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## Perceived Stress Levels of Registered Nurses Employed in Medical-Surgical and Critical Care Units

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PERCEIVED STRESS LEVELS OF REGISTERED NURSES  
EMPLOYED IN MEDICAL-SURGICAL AND CRITICAL CARE UNITS

By

Karen Snyder Keese

A THESIS

Submitted to  
Grand Valley State University  
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## ABSTRACT

### PERCEIVED STRESS LEVELS OF REGISTERED NURSES EMPLOYED IN MEDICAL-SURGICAL AND CRITICAL CARE UNITS

By

Karen Snyder Keese

The purpose of this research was to compare perceived stress levels of registered nurses employed in medical-surgical units to perceived stress levels of registered nurses employed in critical care units. A descriptive, correlational study was conducted using Wolfgang's (1988) Health Professions Stress Inventory. Perceptions of stress were measured and related to specialty, years of experience, years of nursing education, hours worked per week, and shift worked. A convenience sample of 102 registered nurses from two midwestern hospitals participated by a self administered questionnaire. Study findings included: medical-surgical nurses perceived significantly higher levels of stress than critical care nurses; stressors for medical-surgical nurses were related to workload; stressors for critical care nurses were related to staffing and responsibility; there was no significant relationship between nursing experience or nursing education and perceptions of stress; and there was no significant difference between hours per week or shift worked and perceptions of stress.

## DEDICATION

This thesis is dedicated to all my family, but especially to my parents, Robert and Faustine Snyder.

## Acknowledgements

This research project could not have been completed without the support and assistance of many people. Each of them helped me get one step closer to this goal.

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## CHAPTER ONE

### INTRODUCTION

Nurses practice their profession under both national and organizational stressors. Pressures that affect the health care industry as a whole also affect nurses. These include such pressures as government regulations, declining reimbursement, nursing shortages, and the aging American population. These national stressors add to the organizational stressors which are always present. Organizational work stressors which contribute to nurses' perceived stress levels are both hospital and unit based: conflicts with peers, shortages of supplies, not enough time to finish tasks, and staffing policies.

Hospitals are caught in the dichotomy of declining reimbursement and increasing acuity levels of patients. In the Social Security Amendment Act of 1983 which introduced prospective payment to determine reimbursement based on 467 predetermined diagnosis related groups (DRGs), Sandella (1990) points out that if treatment exceeds the payment rate, the hospital absorbs the loss, and conversely, if the rate exceeds the cost, the hospital keeps the difference. This has led to hospital administrations searching for ways to provide patient care with fewer labor costs.

Merker and Elbein (1990) summarized data collected from a nationwide random sample of 30% of all hospitals ( $n = 1,166$ ) stratified by state. This study examined hospital nursing practices, nurse employment patterns, and hospital responses to nursing employment patterns. Merker and Elbein (1990) discussed the dilemma of dropping occupancy rates of hospitals which has led to closed beds, while hospitalized patients are becoming sicker. This has resulted in necessary nursing services being compressed into shorter lengths of stay. In addition, development of medical technology has made it possible to treat and save more patients.

The last factor discussed in this equation is the aging of the American population. Merker and Elbein (1990) point out that more than one in ten Americans, or 28 million people are now over 65 years of age. With an increasingly aged population comes an increase in chronic illness, the higher acuity illnesses of the aged, and multiple systems failure. Care for the infirm with complex diseases becomes labor intensive.

All of these factors combine to adversely affect the hospital industry. The stressor is that hospitals are trying to stay in business with declining income. Labor costs are often the first area cut. These stressors to the industry filter down to the nursing units as pressure for cost containment, increased productivity, and less time for more acutely ill patients. Nurses become stressed when

attempting to care for increasing numbers of sicker patients per nurse.

The American Hospital Association (Nurse Executive, 1991) recently released data from a nationwide survey of human resources in 1989. This survey included 53 percent of all hospitals ( $n = 3776$ ). The American Hospital Association's (AHA) summary indicated that hospital personnel shortages are growing worse for 16 categories of workers. The AHA (Nurse Executive, 1991) definition of a shortage is "7 percent as the baseline vacancies" (p. 1). The staff nurse category showed an 8.7 percent vacancy rate. Coleman (1990) projects a nationwide critical care nursing vacancy rate of 36,000 positions for 4,500 hospitals, at a time when patients are older and are being admitted with higher acuity of care levels. Coleman (1990) also discusses a nationwide turnover rate of 13.8 percent, with many hospitals having difficulty filling all of their positions. Vacant positions for skilled nurses contribute to the combination of national and organizational work stressors perceived by staff nurses. Depending on the geographic area, hospitals either are concerned about increasing patient to nurse ratios or the increasing vacancy rates for certain job categories. Adjustment strategies listed for hospitals experiencing vacancies include assigning regular overtime for registered nurses, floating nurses between units, consistently staffing below norms recommended by either a classification system or nurse managers,

temporarily closing beds or placing limits on admissions to inpatient areas, discharging patients early from specialty areas to general areas, and eliminating lower priority nursing care (Merkel and Elbein, 1990). These adjustment strategies are also utilized for lowering labor costs in some hospitals. All of these strategies tend to increase perceived stress levels for staff nurses. These work related stressors may compound and lead to job dissatisfaction, burnout, poor performance, increased turnover, and rising nurse vacancy rates.

Traditionally, the assumption expressed in the literature has been that critical care nurses experience higher levels of stress than do other nurses employed in the hospital. Critical care nurses experience many situations unique to the intensive care, high technology units in which they work. Frequent crisis situations, exposure to death and suffering on a daily basis, and demands for a high level of performance under pressure contribute to a perception that critical care nurses must be under a high level of stress. However, the critical care nurses have the support of technology, lower patient to nurse ratios, and advanced training to enable them to function optimally in the work setting. Usually, a critical care unit has an all registered nurse staff that works closely together in a smaller area.

Traditionally, the amount of stress a medical-surgical nurse experiences has not been extensively evaluated.

Medical-surgical nurses care for a higher number of patients per nurse. They care for sicker patients with technology and medications that were only seen in critical care units a few years ago. These nurses work in a larger unit where they may be more isolated from other professionals and supervise less skilled helpers.

Each level of nurse working in a hospital setting has a slightly different set of parameters for their practice. However, all nurses practicing in the medical-surgical or critical care settings are finding they must change their practice to fit the new guidelines dictated by the changing healthcare climate. As a result, some stressors are universal to all hospital nurses and some are unique to particular units.

#### Purpose

The purpose of this research was to identify which nurses perceive higher stress levels and the work situations which contribute to these perceptions of higher levels of stress. This information could enable nurse managers to allocate resources to the areas of the greatest perception of need. Implementation of stress management programs and correction of underlying problems could improve performance, increase job satisfaction and decrease turnover. Less perceived stress could also mean better patient care.

