second category of stressors was listed as Interpersonal Conflicts. Lack of Communication appeared to be related to conflicts in nurse-doctor communication. Physician, Resident, and Intern Attitudes were viewed by the respondents to be a high level stressor. Other conflicts included those involving ancillary services, including lack of functioning equipment and long delivery times.

Table 7

Ranked Sources of Stress Cited by 52 Nurses Participating
in a Study of Sources of Stress in
Critical Care Nursing

	N ^a	%
<u>Management of the Unit</u>		
Inadequate Staffing	29	20.1
Floating	4	2.8
Lack of Time	5	3.5
Workload	6	4.2
Hours Worked	<u>3</u>	<u>2.1</u>
Total	47	32.6
<u>Interpersonal Conflicts</u>		
Physician, Resident, Intern		
Attitudes	13	9.0
Ancillary Services	6	4.2
Lack of Communication Between Units	1	.7
Lack of Communication Between		
Nurses/Physicians	15	10.4
Lack of Physical Respect	2	1.4
Lack of Peer Support	2	1.4
Unresponsive Nursing Leadership	<u>3</u>	<u>2.1</u>
Total	42	29.2
<u>Direct Patient Care</u>		
Critical, Deteriorating Patients	7	4.7
Setback or Death	4	2.8
Emergencies/Codes	4	2.8
Unnecessary Procedures	2	1.4
Inability to Meet Family Needs	1	.7
Chronic Patients	<u>3</u>	<u>2.1</u>
Total	21	14.5

Table 7 (Continued)

	N ^a	%
<u>Physical Work Environment</u>		
Noise Level	2	1.4
No 11-7 Food Service	1	.7
No Break Area	1	.7
Too Many People	1	.7
Lack of/Malfunctioning Equipment	11	7.6
Lack of Cleanliness (Units)	1	.7
Lack of Space	1	.7
Lack of Supplies	<u>1</u>	<u>.7</u>
Total	19	13.3
<u>Inadequate Knowledge and Skills</u>		
Lack of Experience and Skills	3	2.1
Unfamiliar Situations	3	2.1
Lack of Education of Staff	1	.7
Relearning Skills Returning to ICU	1	.7
Lack of Knowledge	<u>2</u>	<u>1.4</u>
Total	10	7.0
<u>Life Events</u>		
Lack of Stamina	4	2.8
Lack of Family Support	<u>1</u>	<u>.7</u>
Total	5	3.5

^aN = 144 responses.

Direct Patient Care was the third major category stressor for 21 (14.5%) of the critical care nurses in this study. Responses in this category included Critical and Deteriorating Patients, Patient Setbacks, Death, Emergencies and Codes. In addition nurses identified stress associated

with long-term Chronic Patients and Unnecessary Procedures. One nurse identified Inability to Meet Family Needs as a stressor.

Physical Work Environment was the fourth category of stress. The Lack of or Malfunctioning of Equipment was considered the highest level stressor in this category. A variety of responses complete this category (Table 7).

Inadequate Knowledge and Skills was one of the lowest ranked categories. Lack of Experience and Skills and Unfamiliar Situations appeared stressful to three (2.1%) of the nurses who responded. Lack of Stamina in the category of Life Events, the lowest ranked category, was also considered a stressor by 4 (2.8%) of the nurses. Lack of Family Support was noted by one critical care nurse.

In summary, the three greatest sources of satisfaction in Critical Care Nursing were: (1) direct patient care, (2) acquisition of knowledge, and (3) interpersonal relationships. The three greatest sources of stress included: (1) management of the unit, (2) interpersonal conflicts, and (3) direct patient care. It is interesting to note at this point that one of the three sources of satisfaction is also the greatest source of stress.

The remainder of the questionnaire consisted of a group of statements measuring the variable of stress. The questions were answered using a Likert-type scale; that is,

response categories included rarely, occasionally, frequently, or almost always. These statements were scored individually and then grouped according to the categories in terms of sources of stress and satisfaction: (1) Nature of Direct Patient Care, (2) Interpersonal Conflicts, (3) Management of the Unit, (4) Inadequate Knowledge and Technical Skills, (5) Physical Work Environment, (6) Life Events, (7) Lack of Administrative Rewards. The results in each category are discussed independently.

