

5-2010

Nursing Turnover as Related to Patient Mortality

Melinda Helton

Zoila Leon

Rhonda Simmons

Follow this and additional works at: <https://knowledge.e.southern.edu/gradnursing>



Part of the [Nursing Commons](#)

Recommended Citation

Helton, Melinda; Leon, Zoila; and Simmons, Rhonda, "Nursing Turnover as Related to Patient Mortality" (2010). *Graduate Research Projects*. 43.

<https://knowledge.e.southern.edu/gradnursing/43>

This Article is brought to you for free and open access by the School of Nursing at KnowledgeExchange@Southern. It has been accepted for inclusion in Graduate Research Projects by an authorized administrator of KnowledgeExchange@Southern. For more information, please contact jspears@southern.edu.

Running head: NURSING TURNOVER AS RELATED TO PATIENT MORTALITY

Nursing Turnover as Related to Patient Mortality

Melinda Helton, Zoila Leon, & Rhonda Simmons
ID # 0368235 ID # 0306228 ID # 0410530
May 2010

Submitted in partial fulfillment of the requirements
For the degree of Master of Science in Nursing in
The School of Nursing
of
Southern Adventist University

CHAPTER I

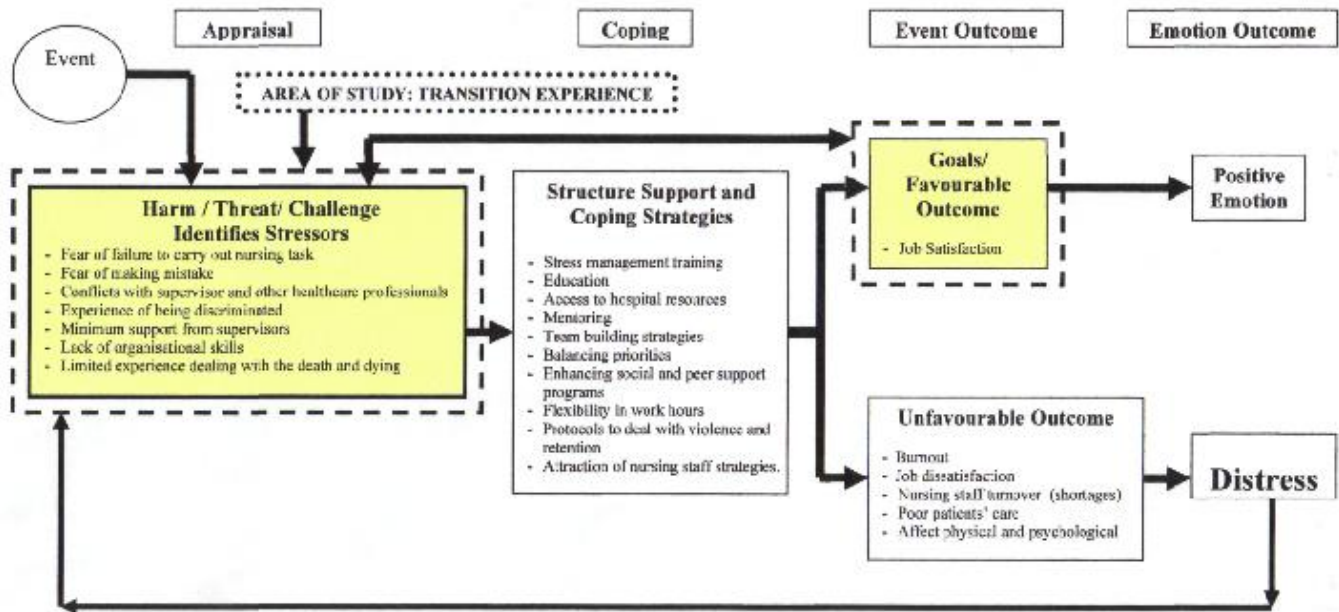
INTRODUCTION

Background & Significance

In nursing, positive and negative perceptions of jobs directly affect staff turnover. This concept is especially valid in the oncology and nephrology fields. Oncology and nephrology nurses develop deep, trusting, family type relationships with their patients due to the required long term treatments. These patient populations face end of life issues involving life prolonging, death delaying, and withdrawal from treatment. Providing information, assisting and supporting patients and their families in making these decisions, and dealing with the ensuing high mortality rate in these patient populations contribute to emotional overload and excessive stress for staff members who care for these populations.