This study explored the possible relationship between perceptions of stress and the variables: years of nursing

experience, level of education, hours worked per week, and shift worked.

This study was an extension of a study by Wolfgang (1988) who compared nurses, pharmacists, and physicians according to perceived stress levels and types of stress. This study compared critical care and medical-surgical nurses according to perceived stress levels and examined the types of stress perceived as more significant for each group.



## CHAPTER TWO

### LITERATURE REVIEW

Many studies have examined different facets of stress and its relationship to nursing practice. The studies reviewed for this research compared stress levels of different specialty groups of nurses within hospital settings, compared types of stressors, and examined stress and its relationship to burnout, turnover, and job satisfaction.

Stressors in the work setting have been identified in studies by Wolfgang, Perry, and Wolfgang (1988); Gray-Toft and Anderson (1981); Anderson and Basteyns (1981); Harris (1984); Huckabay and Jagla (1979); Norbeck (1985); and Robinson and Lewis (1990). The stressors most frequently identified were similar, regardless of the nurse's work setting. Stressors included: exposure to life-threatening situations; complex technology; critical decision-making responsibilities; over-stimulating environment; workload; interpersonal relationships among nurses, physicians, and administrators; dealing with death and severe illness; task ambiguity; staffing problems; type of patients; feeling inadequately prepared to meet the emotional demands of patients and their families; and dealing with physicians.

In a review of literature from 1960-1980, Stehle (1981) points out that most of the studies identify stressors and precursors to stress in critical care nursing, but do not show critical care nursing to be any more stressful than other types of nursing.

It is well documented in the literature by Robinson and Lewis (1990), Huckabay and Jagla (1979), Eisendrath and Dunkel (1979), and Levine, Wilson, and Guido (1988) that the interest and emphasis in studying stress in the critical care unit is related to identifying suggestions on how to improve the work setting for the critical care nurses. Similar studies to identify specific stressors and how to improve the work setting for medical-surgical nurses were not located. However, Chiraboga, Jenkins, and Bailey (1983), and Dear, Weissman, Alexander, and Chase (1982) identify characteristics which contribute to stress and apply to nurses in any work setting. The common factors which contribute to burnout for the nurses in Chiraboga and Bailey's (1986) study were being single, younger, and having fewer years of work experience. In the study by Dear et al. (1982), the variables most predictive of turnover were a younger age and a lower level of education. The stressors investigated in these two studies were perceived equally by different types of nurses. Differences were attributed to the psychosocial makeup of nurses, regardless of where they worked. The types of instruments used were selected to look at coping and outcomes of the perceived stressors, such as

burnout and turnover. The comparison of stress levels was not done.

Maloney (1982) tested 30 intensive care nurses and 30 nonintensive care nurses from a 1200 bed military hospital to determine if there were any differences in their stress levels. The nonintensive care nurses showed significantly more state and trait anxiety. The majority of the sample were young, single, inexperienced, and graduates of a baccalaureate nursing program. Ninety percent of the sample studied were military nurses. Although the general staff mix may be similar to most nonmilitary hospitals, these results would not be generalizable to a civilian population due to the higher ratio of older, married nurses with associate degree and diploma preparation for nursing in the civilian hospitals. The unique discipline and hierarchy of the military are also quite different from civilian hospitals.

Motowidlo, Packard, and Manning (1986) discussed 45 events identified through group discussion and questionnaire completion that caused nurses to feel stressed and concluded "...In particular, conditions in the medical/surgical units caused the events to occur more frequently to nurses who work there" (p. 626). Path analysis of ratings on interpersonal aspects of job performance gathered from the supervisors ( $n = 96$ ) of the participating nurses led researchers to conclude that feelings of stress leading to depression could in turn cause "decrements in interpersonal

and cognitive/motivational aspects of job performance" (p. 618). Motowidlo et al. (1986) caution that path analysis may have different interpretations.

Gray-Toft and Anderson (1981) studied the causes and effects of nursing stress in the hospital environment and related its effect to job satisfaction and turnover. They stated "job satisfaction was found to be related to stress..." (p. 641) and "preliminary evidence suggests that turnover among nurses is related to stress" (p. 644). Gray-Toft and Anderson (1981) also measured the frequency and major sources of stress experienced by nurses ( $n = 122$ ) on different hospital units including hospice, surgery, oncology, cardiovascular surgery, and medical units. Their comparison of data identified the medical unit group as having the highest mean score (94.11) and percentage of turnover (30%); thus correlating perceptions of stress with turnover rates. Gray-Toft and Anderson (1983) went on to design a nine week staff support program for nurses working on a hospice unit in a large, private, general hospital. Comparison of pre-program levels of stress, job satisfaction, and turnover rates to post-program data show a significant,  $p < .05$ , decrease in frequency of stress, an increase in satisfaction with co-workers, and no turnover in the group of participating nurses during this period of time. The sample was limited to one specialty unit in one hospital in the Midwest. Further studies would need to be

done with diverse units, hospitals, and geographic areas to determine if the results could be generalized.

Foxall, Zimmerman, Standley, and Bene (1990) used Gray-Toft and Anderson's (1981) Nursing Stress Scale to compare the frequency and sources of nursing job stress perceived by intensive care nurses ( $n = 35$ ), hospice nurses ( $n = 30$ ), and medical-surgical nurses ( $n = 73$ ). Foxall et al.'s (1990) results showed no significant differences among the three groups of nurses in overall frequency of stress. However, they identified the following:

ICU and hospice nurses perceived significantly more stress than medical-surgical nurses related to death and dying; ICU and medical-surgical nurses perceived significantly more stress than hospice nurses related to floating; and medical-surgical nurses perceived significantly more stress than ICU and hospice nurses related to work overload/staffing. (p. 572)

The results of this study are not generalizable due to the different sizes of the units involved and poor return rate (22%) of the medical-surgical nurses group.

Wolfgang, Perry, and Wolfgang (1988) conducted a study with nurses and hospital pharmacists to determine the most stressful situations for each group. A comparison was then done of their perceived stress levels. Wolfgang et al. (1988) found that the overall mean scores were significantly different according to Student's  $t$  test,  $t(359) = 4.118$ ,  $p < .05$ , indicating that "hospital nurses perceived

significantly more job-related stress than did their pharmacist colleagues" (p. 1343). The stress scores had no significant correlation with any demographic characteristics, but the same areas were identified as most stressful for both groups: too much work, too few staff members, and constant interruptions. The sample was chosen from professional registries so the areas of practice of the individuals who participated could not be identified.

In summary, many similar stressors have been previously identified for all nurses in the hospital setting. Certain identified stressors are common to all nurses. Other studies suggest that medical-surgical nursing may have a more stress producing environment than critical care nursing, despite popular belief. Some of the variables that contributed to perceptions of increased stress were frequency of stressor occurrence, demographic characteristics, personality types, and coping skills. Interventions based on evaluation of perceived stress levels have decreased job turnover, dissatisfaction, and burnout. The perceptions of nurses, how they cope with stressors, and the effect of stressors on the worklife of nurses are areas for further study.