The first category, Nature of Direct Patient Care, contained nine statements (Table 8). Seven statements were selected as stressors or satisfiers for inclusion in the table. Thirty-three (63%) of the respondents frequently or always felt comfortable in meeting patient's emotional needs. Twenty-one (40%) stated that lack of time prevented them from giving emotional support to patients, while 32 (61%) stated that same factor, lack of time, prevented them from giving emotional support to families. Most nurses, 47 (90%), responded they were able to provide quality nursing care under pressure. Likewise, most, 41 (78.9%), stated their expertise was respected by their patients. Thirty-six (69%) stated they did and 15 (28%) stated they did not have time to give quality patient care. Most respondents, 32 (61%), stated they did not get upset when patients had major setbacks or died.

Table 8

Nature of Direct Patient Care--Stressors and Satisfiers
Cited by 52 Nurses Participating in a Study of
Sources of Stress in Critical Care Nursing

Stressors	Satisfiers
Lack of time for emotional support for patients.	Comfortable in meeting patient's emotional needs.
Lack of time for emotional support for families.	Able to provide quality patient care under pressure.
	Expertise is respected by patients.
	Time to give quality patient care.
	Only occasionally get upset when patients die.

The second category, in terms of sources of stress and satisfaction, regarded interpersonal conflicts. It contained 11 statements; 7 statements are included here (Table 9). Although half of the respondents stated physicians considered their judgements during emergencies, half did not. Fifty-six (88%) of the nurses stated physicians were available when needed, 36 (69%) said physicians respected their knowledge, and 38 (73%) stated that physicians respected their judgements. Half of the nurses stated a lack of team spirit between shifts, but half noted team spirit existed on their shifts. Most nurses, 41 (78%),

Table 9

Interpersonal Conflicts--Stressors and Satisfiers Cited
by 52 Nurses Participating in a Study of Sources of
Stress in Critical Care Nursing

Stressors	Satisfiers
Physicians do not respect nurses' judgements during emergencies.	Clinical judgement rarely questioned.
Lack of team spirit between shifts.	Clinical knowledge respected by co-workers, supervisor and physicians.
Lack of time to give emotional support to peers.	Physicians were available when needed.
	Team spirit existed on their shift.

stated that their clinical judgements were rarely questioned by co-workers. Nurses participating in the study felt respect for their knowledge and judgement; 45 (86%) of the nurses said their clinical knowledge was respected by their co-workers and 42 (80%) said their knowledge was respected by their immediate supervisor; 47 (90%) of the respondents also stated that their immediate supervisor respected their judgements.

Management of the Unit, the third category, was rated according to five statements (Table 10). Four statements are included in the table, half being stressors and half being sources of satisfaction for the nurse. A fluctuating

Table 10

Management of the Unit--Stressors and Satisfiers Cited by
52 Nurses Participating in a Study of Sources of Stress
in Critical Care Nursing

Stressors	Satisfiers
No relief for breaks.	Fluctuating work pace.
Rarely adequate staffing.	Staffing permits a satisfying schedule.

work pace was reported as a satisfying factor for 45 (86%) of the nurses. Most respondents, 36 (69%), stated that staffing permitted them to work a satisfying schedule. However, 38 (73%), reported that inadequate relief was available for breaks. Additionally, only 21 (41%) of the respondents stated there was adequate staffing in the ICU. Approximately half the nurses, 23 (44%), stated that patients were frequently in the unit that did not need ICU care.

The fourth category, Inadequate Knowledge and Technical Skills, contained four statements. All the statements were sources of satisfaction for the nurses (Table 11). Thirty-eight (73%) of the nurses stated they were able to keep up with technological advances in the ICU. Nurses in the study were comfortable in the areas of knowledge and preparation. Forty-one (78%) said their knowledge in ICU care was

Table 11

Inadequate Knowledge and Technical Skills Cited by 52
Nurses Participating in a Study of Sources of Stress
in Critical Care Nursing

Stressors ^a	Satisfiers
	Able to keep up with technological advances.
	Current knowledge.
	Working with specialized equipment.
	Sufficient preparation.

^aNote: All statements were sources of satisfaction for the nurses.

current and most nurses, 37 (71%), stated they were frequently sufficiently prepared to operate specialized equipment. Additionally, most nurses stated that working with specialized equipment did not distress them.

Physical Work Environment, the fifth category, contained two statements. Both statements were sources of satisfaction for the nurses (Table 12). Thirty-five (67.3%) nurses were not distressed by a lack of workspace. Forty-six (88%) nurses were distressed by high noise levels only occasionally.