Murphy (2004) portrays nursing as a profession that requires a high level of skill and the ability to deal with unexpected varied situations and work with differing members of the health care team. The nursing environment therefore requires a high degree of *emotional labor*. Constant emotional labor contributes to numerous primary sources of stress and a feeling of powerlessness and poor attitudes and abilities (Murphy, 2004). This emotional labor eventually leads to a symptom of burnout. Burnout is a term that is often used to describe this syndrome, emotional state or accumulation of stressors attributed to a nurse who leaves a particular field, or at times the profession due to the stress experienced on the job. Quattrin, Zanini, Nascig, and Annunziata (2006) describes burnt as “a term frequently used to describe the experience of healthcare workers dealing with stressful situations.” Quattrin and colleges (2006) describes the syndrome as having three main parts: “emotional exhaustion, depersonalization and lack of personal achievement” (Quattrin, 2006, p. 815). The following figure is a model describing stress among registered nurses.

Figure 1. Stress among registered nurses.



(Adapted from Lazarus & Folkman, 1984)

Emotional labor overload and resulting stress contribute to a high incidence of nurse turnover. According to Simona, Favara-Scacco, Di Cataldo, and Russo (2007) burnout and nursing stress is extremely high in those working in health fields where extreme measures are taken to increase patient survival. There is vast evidence in the literature demonstrating the relationship between job stress and negative outcomes in the workplace. Hall confirms this with her literature review which she conducted in 2001. The article describes nursing as one of the most stressful occupations, a fact which is grounded in various research articles and studies conducted over the last forty years (Hall, 2001). Hall affirms that a nurse's close "implicit relationship" and dealing with death and dying patients is one of the many contributing factors that leads to a high incidence of burnout and job related stress (Hall, 2001).

Problem Statement

Oncology and nephrology nurses, who care for patient' long term, develop a special relationship with their patients. Patients with cancer and end stage renal failure face end of life issues and have a high mortality rate. Nurses in these areas experience emotional overload and excessive stress related to the high mortality rate of their patients and this leads to increased staff turnover.

Statement of Purpose

To rate the perceived level of stress on nurses caring for chronically ill patients and determine if an educational intervention will change targeted nurses' perception of stress, thus changing negative perceptions to positive perceptions. Therefore, decreasing perceived stress and decreasing staff turnover.

Purposes of the Study

1. To identify self appraised stress level among nephrology and oncology nurses.
2. To increase self appraised coping mechanisms in nephrology and oncology nurses
3. Demonstrate affects of stress and coping among oncology and nephrology nurses on staff turnover in these areas.
4. To evaluate educational intervention in improving self appraised stress and coping among nephrology and oncology nurses.
5. To assess if an educational intervention positivity affects staff turnover outcomes.

Hypothesis

Nurses, who care for long-term chronically ill patients, experience emotional fatigue and increased stress causing negative perceptions that can predict staff turnover.

Experimental group subjects participating in an educational intervention based on Lazarus and Folkman's *Theory of Stress and Coping* will have lower mean stress scores than control group subjects.

Definition of Terms

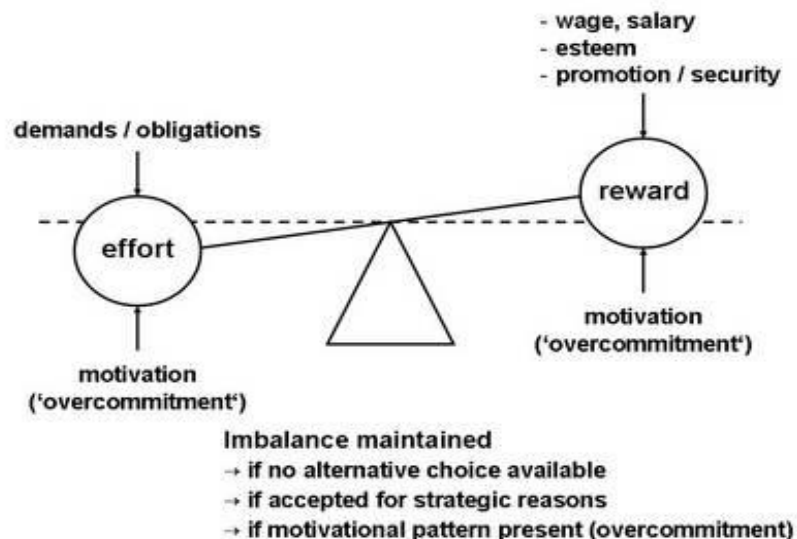
1. Long term chronically ill patients – for this study, patients who are receiving chronic dialysis therapy or cancer treatments such as chemotherapy or radiation.
2. Emotional fatigue – Inability to fight stressors via moderate physiological arousal; inability to withstand additional stressors is reduced. Constant emotional fatigue results in increased stress.
3. Increased Stress – A heightened physiological and psychological response to situations that threatens or challenges individuals and requires an adjustment to make an adjustment. Constant increased stress results in depletion of resources yielding negative physical outcomes unless stressor or ability to adjust to stress is increased.
4. Negative Perceptions – Having awareness concerned with how events are observed and interrupted as having a harmful or unpleasant quality. Negative perception is the process of attaining awareness or understanding of sensory information that is damaging.
5. Coping- is the process of managing taxing circumstances, expending effort to solve personal interpersonal problems, and seeking to master, minimize, reduce or tolerate stress or conflict.
6. Staffing Turnover- The number of workers hired by an establishment to replace those who have left in a given period of time.