#### Conceptual Framework

The conceptual framework for this study was based on three theorists. Hans Selye (1956) developed the original stress and response theory called the General Adaptation Syndrome which primarily defined physiological reactions.

Richard Lazarus (1981) went on to identify and define all of the individual cognitive parts of the stress transaction in his Stress and Coping Paradigm. Betty Neuman later developed a nursing oriented wholistic systems approach which she identified as Neuman's Systems Model (1989). Neuman and Lazarus complement each other, in that Lazarus defines the internal process and coping, and Neuman extends the stress theory to definition of the external factors, and the points for intervention. Each of these theorists were originally influenced by Selye. They built on Selye's (1956) foundation and refined their stress theories to include their particular expertise.

#### Selye's (1956) General Adaptation Syndrome

Selye (1956) theorized that there are three stages to the stress reaction. The first or alarm stage includes the release of electrical and hormonal stimulators in the body to prepare the organism to respond to any stressful stimuli. The second or resistance stage comes when alarm reactions are diminishing and it takes increased stimulus to get a physiological response from the body. The exhaustion stage eventually comes after prolonged stressful stimuli which results in the organism being energy depleted. The third stage can lead to illness. For the purposes of this study, Selye's (1956) General Adaptation Syndrome would be the stages that nurses go through with prolonged exposure to stressful stimuli in their nursing practice. All nurses would pass through the same stages if exposed to the same

amounts of stressful stimuli. Prolonged stressful stimuli could result in illness once the third stage of exhaustion is reached. It is desirable to avoid the second and third stages. By measuring perceived amounts of stress, one should be able to identify excessive amounts of stress and plan intervention.

#### The Stress and Coping Paradigm of Lazarus (1981)

Lazarus (1981) believes there is a transaction, rather than interaction, between the person and environment in any given situation. The transaction is two-way with a dynamic flow and interchange. Lazarus (1981) discusses primary cognitive appraisal which he defines as "the process of evaluating the significance of a transaction for one's wellbeing" (p. 192). The person involved in the transaction decides if it is "irrelevant, benign-positive, or stressful" (Lazarus, 1981, p. 192). This creates a feedback loop which affects the secondary cognitive appraisal which Lazarus (1981) defines as "a set of complex cognitive appraisal processes devoted to coping decisions" (p. 195). Lazarus (1981) lists "general and specific beliefs about oneself and the environment,...and the pattern and strength of values and commitments" (p. 195) as internal determinants which affect the appraisal process and coping.

In the Stress and Coping Paradigm, Lazarus (1981) defines more finitely the process that occurs internally when a person is confronted with stressors. In applying this paradigm to nursing, the nurse would use primary



cognitive appraisal to determine if a stressor is a positive or negative one and whether the situation is manageable. Secondary cognitive appraisal would then determine how the nurse would cope with the situation. The resultant reaction of the nurse would then feed back to the environment in which the transaction is taking place and stimulate change, for better or worse.

The key to this application is perceived stress by the nurse. The nurse's perception of stress is determined from the primary cognitive appraisal. The secondary cognitive appraisal process determines how the nurse will respond.

#### Neuman's (1989) Systems Model

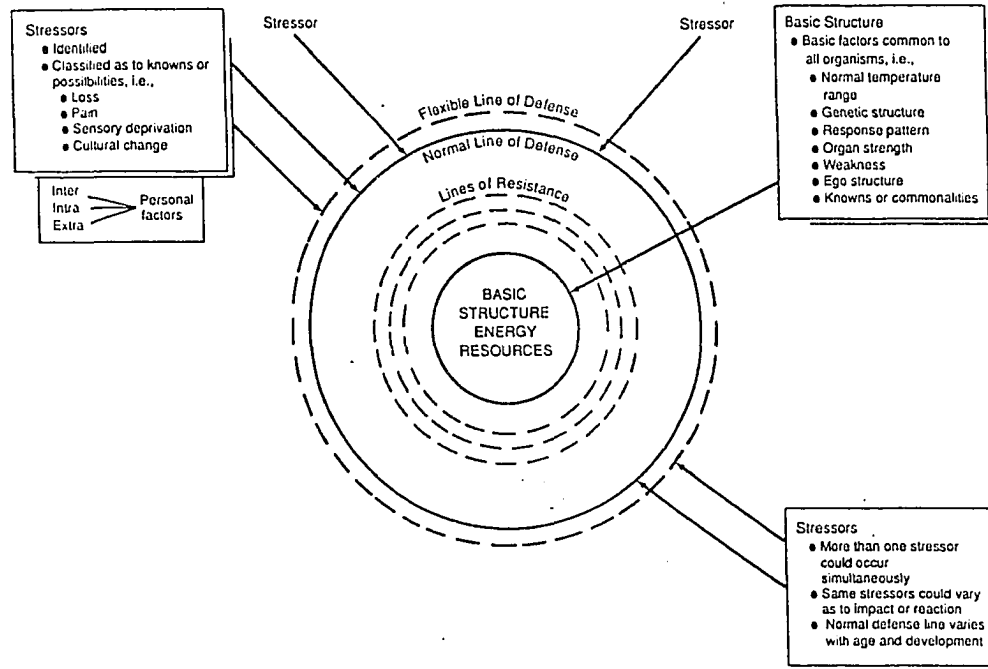
The four concepts on which the Neuman Systems Model (1989) is based are: man, environment, health, and nursing. In Neuman's revised definitions (1989) she defines man as the client or client system. Environment is defined as "both internal and external forces surrounding the client, influencing and being influenced by the client, at any point in time, as an open system" (Neuman, 1989, p. 48). Health is considered "a continuum of wellness to illness" (Neuman, 1989, p. 49). The definition of health also describes nursing as "a unique profession concerned with all variables affecting clients in their environment" (p. 49).

Each client has defenses called the "flexible line of defense, normal line of defense, and lines of resistance" (Neuman, 1989, p. 28). The flexible line of defense represents the outward dynamic protection of the organism.

The normal line of defense is the usual state of wellness which attempts to maintain the status quo. The lines of resistance are within the organism and are activated in response to invasion of the usual state of wellness.

According to Neuman (1989), when the client detects a stressor (inter, intra or extra-personal), many components combine to determine how the client will react to adapt to the stressor. The organism's basic core structure combines with five variables, the established lines of resistance, the normal line of defense, and the flexible line of defense. This unique combination of strengths and weaknesses for each client system determines how the client interprets and is affected by the stressor. In system's language, there is input from the stressor and output by the client with feedback between each until there is "corrective action to change, enhance, and stabilize the system, with the goal of achieving the optimal wellness level" (Neuman, 1989, p. 27) (see Figure 1).