Life Events, the last category, contained seven statements. Six statements were included as sources of

Table 12

Physical Work Environment--Stressors and Satisfiers Cited
by 52 Nurses Participating in a Study of Sources
of Stress in Critical Care Nursing

Stressors ^a	Satisfiers
	Workspace
	Lack of high noise levels

^aNote: All statements were sources of satisfaction for the nurses.

stress and satisfaction for the nurses (Table 13). The first statement concerned family support. Twenty-nine (56%) of nurses responding stated that they received family support in their job. Nineteen (36%) of nurses stated that group or individual counseling was available to them at work, but most, 46 (86%), did not participate in group or individual counseling activities. Forty-four (84%) said they are frequently able to cope with job distress and few respondents, 6 (12%), reported considering leaving ICU nursing because of stress. Thirty-six (69%) of the respondents stated that their job was frequently or almost always stressful. Most of the ICU nurses, 47 (90%), stated that they had confidence in their abilities.

Table 13

Life Events--Stressors and Satisfiers from 52 Nurses
Participating in a Study of Sources of Stress
in Critical Care Nursing

Stressors	Satisfiers
Lack of family support.	Able to cope with job distress.
Unaware of counseling availabilities.	Do not plan to leave ICU nursing because of stress.
Few take advantage of counseling.	Self-confidence in abilities.

The category, Administrative Rewards in terms of sources of stress and satisfaction, contained two statements. Both statements were sources of stress for nurses (Table 14). Forty (76%) of the nurses cited inadequate staffing as a rationale for nonattendance at continuing education events. The second statement concerned advancement availabilities. Thirty-four (65%) of the respondents said that only rarely to occasionally were advancement opportunities available to them. Seventeen (33%) responded "frequently to almost always" when asked if opportunities for advancement existed.

A Friedman two-way analysis of variance was done to derive the greatest sources of stress for critical care nurses. Individual category scores were mean ranked and

Table 14

Lack of Administrative Rewards--Stressors and Satisfiers
from 52 Nurses Participating in a Study of Sources
of Stress in Critical Care Nursing

Stressors	Satisfiers ^a
Staffing does not allow attendance at continuing education events.	
Opportunities for advancement are not available.	

^aNote: All statements were sources for stress for the nurses.

corrected for the difference in the number of statements in each category. Dunn's post hoc test for a multiple comparison was done to locate specific mean rank differences after a significant Friedman two-way analysis of variance was calculated. The chi-square result was 2.44. Results indicated the category Lack of Administrative Rewards was significantly more stressful statistically ($p < .05$) than three other categories: Interpersonal Conflict, Inadequate Knowledge and Technical Skills, and Life Events (Table 15).

Scores were then tabulated to compare critical care units to one another. This was done to ascertain whether one critical care unit in the hospital was a more stressful area than another. After obtaining a significant Kruskal-Wallis one-way anova chi-square, the Dunn's post hoc test

for multiple comparison was done. The chi-square result ($\chi^2 = 16.73$) was significant at $p \leq .05$. Results indicated that nurses in the coronary care unit reported more frequently the effects of stress than did nurses in the surgical intensive care unit, the medical intensive care unit, and the burn unit. In fact, the burn unit nurses reported significantly less stress than any other unit studies (Table 16).

The critical care units studied were also compared for each of the seven stressor categories, again using Dunn's post hoc test after a Kruskal-Wallis one-way analysis of variance ($\chi^2 = 16.73$) was significant at $p \leq .05$. The category Life Events was significantly less stressful for the nurses in the medical intermediate care unit than nurses in the burn unit, the coronary care unit, the medical intensive care unit, and the neurosurgical intensive care unit (Table 17).

Summary of Findings

The average respondent was an RN who worked the 7-3 shift in a staff nurse capacity. Most of the nurses had been working in the present ICU for less than one year, and worked there because of the opportunities for learning. The typical respondent was 26-30 years old, single with no dependents. These respondents had been in the present

Table 15

Table of Ordered Means for Comparison Among Stressors as Cited by 52 Nurses Who Participated in a Study of Sources of Stress in Critical Care Nursing

	conf (5.06)	skills (5.04)	life (4.55)	phys (4.45)	nature (3.85)	manage (3.03)	lack (2.05)
Interpersonal Conflicte (5.06)	0	0.02	0.51	0.63	1.21	2.03	3.01*
Inadequate knowledge and technical skills (5.04)		0	0.47	0.61	1.19	2.01	2.99*
Life events (4.55)			0	0.12	0.70	1.52	2.50*
Physical work environment (4.45)				0	0.58	1.40	2.38
Nature of direct patient care (3.85)					0	0.82	1.80
Managment of the unit (3.03)						0	0.98
Lack of administrative reward (2.05)							0

Note: Dunn's post hoc test for multiple comparisons of mean ranks for: Friedman's two-way analysis of varinace

$$2.44 = \sqrt{\frac{(7)(52)(52+1)}{6}}$$

2.44 = critical value

*Statistically significant at .05.