Intervention can come at three separate points. Primary prevention is "to protect the client system's normal line of defense...by strengthening the flexible line of defense" (Neuman, 1989, p. 35). Secondary prevention is "to provide appropriate treatment of symptoms to attain optimal client system stability or wellness and energy conservation" (Neuman, 1989, p. 36). Tertiary prevention is "to protect client system...return to wellness following treatment" (Neuman, 1989, p. 36).



**Figure 1.** Neuman's Systems Model showing the flexible line of defense, normal line of defense, and the lines of resistance. Note. Reprinted with permission from Neuman: The Neuman Systems Model, 2nd ed., Appleton & Lange, Norwalk, CT, 1989.

Neuman's (1989) goal for nursing is to facilitate optimum wellness for the client system by assessing the stressors and needs of the client system and using appropriate interventions. In this study the researcher assessing the perceived stress levels of nurses was the nurse who linked client, environment, health, and nursing to facilitate adjustment to the environmental stressors. The medical-surgical and critical care nurses were the clients. The environment was both the hospital and globally, the national healthcare environment. Health or optimum wellness

was the lowest possible perceived stress level, with the flexible line of defense successfully protecting or buffering the client's usual state of wellness. The variables were the stressors and stress levels assessed by the questionnaire. The stressors interacted with the flexible line of defense to attempt disruption of the equilibrium of the client's normal line of defense, or wellness. Perceptions of very high stress levels were interpreted as having the potential for mobilizing the internal lines of resistance to attempt to return the client to a higher state of wellness. Identification of clients with higher perceived stress levels indicated an opportunity for primary prevention by reducing the possibility of an encounter with the stressors and/or strengthening the flexible line of defense with interventions.

In summary, Selye (1956) defined the stages of physiological response to stress to demonstrate progression to negative outcomes after prolonged exposure to stressful stimuli. Lazarus (1981) defined the components of the internal response to stress and how these components in turn affect the external response during each transaction. Neuman (1989) defined how the stress reaction can be assessed and intervention take place on several levels to prevent negative physiological, psychological, or behavioral outcomes. The implications for this study are that it is desirable to assess stressors and perceived stress levels in order to identify points of intervention that will enable

clients to avoid the negative physiological, psychological, or behavioral outcomes.

### Research Questions

Several questions were investigated in this study:

1) Do medical-surgical staff nurses have higher perceived levels of stress than do critical care nurses? 2) What areas or job factors are most frequently rated as stressful by medical-surgical nurses? 3) What areas or job factors are most frequently rated as stressful by critical care nurses? 4) What is the relationship between years of nursing experience and job stress scores? 5) What is the relationship between years of nursing education and job stress scores? 6) What differences are there in job stress scores between full-time and part-time nurses? 7) What differences are there in job stress scores between nurses who work different shifts?

### Definition of Terms

Specific potential stressors are the items listed in Wolfgang's (1988) Health Professions Stress Inventory (see Appendix A). Stressors are defined by combining both Neuman's (1989) and Lazarus's (1981) concepts. Neuman (1989) draws from Selye's (1956) work as "tension-producing stimuli or forces occurring within both the internal and the external environmental boundaries of the client/client system" (p. 70). Lazarus (1981) carries this one step further by pointing out that "Psychological stress, overall, refers to demands...that tax or exceed available resources

(internal and external) as appraised by the person involved" (p. 193). The emphasis for this definition is on the perception of the client.

Stress levels are considered to be the perceived total, either greater or lesser, of an individual's stressors as measured by the total score on the Health Professions Stress Inventory (Wolfgang, 1988) (see Appendix A).

Registered nurses (R.N.s) are staff nurses who have successfully passed the licensure exams in the State of Michigan.

A medical-surgical nurse is any registered nurse who works in an adult medical, surgical, or combined medical-surgical inpatient care unit filling a budgeted position.

A critical care nurse is any registered nurse who works in an adult critical care inpatient unit i.e.: intensive care, progressive care, surgical intensive care, or coronary care filling a budgeted position.

## CHAPTER THREE

### METHODOLOGY

#### Research Design

A descriptive correlational study was conducted using an ex post facto design to examine the relationships among type of unit, years of experience, years of nursing education, hours worked per week, and shift worked, and perceived job stress. The Healthcare Professions Stress Inventory (Wolfgang, 1988) and a brief demographics questionnaire (see Appendix B) were administered to a convenience sample of 102 volunteers from two groups of registered nurses (R.N.s). These groups of R.N.s were from medical-surgical and critical care units of two acute care institutions. A comparison was made of the perceived stress levels between the two groups. The most stressful items from each group were identified and compared. Perceived stress levels for each group were examined in relation to four variables: years of nursing experience, years of nursing education, hours worked per week, and shift worked.

#### Subjects

All nurses who met the following criteria were included: R.N.s with a minimum of one year's experience, who worked regularly on the specific unit, and who spoke

English as their first language. The criteria of being an R.N. eliminated the differences that would be introduced if other classifications i.e.: Licensed Practical Nurses or Nurse Aides were recruited. Requiring a minimum of one year's experience eliminated perceived stress levels resulting from being newly hired. Participating nurses worked regularly in either the medical-surgical or critical care units. It was felt that float nurses from other areas would bring other stressors with them. Nurses who are agency or temporary nurses hired from outside the hospital would not have the same environment as the regular nurses. The requirement that nurses speak English as their first language eliminated potential stress due to language difficulties. A minimum sample of 30 subjects from medical-surgical units and 30 subjects from critical care units was desired.

#### Sites

The subjects were recruited from two acute care healthcare systems in the Midwest. These hospitals are similar in size, patient population, and affiliations. Both are licensed for approximately 400 beds, are full service, not for profit institutions, and specialize in oncology services and cardiac services. Both hospitals have affiliated rehabilitation units, nursing students from nearby nursing programs, and the same historical religious denomination affiliation. Each site has several critical care units and medical, surgical, or combined medical-



surgical inpatient adult units from which the population surveyed was recruited.

### Instruments

The main instrument used in this study was the Health Professions Stress Inventory (see Appendix A) developed by Alan P. Wolfgang (1988). This is a 30 item inventory which lists situations which may be encountered by healthcare professionals. The subjects were instructed to check how often they have found each situation to be stressful in their current position. Each item was scored from one (never) to five (very often), so that total scores could range from 30 to 150. This was a change from Wolfgang's (1988) original scoring from zero to four, with total scores ranging from 0 to 120.

Wolfgang (1988) found "Cronbach's alpha coefficients, assessing internal consistency, were .89, .89, and .88 for pharmacists, nurses, and physicians, respectively" (p. 221). The reliability factor of .89 for nurses is an acceptable measure of the degree of consistency of the instrument.

The inventory also includes nine items used as a measure of concurrent validity from "Lyons' (1971) index of work-related tension, which assesses the frequency of feeling bothered by nine work-related factors originally developed by Kahn, et al. (1964)" (Wolfgang, 1988, p. 221-222). Wolfgang (1988) reports "the index...has a reported split-half reliability of .70. PROC CORR (SAS Institute, 1985), Pearson Product Moment Correlations

between scores on the inventory and Lyons' tension index were .75 for pharmacists, .76 for physicians, and .78 for nurses ( $p < .001$ )" (p. 222). The .78 for nurses is an acceptable correlation demonstrating a valid measurement can be obtained using this instrument. The nine items potentially add from 9 to 45 to the overall score.

A questionnaire including four demographic questions was also administered. Years of nursing experience, years of nursing education, total number of hours worked per week, and shift worked, were surveyed. Years of nursing experience potentially identified anyone who had less than one year's experience in nursing and should not have been included in the study. Number of hours worked per week identified nurses who worked less than 36 hours per week and would have more time away from the job and therefore could be presumed to have lower stress levels. The level of education identified the percent of subjects who were prepared at the Masters, Baccalaureate, Associate Degree, and Diploma level in Nursing. The percent of nurses presently in school was originally included, but deleted during analysis due to the small number of people responding to this item. The education information was used to compare the educational mix of medical-surgical nurses to critical care nurses to determine the relationship between perceived stress levels and education levels. The shift worked identified the spread of the nurses over the 24 hour work day. Potentially, it could identify if there were any

differences in stress scores according to shift worked (see Appendix B).

#### Procedure

Following approval by the Human Subjects Review Committee of the University, the two hospital sites were contacted and approval obtained for this research to be done at each site. Subjects were recruited for this study by the following process. Nurse managers of all medical-surgical and critical care units were contacted for information on break areas and times when staff might be contacted. The researcher was available to small groups of potential volunteers at those times to ask for participation and to hand out and collect responses (see Appendix C for Verbal Script). A large envelope was left in the work area for collecting the questionnaires of nurses who wished to return the questionnaire at a later time. There were no interventions used. The participants heard an explanation and were reassured that all forms were confidential and all written results were anonymous. Consent was implied by return of the completed questionnaires. They were told that they could refuse or discontinue at any time, without any consequences.

The data was collected from June 15, 1992, until July 22, 1992. There were no anticipated risks to the participants. The inventory and demographic sheet were anonymous, coded only to indicate medical-surgical unit or critical care unit, and A or B to indicate which hospital.

The process of filling out the questionnaires may have caused individuals to think about their work related stress levels. Several participants were listened to without comment, and did not expect an answer. The plan was to refer them to their organizational employee assistance program if they become distressed or asked for information about what to do about work related stress. That did not occur.

## CHAPTER FOUR

### DATA ANALYSIS

The data from the Health Professions Stress Inventory (Wolfgang, 1988) was first analyzed using frequency distributions to describe the variables and stress scores of the four groups. The interval data from the stress scores of the original four groups was analyzed using a one-way analysis of variance (ANOVA) to determine any differences between groups. Since there were no significant differences between the Hospital A critical care group and the Hospital B critical care group, those stress scores were pooled into one critical care group. There was no significant difference between the Hospital A medical-surgical group and the Hospital B medical-surgical group either and therefore those stress scores were pooled into one medical-surgical group. After pooling of the results, a t-test was used to compare the mean stress scores of the two types of units. The five items with the highest mean stress score for each group were then rank ordered and compared by content and mean score.

Demographic variables were then analyzed using inferential statistics. Pearson's Product Moment Correlation was used to evaluate the relationship between

the ratio data concerning years of experience and stress scores. Spearman's Correlation was used to determine if there was a relationship between the ordinal level data concerning nursing education and stress scores. The nominal data concerning hours worked per week and stress scores was analyzed using a one-way ANOVA. The nominal data concerning shift worked and stress scores was also analyzed using a one-way ANOVA.

#### Sample Characteristics

Approximately 150 questionnaires were distributed with 105 (70%) returned. From the returned questionnaires, three were not used due to incomplete data.

The sample consisted of 102 Registered Nurses, which included 49 critical care staff nurses and 53 medical-surgical staff nurses. The majority were diploma or associate degree prepared nurses. They typically worked over 36 hours per week and either first or second shift. The average years of nursing experience for the sample was 11.733 years (SD 7.498) with a range of 1-41 years. See Table 1 for a comparison of characteristics of the critical care group and the medical-surgical staff nurse group after pooling of data.

Table 1

Comparison of Characteristics of Nurses

<u>Variable</u>	<u>Critical Care<sup>a</sup></u>		<u>Medical-Surgical<sup>b</sup></u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Education				
ADN	24	49	34	64
Diploma	6	12	8	15
BSN	18	37	10	19
MSN	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
	49	100	53	100
Hours worked per week				
8-12	0	-	0	-
13-24	6	12	11	21
25-35	6	12	6	11
36-40	33	68	34	64
>40	<u>4</u>	<u>8</u>	<u>2</u>	<u>4</u>
	49	100	53	100
Shift worked most often				
7-3 or 7AM-7PM	28	57	21	40
3-11	4	8	20	38
11-7 or 7PM-7AM	<u>17</u>	<u>35</u>	<u>12</u>	<u>22</u>
	49	100	53	100
Years of nursing experience				
<u>M</u>	13.4		9.8	
<u>SD</u>	6.0		7.8	
Range	2-30		1-41	

Note. There were no responders to 8-12 hours worked per week.

<sup>a</sup>n = 49      <sup>b</sup>n = 53

### Research Question 1

The primary research question was: do medical-surgical staff nurses have higher perceived levels of stress than do critical care staff nurses? There was a significant difference in stress scores between medical-surgical staff nurses and critical care staff nurses [ $t(100) = -3.51$ ,  $p < .001$ ]. Medical-surgical staff nurses perceived higher levels of stress. (See Table 2.)

Table 2

#### Comparison of Stress Scores for Critical Care and Medical-Surgical Nurses

	Number of Scores	Mean <sup>a</sup>	Standard Deviation	Standard Error
<u>Critical Care Nurses</u>	49	108.47	22.50	3.21
<u>Medical-Surgical Nurses</u>	53	122.70	18.34	2.52

---

#### T-Test

<u>Pooled Variance Estimate</u>				
<u>F Value</u>	<u>2-Tail Prob.</u>	<u>T Value</u>	<u>Degrees of Freedom</u>	<u>2-Tail Prob.</u>
1.50	.150	-3.51	100	.001

---

<sup>a</sup>Possible score range 30-150



### Research Question 2

The second research question was: what areas or job factors are most frequently rated as stressful by medical-surgical nurses? Rank ordering of individual items from the survey identified the five highest scoring items for each specialty (see Table 3). Medical-surgical nurses had more total items with means above 3.5 (11 items) and five items with means above 4.0. Four out of the five highest stress score items for this group related to workload.