Table 16

A Comparison of Critical Care Units to Ascertain Significant Stress Levels in One Unit Over Another of 52 Nurses Participating in a Study of Sources of Stress in Critical Care Nursing

	CCU	MIMU	RR	NICU	SICU	MICU	BURNS
CCU 8.20	0	12.63	14.91	16.05	22.33*	22.45*	39.30*
MIMU 28.83		0	2.28	3.02	9.70	9.82	26.68*
RR 23.11			0	1.14	7.42	7.54	24.39*
NICU 24.25				0	6.28	6.40	23.25*
SICU 30.53					0	0.12	16.97*
MICU 30.65						0	16.84*
BURNS 47.50							0

Note: Dunn's post hoc test for: Kruskal-Wallis one-way analysis of variance.

$$2.128 \sqrt{\frac{7(52+1)}{6}}$$

$$2.128 (7.86) = 16.73$$

*Statistically significant at .05.

Table 17

Life Events by Unit Comparison in 52 Nurses Participating
in a Study of Sources of Stress in Critical Care Nursing

	BURNS	CCU	MICU	NICU	RR	SICU	MIMU
BURNS 14.33	0	1.37	8.12	8.30	13.84	14.27	28.84*
CCU 15.70		0	6.75	6.93	12.47	12.90	27.47*
MICU 22.63			0	0.18	5.72	6.15	20.72*
NICU 22.63				0	5.54	5.97	20.54*
RR 28.17					0	0.43	15.00
SICU 28.60						0	14.57
MIMU 43.17							0

Note: Dunn's post hoc test for: Kruskal-Wallis one-way analysis of variance
Critical value = 16.73

*Statistically significant at .05.

geographical area for one to two years and had been practicing nursing for six years. The average subject had not obtained Critical Care Registered Nurses certification but did have a baccalaureate degree.

The original attractor to ICU nursing for those nurses who participated in this study was Opportunities for Learning. Most nurses left their last job for personal reasons, the main one being city relocation. The major source of satisfaction in critical care nursing was Direct Patient Care with Patient Improvement and Recovery being the main satisfier. Stressors for the nurses in this study included management of the unit with inadequate staffing as the main stressor. Attitudes and lack of communication also seemed to be stressful for the nurses. Another source of stress, as delineated by the Likert-type questions, was related to the lack of time nurses had available to give adequate emotional support.

Statistical analysis indicated that the category Lack of Administrative Rewards was the most stressful factor in all critical care units when compared to Interpersonal Conflict, Inadequate Knowledge and Technical Skills and Life Events. Generally, the effects of stress were stated more profoundly by nurses in the coronary care unit than by nurses in the surgical intensive care unit,

the medical intensive care unit, and the burn unit. The burn unit nurses apparently felt less stress than any other unit studied.

When comparing units for each category of stressors, Life Events including counseling and peer support were seen as less stressful for the medical intermediate care nurses, than for nurses in the burn unit, coronary care unit, medical intensive care unit and neurosurgical intensive care unit. The medical intermediate care unit reported more support and less stress than most other units.

Satisfiers in critical care related to acquisition of and respect for knowledge and sound judgement. Sources of stress and satisfaction were found to overlap. Direct patient care and interpersonal relationships were both satisfiers and sources of stress. It is important to note that critical care nurses are stressed and satisfied by the same sources within their environment.

CHAPTER 5

SUMMARY OF THE STUDY

A review of published literature indicates that high stress levels have a deleterious effect on human beings. This study was conducted to seek information regarding the sources of stress for intensive care nurses. The objective of the study was to answer the question: What are the sources of stress in critical care nursing?

Summary

This descriptive, nonexperimental study was conducted to determine sources of stress in critical care nursing. The Intensive Care Nurses Questionnaire (ICNQ) used in this study was initially designed for a stress management project at the University of California at San Francisco in 1978 (Stephen & Bailey, 1979). The American Association of Critical Care Nurses (AACN) assisted with the original study and 2,500 critical care nurses were surveyed. The current study replicated the original study by surveying registered and licensed vocational nurses in a major metropolitan hospital in the southwestern United States. Questionnaires were distributed in 10 adult intensive care units. Fifty-two questionnaires were returned. The