### Research Question 3

The third research question was: what areas or job factors are most frequently rated as stressful by critical care nurses? Rank ordering by mean scores per item revealed that the critical care group had no items with means above 4.0, only four items with means above 3.5, and only one of these four related to workload (see Table 3).

### Research Question 4

The fourth research question was: what is the relationship between years of nursing experience and job stress scores? Using Pearsons's Product Moment Correlation, there was essentially no relationship demonstrated at the  $p < .05$  level between years of experience and stress scores,  $r = -.1479$ ,  $p = .069$ .

Table 3

Comparison of Five Highest Stress Score\* Items

<u>Critical Care</u>			<u>Medical-Surgical</u>		
<u>Question</u>		<u>M*</u>	<u>Question</u>		<u>M*</u>
Q21	Not enough staff	3.71	Q21	Not enough staff	4.57
Q22	Non-health professional telling you how to do your job	3.65	Q22	Quantity interferes with quality of work	4.42
Q3	Responsibility for patient outcomes	3.55	Q36	Workload too much to finish	4.26
Q24	Constant interruptions (only four items met criteria) <sup>a</sup>	3.55	Q1	Too much to do well	4.21
Q16	Difficult patients	3.45	Q14	Meeting society's expectations	4.13

---

\*Stress Score Key: Never (1) to Very Often (5)

#### Research Question 5

The fifth research question was: what is the relationship between years of nursing education and job stress scores? There was no relationship between years of nursing education and job stress scores at the  $p < .05$  level using Spearman's Correlation ( $\rho = -.1055$ ,  $p = .29$ ).

#### Research Question 6

The sixth research question was: what differences are there in job stress scores between full-time and part-time nurses? There was no significant difference between groups at the  $p < .05$  level [ $F(2, 93) = .0814$ ,  $p = .9219$ ], when the five categories of hours were analyzed using a one-way ANOVA. The category of 8-12 hours worked per week had no responders. The category of >40 hours worked per week was regular overtime and had only 6 responders. Both categories were deleted for this analysis due to insufficient numbers. It was felt that overtime was a variable that was not desirable to include.

#### Research Question 7

The last research question to be addressed was: what differences are there in job stress scores between nurses who work different shifts? There were no significant differences among the three groups at the  $p < .05$  level [ $F(2, 99) = 2.6023$ ,  $p = .0792$ ], when analyzed using a one-way ANOVA.

CHAPTER V  
DISCUSSIONS/LIMITATIONS/IMPLICATIONS

Discussion

The major finding of this study was that the stress scores of the medical-surgical group were significantly higher than the stress scores of the critical care group. This finding is consistent with the findings of Gray-Toft and Anderson (1981) which identified a medical unit group as having the highest mean stress score and Maloney (1982) who found that nonintensive care nurses showed significantly more state and trait anxiety. It is difficult to compare studies further because of the use of different instruments.

The results of these findings cannot be compared with Wolfgang's (1988) study because that study was scored differently and did not identify the nurses by specialty. The study compared stress scores between physicians, pharmacists, and nurses.

Rank ordering of the five highest stress score items for each group (see Table 3) indicated that critical care R.N.s were most concerned about staffing, non-health professionals telling them how to do their job, responsibility for patient outcomes, constant interruptions, and difficult patients. Medical-surgical R.N.s' concerns

centered around workload and staffing issues, as well as meeting society's expectations. Both groups of R.N.s identified the same highest scoring item of too few staff.

The findings of this study partially agree with the findings of Foxall, Zimmerman, Standley, and Bene (1990). In the study by Foxall et al. (1990) medical-surgical nurses perceived significantly more stress than intensive care and hospice nurses related to work overload and staffing. Stressors identified in earlier studies of nurses by Norbeck (1985), Robinson and Lewis (1990), and Wolfgang, Perry, and Wolfgang (1988) were not separated by nursing specialties. One factor that may have accounted for the increased frequency of workload items reported by medical-surgical nurses is the changing healthcare climate in recent years which has resulted in downsizing, cost containment, and insistence on increased productivity in acute care settings. Another factor may have been that critical care nurses have a lower patient to nurse ratio than medical-surgical nurses, with more high technological supports in place. Medical-surgical nurses care for more patients per nurse with fewer supports for their nursing practice.

Essentially no correlation was found between years of nursing experience and stress scores in this study. Chiraboga and Bailey (1986) identified common variables of being single, younger, and having fewer years of work experience as contributing to burnout. Maloney's (1982) study participants were mainly young, single, inexperienced

nurses and the nonintensive care nurses had significantly more state and trait anxiety. It is difficult to make further comparisons due to the different instruments used and different specialties studied.

There was no relationship found between education achieved, shift worked, or hours per week worked and stress scores. Dear et al. (1982) found in their study that the variables of younger age and lower education were predictive of turnover. A similarity was noted between this study and the study of Dear et al. (1982) in that the Site B medical-surgical R.N. group had the highest percentage of associate degree and diploma prepared nurses (85.7%). This group was less educated, had fewer years of experience ( $\bar{M} = 7.7$ ,  $SD = 6.2$ , range = 1-24), and the highest mean stress score of 126.4. However, no turnover rates were evaluated to provide a comparison to the study by Dear et al (1982). Other studies that were found did not include correlations of these variables in the same way as this study.

#### Limitations

There are several areas which present possible limitations to this study. Wolfgang's (1988) Healthcare Professions Stress Inventory was developed to administer to physicians, pharmacists, and nurses to determine if there were differences in diverse healthcare professional's levels and sources of stress. There may have been other, more nursing specific items which would have more clearly

identified differences in stress between critical care and medical-surgical nurses. This study narrowed the comparison to two acute care nursing specialties.

The use of a convenience sample is another limitation of the study because it decreased the generalizability of the study results to other acute care settings. The sample in this study is skewed toward the lower level of nursing education, slightly toward first shift workers, and strongly toward full time hours worked. It is not known what results might be with a random sample.

Another limitation is that this study evaluated perceived stress at one point in time for a nonspecified period. If there were unknown unusual occurrences at either site immediately preceding the survey, it may be reflected in the stress scores.

#### Nursing Implications

This study found a higher perception of stress among medical-surgical staff nurses than among critical care staff nurses. The highest ranked items pertained to workload. The implication for managers in acute care settings might be to proactively use resources to assist medical-surgical staff nurses to learn stress management techniques, develop unit support groups, and to keep upper management aware of the possible impact of any proposed changes in staffing patterns. Staff participation in care delivery decisions whenever possible might also be helpful. A manager could explore methods to reduce stress in the work place with the

goal of controlling whatever could be controlled and thereby reducing the overall perceived stress levels. Neuman's (1989) Systems Model defines primary, secondary, and tertiary prevention as first protecting the normal defenses, then providing treatment. In the acute care work setting, an assessment that identifies the perception of higher stress levels could be viewed as determining the need for either strengthening the normal lines of defense (primary intervention) or providing treatment of symptoms (secondary intervention). Any of the interventions listed could be interpreted as primary or secondary prevention to stabilize the defenses.