results found were similar to the results reported in the AACN survey. The greatest sources of stress for the critical care nurses were Interpersonal Conflict, Management of the Unit, and Direct Patient Care. The greatest sources of satisfaction for the nurses were Direct Patient Care, Acquisition of Knowledge and Interpersonal Relationships. It is important to note that two of the greatest sources of stress for nurses are also the greatest satisfiers. Reasons for leaving prior critical care units were reported as Personal with Moving as the response most frequently given. Initial attractors to critical care nursing included opportunities for learning. The last section of the questionnaire was composed of statements using a Likert-type scale. The scores of the statements were mean ranked and categorized. The categories with high scores were reported as stressful and those with low scores as nonstressful by the nurses. Dunn's post hoc test for a multiple comparison of mean ranks was done after obtaining a significant ($p \leq .05$) Friedman two-way analysis of variance. Results indicated that Lack of Administrative Rewards was significantly more stressful than three other categories: Interpersonal Conflict, Inadequate Knowledge and Technical Skills, and Life Events. In comparing units, the burn unit reported less stressors than any other unit studied.

Discussion of the Findings

This study was a replication of a study done by Stephen and Bailey (1979) for AACN. The initial attractors for nurses in the original study to seek employment in such specialized units were: (1) Patient/nurse Ratio of 3:1 or less, (2) Intellectual Challenge, and (3) Opportunities for Learning. In comparison, the findings of this study indicated that nurses were attracted to critical care because of: (1) the Intellectual Challenge, (2) Proficient Use of Skills, and (3) Learning to Handle Emergencies. The only common element between these two studies was that nurses in both studies indicated that the intellectual challenge provided in critical care nursing was a significant attractor to employment in such specialized units.

Reasons for leaving prior critical care units drew much the same response in both studies. Personal reasons accounted for nearly 50% of the responses in the AACN study, and the findings of this study indicated that over half the nurses left prior critical care units for the same reason. Most nurses stated that Moving was their reason for leaving. No further explanation was cited as to why the move was made. In both studies, nurses cited personal reasons for leaving more frequently than professional or administrative reasons (Stephen & Bailey, 1979).

Nurses were asked to list the three greatest sources of satisfaction in critical care nursing. The responses were the same in both studies. Direct patient care was identified as the most significant source of satisfaction in critical care nursing. Patient improvement and recovery were the major reasons nurses enjoyed direct patient care. Acquisition of knowledge was rated as the second best source of satisfaction in both studies. The opportunity to learn special procedures and techniques, and knowledge concerning specific disease entities seemed to be a source of satisfaction for the critical care nurse. Interpersonal relationships were identified as the third greatest source of satisfaction in both studies. Cooperative, helpful co-workers, as well as respect from physicians, residents, and interns were deemed great sources of satisfaction obtained by working in such highly stressful situations (Stephen & Bailey, 1979).

It is important to note that the next narrative question, sources of stress in critical care nursing, produced similar answers. That is, sources of satisfaction for critical care nurses are also the greatest sources of stress. The AACN study indicated that interpersonal conflicts were the number one source of stress for nurses who took part in the study. The second source of stress

was management of the unit and the third was the nature of direct patient care. The current study indicated management of the unit as the greatest source of stress for the subjects and third was the nature of direct patient care. Findings of the current study indicated that Management of the Unit was the number one source of stress for nurses with Interpersonal Conflicts being second. The third source of stress was Direct Patient Care. The most common source of stress for nurses participating in this study was Inadequate Staffing. Lack of communication between nurses and doctors was second, and the attitude of physicians, residents, and interns was third (Stephen & Bailey, 1979).

The AACN study indicated that nurses were initially drawn to the critical care unit because of a staffing ratio of 3:1 patient to nurse or less and that personal reasons accounted for leaving prior critical care units. The three greatest sources of satisfaction in critical care nursing were Direct Patient Care, Acquisition of Knowledge and Interpersonal Relationships. The greatest sources of stress were Interpersonal Conflicts, Management of the Unit, and the Nature of Direct Patient Care. In comparison, the current study indicated very similar results. However, Intellectual Challenge appeared to be a more significant attractor to critical care nursing in the

current study. The nurses in the AACN study also left prior critical care units for personal reasons. The three greatest sources of stress and satisfaction were the same in both studies (Stephen & Bailey, 1979).

Findings of this study are consistent with Nichols, Springford, and Searle (1981) who reported that staffing produces work overload and creates stress for nursing staffs in critical care. The greatest stressor for the nurses participating in this study was found to be Management of the Unit which is usually exacerbated by Inadequate Staffing.