Nursing education might benefit from these results by incorporating stress management techniques in student courses and teaching them the importance of taking care of themselves: the caregiver. A realistic approach for students in the clinical setting that helps them learn to care for more than one or two patients at a time might also be beneficial to new graduates.

Implications of this study for the community leads one back to education. The average person coming into a hospital for care on a medical-surgical unit expects good care. The education factor for patients and families might include the realities of what is good care, what are priorities, and what is reasonable to expect from a medical-surgical nurse?



### Recommendations for Further Research

The need for further research into levels and sources of stress for acute care registered nurses is apparent. Additional research needs to be done to further define sources of stress, differences between specialties, and the individual and situational characteristics which may be indicative of increased risk. Attention could additionally be focused on coping techniques, personality types, and outside stressors to further define high risk and low risk groups. The Stress and Coping Paradigm of Lazarus (1981) defines the internal interpretation of external stimuli based on internalized coping decisions. The relationship of the type of coping techniques to perceptions of stress, experience, and age might be another area of research in the future.

Additional testing of acute care medical-surgical and critical care nurses in other settings would provide a larger population to determine generalizability of these results. Longitudinal studies with the same groups would be useful to measure trends, reliability of data, and degree of success of planned interventions.

Another recommendation would be to revise the demographic sheet. The Shift Worked Most Often category could be revised to specify the different eight hour and twelve hour shifts to determine the relationship, if any, between length of shift and stress scores.

The Health Professions Stress Inventory (Wolfgang, 1988) could be shortened to the first 30 items. The last nine items are for measuring concurrent validity and are Lyons' (1971) index of work-related tension. A shorter questionnaire may attract more respondents.

In conclusion, this study supports the premise that medical-surgical R.N.s have higher perceived stress levels and different sources of stress than do critical care R.N.s. Essentially no correlation was found between years of nursing experience and stress scores. These findings are consistent with the research findings of Gray-Toft and Anderson (1981), Maloney (1982), and Motowidlo, Packard, and Manning (1986). There was no difference found between level of nursing education, hours worked per week, or shift worked and stress scores.

As the healthcare climate continues to change with declining reimbursement, increasing governmental regulation, and financial insolvency for some acute care hospitals, the acute care registered nurse is often the first affected by organizational stressors. Limited resources for educational purposes in many hospitals make it desirable to be able to identify acute care registered nurse groups at risk from stress. Timely interventions could be used by managers to avoid excessive turnover, burnout, and absenteeism from stress related illness in these high risk groups.

The outcomes of this study have contributed to a better understanding of the different levels and sources of stress

stress perceived by nurses who work in critical care and medical-surgical settings. Further research needs to be conducted to add to the empirical knowledge base that is necessary to develop a clearer understanding of the variables that determine a nurse's perception of stress and to target high risk groups for intervention within the acute care setting.

## APPENDIX A

Health Professions Stress Inventory (Wolfgang, 1988)

Please check the blanks which identify where you work:

Critical Care\_\_\_\_  
Medical-surgical\_\_\_\_  
Borgess Medical Center\_\_\_\_  
Battle Creek Health System\_\_\_\_

Health Professions Stress Inventory (Wolfgang, 1988)

The following questions concern your present practice, as well as attitudes about your job and profession. Please read each question carefully; place a check mark or other appropriate information in the space provided. Thank you.

Listed below are various situations which may be encountered by health professionals. For each item, indicate by means of a check mark ( ) how often you have found each situation to be stressful in your current position, on a scale from NEVER (1) to VERY OFTEN (5).

By returning this completed questionnaire, it indicates consent to participate.

- |  | (1) | (2) | (3) | (4) | (5) |
|--|-----|-----|-----|-----|-----|
| 1. Having so much work to do that everything <u>cannot</u> be done well                                  | ( ) | ( ) | ( ) | ( ) | ( ) |
| 2. Experiencing conflicts with supervisors and/or administrators   | ( ) | ( ) | ( ) | ( ) | ( ) |
| 3. Feeling ultimately responsible for patient outcomes   | ( ) | ( ) | ( ) | ( ) | ( ) |
| 4. <u>Not</u> receiving the respect or recognition that you deserve from the general public              | ( ) | ( ) | ( ) | ( ) | ( ) |
| 5. Being uncertain about what to tell a patient or family about the patient's condition and/or treatment | ( ) | ( ) | ( ) | ( ) | ( ) |
| 6. Caring for the emotional needs of patients  | ( ) | ( ) | ( ) | ( ) | ( ) |

- |   | (1) (2) (3) (4) (5) |
|---|---------------------|
| 7. Disagreeing with other health professionals concerning the treatment of patient                      | ( ) ( ) ( ) ( ) ( ) |
| 8. <u>Not</u> having opportunities to share feelings and experiences                                    | ( ) ( ) ( ) ( ) ( ) |
| 9. Experiencing conflicts with co-workers   | ( ) ( ) ( ) ( ) ( ) |
| 10. Having job duties which conflict with family responsibilities                                       | ( ) ( ) ( ) ( ) ( ) |
| 11. Allowing personal feelings/emotions to interfere with the care of patients                          | ( ) ( ) ( ) ( ) ( ) |
| 12. Keeping up with new developments in order to maintain professional competence                       | ( ) ( ) ( ) ( ) ( ) |
| 13. Feeling that opportunities for advancement on the job are poor                                      | ( ) ( ) ( ) ( ) ( ) |
| 14. Trying to meet society's expectations for high-quality medical care                                 | ( ) ( ) ( ) ( ) ( ) |
| 15. Supervising the performance of co-workers   | ( ) ( ) ( ) ( ) ( ) |
| 16. Dealing with "difficult" patients   | ( ) ( ) ( ) ( ) ( ) |
| 17. <u>Not</u> being recognized or accepted as a true health professional by other health professionals | ( ) ( ) ( ) ( ) ( ) |
| 18. Feeling inadequately prepared to meet the needs of patients   | ( ) ( ) ( ) ( ) ( ) |
| 19. Possessing inadequate information regarding a patient's medical condition                           | ( ) ( ) ( ) ( ) ( ) |
| 20. <u>Not</u> receiving adequate feedback on your job performance                                      | ( ) ( ) ( ) ( ) ( ) |