The findings of the current study support Selye's (1977) theory. He stated that it is the individual's perception of what creates stress that is a major factor in how the individual will respond to stress producing factors. The findings of the current study and the AACN study agree that sources of stress and satisfaction are the same. Specifically, the Nature of Direct Patient Care and Interpersonal Relationships were found to be a source of stress and a source of great satisfaction for the respondent. Selye's belief that work is a biologic need of man and that active people depend on finding positive outlets for energy also gives rationale for the findings in this study that sources of stress and satisfaction are the same entities.

When comparing stressors among units it is interesting to note that the burn unit nurses showed significantly less stress than nurses employed in any other unit studied. The medical intensive care unit nurses and the surgical intensive care unit nurses perceived less stress than the coronary care unit nurses. The medical intermediate care unit nurses perceived less stress than nurses on most other units in the category of life events including the burn unit, coronary care, medical intensive care and neurosurgical intensive care (Table 17, p. 66).

To summarize, the results derived from the AACN study and the current study are very similar with few exceptions. This study supports other studies regarding the relationship between sources of stress and sources of satisfaction. Selye's (1979) work is especially suggestive that stress and satisfaction are different entities from the same continuum.

Conclusions

Based upon the findings and within the limitations of the study the following conclusions are presented:

1. Nurses choose to work in the critical care environment mainly because of opportunities for learning.
2. Direct patient care is the primary source of satisfaction for the critical care nurse.

3. Management of the unit, mainly, inadequate staffing, is the major source of stress for nurses.
4. The area of greatest stress for nurses is Lack of Administrative Rewards.
5. The area of least stress for nurses is Personal Life Events.

Implications for Nursing Practice

Based upon the previously stated conclusions, the following implications for nursing practice are presented: Critical care nurses choose to work in the critical care environment mainly because of opportunities for learning. Learning to organize time in critical care as well as realistic goal setting may allow more time for continuing education activities. Nurses may gain respect for knowledge and judgment if they achieve a positive approach to new ideas.

Direct patient care is the primary source of satisfaction for the critical care nurse. The nurse is only able to work closely with the patient if staffing allows the extra time needed for individualized care. Staffing shortage in critical care units is a longstanding problem, as it is in other areas of the hospital. One method for easing the problem may be through obtaining a

list of non-practicing nurses who might work for a few hours to cover for continuing education events.

Nurses perceive administrative reward through advancement. Other methods of administrative reward may be available to hospitals as management and educational positions are scarce, such as placing nurses in a permanent charge role on a particular shift. Special programs are being explored by which nurses can be rewarded for special projects. These programs may include educational activities, committee involvement, and functioning in management roles in the manager's absence. These programs may also help the nurse when advancement does become available. Sources of stress seemed greater in some areas of the hospital than others. However, the burn unit nurses in the hospital studied reported fewer stressors than all other units studied.

Recommendations

Based on the findings of this study the following recommendations are made:

1. This study should be replicated using a larger geographical location and a random selection of subjects.
2. Further investigations should be conducted which focus on identifying methods for alleviating sources of

stress particularly related to management of these units.

3. An investigation of non-nursing functions routinely done by nurses in intensive care could be done to determine if an increase in time would allow more individualized patient care.
4. A study of personalities could serve as a basis for further investigation of a profile which would identify nurses who would experience frustration in the critical care unit.
5. A research project to develop and test educational programs may be helpful to assist nurses in setting realistic goals; providing educational guidance in assisting nurses in setting realistic goals would help reduce stress.
6. A follow-up study should focus on obtaining information regarding the reasons why burn unit nurses in this study reported less stress.

APPENDIX A
PROTECTION OF HUMAN SUBJECTS

CONSENT FORM FOR PARTICIPATION IN STUDY OF SOURCES
OF STRESS IN CRITICAL CARE NURSING

Dear Critical Care Nurse:

I am a candidate for the Master of Science degree in Nursing at Texas Woman's University. My Master's thesis is an attempt to determine sources of stress in critical care nursing. Stress in nursing is generally a well-accepted phenomenon. In critical care stress factors lead to increased personal illness and burn-out. Because of these facts, I hope to determine some causes of increased stress in critical care. Identification of stressors is necessary before problem-solving can be attempted.

The questionnaire is structured to make it as easy as possible for you to answer quickly. It should take approximately 15 minutes to complete, after which, please place the results in the envelope provided, and return through interoffice mail. There is no financial cost to you. Your job will not be jeopardized in any way. The questionnaire has been approved by the Hospital Administration, as well as the Texas Woman's University Human Research Review Committee. Please be assured that individual respondents will remain anonymous. YOU UNDERSTAND THAT YOUR RETURN OF THE QUESTIONNAIRE CONSTITUTES YOUR INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH SURVEY. Also, you are free to withdraw from the study at any time.

No medical service or compensation is provided to subjects by the University as a result of injury from participation in research.

The findings will be made available to you upon request. If you have any questions please feel free to contact me at the phone numbers below.

Thank you for your interest and support.

Sincerely,

Mary E. (Libby) Bunch
4602 Kingfisher
Houston, Texas 77035
728-0315 (home), 797-4106 (work)

Signature

Date

Witness

Date

APPENDIX B
INSTRUMENT

DATE _____

UNIT _____

SHIFT _____

RN _____ LVN _____

INTENSIVE CARE NURSES QUESTIONNAIRE

1. Present position: Head Nurse _____ Charge Nurse _____ Staff Nurse _____
Other _____
2. Length of time in present ICU: _____
3. Number of beds in unit: _____
4. Prior critical care experience. Please list in chronological order

Type of Unit	Time in Unit	Reason(s) for Leaving
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. What originally attracted you to ICU nursing: (Rank in order of importance only three of the items below, listing the most important as 1, the least important as 3.)

_____ Being a member of an effective team	_____ Intellectual challenge
_____ Proficient use of skills	_____ Variety and excitement
_____ Nurse-patient ratio of 1:3 or less	_____ Recognition/respect
_____ Learning to handle emergencies	_____ Pay differential
_____ Opportunities for learning	_____ Other, please specify:

6. Your age:

1) _____ 20-25

4) _____ 36-40

7) _____ 51-55

2) _____ 26-30

5) _____ 41-45

8) _____ 56-60

3) _____ 31-35

6) _____ 46-50

9) _____ 61-65

7. Sex: 1) _____ Female

2) _____ Male

8. Marital status:
1) ☐ Single 2) ☐ Married 3) ☐ Widowed 4) ☐ Sep/Divorced
9. Age of dependant(s): _____
10. How long have you lived in your present geographical area? _____

11. How many years have you actually been practicing as an RN or LVN:
_____ full time _____ part-time
12. How many years have you been an RN? _____ LVN? _____
13. Are you certified as a Critical Care Registered Nurse (CCRN) by the American Association of Critical Care Nurses (AACN)?
Yes _____ No _____
14. Basic nursing program:
LVN: 1) ☐ diploma, 2) ☐ other
RN: 3) ☐ associate, 4) ☐ diploma, 5) ☐ baccalaureate,
6) ☐ master's, 7) ☐ doctorate.
15. Diploma or highest degree held in nursing:
1) ☐ Diploma 2) ☐ Associate 3) ☐ Baccalaureate
4) ☐ Masters 5) ☐ Doctorate
16. Highest degree(s) held in field(s) other than nursing:
1) ☐ Associate, 2) ☐ Baccalaureate, 3) ☐ Master's
4) ☐ Doctorate
17. If you are now a student, what degree are you studying for and what is your major?

18. In this ICU, hours per week that you work with residents/interns _____
with student nurses _____

19. List the three sources of greatest stress for you in ICU nursing, ranking the most stressful first.

1)

2)

3)

20. List the three sources of greatest satisfaction for you in ICU nursing, ranking the most satisfying first.

1)

2)

3)

	Rarely	Occasionally	Frequently	Almost Always
21. Staffing allows me to attend continuing education events.	—	—	—	—
22. Opportunities for job advancement are available to me.	—	—	—	—
23. Physicians consider my judgments during emergencies.	—	—	—	—
24. A feeling of team spirit exists between shifts.	—	—	—	—
25. Patients are in the unit who do not need ICU care.	—	—	—	—
26. My clinical judgments are questioned by coworkers.	—	—	—	—
27. Time prevents me from giving emotional support to my patients.	—	—	—	—
28. I am comfortable in my ability to meet patient's emotional needs.	—	—	—	—
29. Physicians are available when I need them.	—	—	—	—

Rarely
Occasionally
Frequently
Almost Always

30. I am able to keep up with technological advances in the ICU.	—	—	—	—
31. A feeling of team spirit exists on my shift.	—	—	—	—
32. I feel that my knowledge is current.	—	—	—	—
33. My clinical knowledge is respected by my co-workers.	—	—	—	—
34. I am distressed when patients have major setbacks or die.	—	—	—	—
35. My family provides emotional support for me in my job.	—	—	—	—
36. The pace in the unit is too rapid.	—	—	—	—
37. Working with specialized equipment distresses me.	—	—	—	—
38. Group or individual counseling (psychologist, psychiatric nurse or worker) is available to me at work.	—	—	—	—
39. I participate in group or individual counseling (psychologist, psychiatrist, psychiatric nurse, or social worker) at work.	—	—	—	—
40. I feel comfortable making patient care decisions.	—	—	—	—
41. Time prevents me from giving emotional support to the families of patients.	—	—	—	—
42. I am able to cope with job distress.	—	—	—	—
43. The immediate supervisor respects my judgments.	—	—	—	—
44. I feel I can provide quality nursing care under pressure.	—	—	—	—