- (1) (2) (3) (4) (5)
21. Not having enough staff to adequately provide necessary services ( ) ( ) ( ) ( ) ( )
22. Having non-health professionals determine the way you must practice your profession ( ) ( ) ( ) ( ) ( )
23. Not knowing exactly what type of job performance is expected ( ) ( ) ( ) ( ) ( )
24. Being interrupted by phone calls or people while performing job duties ( ) ( ) ( ) ( ) ( )
25. Not being allowed to participate in making decisions about your job ( ) ( ) ( ) ( ) ( )
26. Not being challenged by your work ( ) ( ) ( ) ( ) ( )
27. Feeling that you are inadequately paid as a health professional ( ) ( ) ( ) ( ) ( )
28. Caring for terminally ill patients ( ) ( ) ( ) ( ) ( )
29. Not being able to use your abilities to the fullest extent on the job ( ) ( ) ( ) ( ) ( )
30. Fearing that a mistake will be made in the treatment of a patient ( ) ( ) ( ) ( ) ( )
31. Being unclear on just what the scope and responsibilities of your job are ( ) ( ) ( ) ( ) ( )
32. Not knowing what opportunities for advancement or promotion exist for you ( ) ( ) ( ) ( ) ( )
33. Not knowing what your immediate superior thinks of you, how he/she evaluates your performance ( ) ( ) ( ) ( ) ( )

- |  | (1) (2) (3) (4) (5) |
|--|---------------------|
| 34. Being unable to get information needed to carry out your job   | ( ) ( ) ( ) ( ) ( ) |
| 35. <u>Not</u> knowing just what the people you work with expect of you  | ( ) ( ) ( ) ( ) ( ) |
| 36. Feeling that you have too heavy a work load, one that you <u>cannot</u> possibly finish during an ordinary workday | ( ) ( ) ( ) ( ) ( ) |
| 37. Thinking that the amount of work you have to do may interfere with how well it gets done                           | ( ) ( ) ( ) ( ) ( ) |
| 38. Feeling that you have to do things on the job that are against your better judgment                                | ( ) ( ) ( ) ( ) ( ) |
| 39. Thinking that you'll <u>not</u> be able to satisfy the conflicting demands of various people over you              | ( ) ( ) ( ) ( ) ( ) |



## APPENDIX B

### Demographics

Critical Care\_\_\_\_  
Medical-surgical\_\_\_\_  
Borgess Medical Center\_\_\_\_  
Battle Creek Health System\_\_\_\_

### Demographics

Please answer the following questions so that the sample can be described. Place a check mark on the blank that best describes your answer.

Nursing Education: (Mark highest level reached)

Diploma\_\_\_\_  
Associate\_\_\_\_  
Baccalaureate\_\_\_\_  
Master's\_\_\_\_  
Doctorate\_\_\_\_  
Presently in School\_\_\_\_

Hours Worked Per Week:

8-12\_\_\_\_  
13-24\_\_\_\_  
25-35\_\_\_\_  
36-40\_\_\_\_  
More\_\_\_\_

Total Years of Nursing Experience: \_\_\_\_

Shift Usually Worked: \_\_\_\_\_

## APPENDIX C

### Verbal Script

## VERBAL SCRIPT

### Explanation of Research Project for Participating

#### Registered Nurses

Hello. My name is Karen Keese and I am a graduate student at Grand Valley State University. I am doing a research project concerned with the amount and types of work related stress experienced by medical-surgical and critical care registered nurses.

I am asking for your voluntary help in completing two short questionnaires. They will take approximately 20 minutes to complete. All information will be anonymous and kept confidential. The results will be reported in my thesis only as group data.

In order to participate, you must be working at least one year as a registered nurse in a medical-surgical or critical care unit. You must be employed by the hospital, not an agency or temporary nurse. You must be regularly assigned to the critical care or medical-surgical area. English must be your first language.

You may fill out the forms now and put them in the large brown envelope with my name on it when completed. Do not write your name or address on any of the material. Check the line for Battle Creek Health System, or the line

for Borgess Health Center. If you are a medical-surgical nurse, check that line. If you are a critical care nurse check the appropriate line. These will be the only identifying marks. After the data as been collected and analyzed, a summary report will be available for anyone who participates and would like a copy. If you would like a copy sent to you, call Karen Keese at (616) 964-6821.

You may stop participating at any time without any consequences.

APPENDIX D

Letter of Permission to Use Health Professions  
Stress Inventory

Letter of Permission to Use Figure 1-5, page 31,  
from The Neuman Systems Model (2nd ed.),  
by Betty Neuman (1989)

Letter from Human Research Committee of  
Grand Valley State University



# The University of Georgia

College of Pharmacy


September 23, 1991

Karen I. Keese, B.S.N.  
130 Central Street  
Battle Creek, Michigan 49017

Dear Ms. Keese,

Thank you for your recent letter, I was glad to hear that you were back to work on your thesis proposal. You do, indeed, have my permission to use the Health Professions Stress Inventory in your thesis research. Good luck with your project, I look forward to hearing about the results when you are finished. Please let me know if I may be of further assistance.

Sincerely,

  
Alan P. Wolfgang, Ph.D.  
Associate Professor  
Pharmacy Care Administration

APW/jo

Athens, Georgia 30602  
An Equal Opportunity/Affirmative Action Institution

March 29, 1992

Appleton & Lange  
Attention Copyright Department  
25 Van Zant Street  
East Norwalk, Connecticut 06855

Dear Sir:

I am a graduate nursing student doing a research project for my Master's of Science in Nursing degree. For the conceptual framework, I am using Betty Neuman's Systems Model. In order to clearly depict it, I would like to have permission from Betty Neuman to use the Figure 1-5 (see attachment) on page 31, from The Neuman Systems Model (2nd ed.), by Betty Neuman. Please send me information on how I may apply for permission to use the picture. Enclosed is a stamped, self addressed envelope for your convenience. Thank you in advance.

Sincerely,

*Karen Keese*

Karen Snyder Keese  
130 Central Street  
Battle Creek, Michigan  
49017

Home: 616-964-6821

Work: 616-964-5870

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**PERMISSION GRANTED**

; please give full credit with the source:

"Reprinted with permission from Neuman:

The Neuman Systems Model, 2nd ed.,

Appleton & Lange, Norwalk, CT, 1989".

BY

DATE

*4/3/92*





1 CAMPUS DRIVE • ALLENDALE MICHIGAN 49401-9403 • 616/895-6611

May 1, 1992

Karen Snyder-Reese  
130 Central St.  
Battle Creek, MI 49017

Dear Karen:

The Human Research Review Committee of Grand Valley State University is charged to examine proposals with respect to protection of human subjects. The Committee has considered your proposal, "*Perceived Stress Levels of Registered Nurses Employed in Medical Surgical and Critical Care Units*", and is satisfied that you have complied with the intent of the regulations published in the Federal Register 46 (16): 8386-8392, January 26, 1981.

Sincerely,

A black rectangular box redacting the signature of Paul Huizenga.

Paul Huizenga, Chair  
Human Research Review Committee

## LIST OF REFERENCES

#### LIST OF REFERENCES

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