	Rarely	Occasionally	Frequently	Almost Always
45. I am distressed by a fluctuating work pace.	—	—	—	—
46. There is adequate staffing in the unit.	—	—	—	—
47. Caring for dying patients is upsetting for me.	—	—	—	—
48. A lack of work space distresses me.	—	—	—	—
49. My knowledge is respected by the immediate supervisor.	—	—	—	—
50. Adequate relief is regularly provided for lunch and coffee breaks.	—	—	—	—
51. I have time to give emotional support to peers.	—	—	—	—
52. I feel confident in meeting patients' physical needs.	—	—	—	—
53. I consider leaving ICU nursing because of stress.	—	—	—	—
54. High noise levels distress me.	—	—	—	—
55. My expertise is respected by patients.	—	—	—	—
56. I have sufficient preparation to operate specialized equipment.	—	—	—	—
57. Physicians respect my knowledge.	—	—	—	—
58. The unnecessary prolongation of life distresses me.	—	—	—	—
59. My job is stressful.	—	—	—	—
60. I have time to give quality patient care.	—	—	—	—
61. Staffing permits me to work a satisfying schedule.	—	—	—	—
62. My judgments are respected by physicians.	—	—	—	—
63. I feel confident in my abilities.	—	—	—	—

64. Please indicate any additional comments.

65. Where were these questions answered:

- 1) At change of shift report session _____ before duty _____ after duty _____
- 2) At home _____
- 3) Other, specify _____

REFERENCES

- Berman, L. B. The generation gap. JAMA, 1981, 246(Part 1), 872.
- Caldwell, T., & Weiner, M. F. Stresses and coping in ICU nursing: A review. General Hospital Psychiatry, 1981, 3, 119.
- Campbell, T. W. Death anxiety on a coronary care unit. Psychosomatics, 1980, 21(2), 127.
- Cannon, W. C. Bodily changes in pain, hunger, fear and rage: An account of recent researches into the function of emotional excitement (2d ed.). New York: Appleton, 1929.
- Caplan, G. Mastery of stress: Psychosocial aspects. American Journal of Psychiatry, 1981, 138, 413.
- Cassell, E. J. The healer's art. Philadelphia: J. B. Lippincott, 1976.
- Friedman, E. H. Stress and intensive care nursing: A ten year reappraisal. Heart & Lung, 1982, 11(1), 26-28.
- Friedman, E. H., & Hellerstein, H. K. Influence of psychosocial factors on coronary risk and adaptation to a physical fitness evaluation program. In Exercise testing and exercise training in coronary heart disease. New York: Academic Press, Inc., 1973.
- Gentry, W. D., Foster, S. B., & Froehling, S. Psychologic response to situational stress in intensive and non-intensive care nursing. Heart & Lung, 1972, 1, 793.
- Lazarus, R. S., Cohen, J. B., Folkman, S., Kanner, A., & Schaefer, C. Psychological stress and adaptation: Some unresolved issues. Selye's guide to stress research. New York: Van Nostrand Reinhold Co., 1980.
- Miller, J. R. Women in management. Paper presented at the Texas Student Nurses' Association meeting, San Antonio, February, 1981.

- Nichols, K., Springfield, V., & Searle, J. An investigation of distress and discontent in various types of nursing. Journal for Advancement in Nursing, 1981, 6, 311.
- Pelletier, K. Mind as healer, mind as slayer. New York: Dell Publishing, 1977.
- Selye, H. The stress of life (rev. ed.). New York: Dell Publishing, 1976.
- Selye, H. A cope for coping with stress. Association of Operating Room Nurses Journal, 1977, 25(1), 35-42.
- Selye, H. Stress and the reduction of distress. The Journal of the South Carolina Medical Association, 1979, 75(11), 562-566.
- Stehle, G. L. Critical care nursing stress--the findings revisited. Nursing Research, 1981, 30.
- Stephen, S., & Bailey, J. Sources of stress and satisfaction in ICU nursing. Focus on AACN, 1979, 11, 26-32.