Keywords: stress, nurse stress, job stress, coping, chronic illness, fatigue, burnout, death & dying, nurse turnover, transactional theory, Lazarus & Folkman, effort-reward imbalance questionnaire, nurse stress index scale.

Framework

Lazarus and Folkman's *Theory of Stress and Coping* was utilized in an effort to explain that a nurse's manner of dealing with stressful issues contributed or lessened emotional overload (1984). *Segredist Reward Imbalance Model (Figure 2.)* was employed to illustrate how nursing self reports of job satisfaction contributed to their intention to remain on the job or leave (Bonnetterre, Liaudy, Chatellier, Lang, & Gaudemaris, (2008). Neuman's *Health Care Systems Model* was utilized in order to formulate interventions that would strengthen nursing professionals "flexible line of defensive" or increase the individual nurse's ability to respond positively to stress (Alligood, 2002).

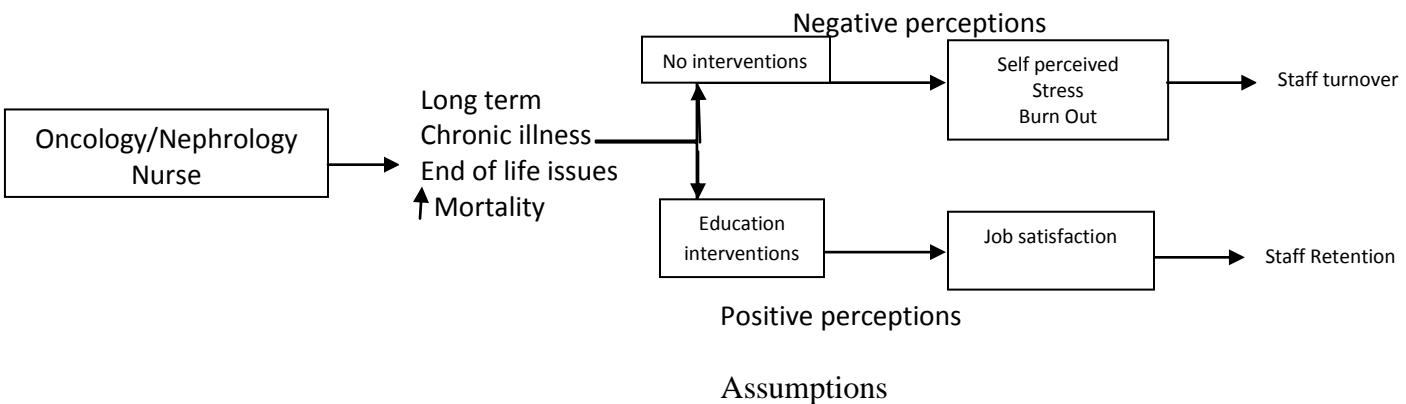
Figure 2. Segrist's reward imbalance model. (Bonnetterre, et al., 2008).



Lazarus & Folkman's (1984) theory of stress, appraisal and coping was employed as the theoretical framework for this paper. The transactional theory defines stress "as a relationship

between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well being.”(p. 21) The relationship between the person and the environment is consistently intertwined with each affecting one another. The theoretical framework was important to the study as it demonstrates that the individual is reacting to external and internal stressors based on his or her own perceptions affecting their individual response to stress. An individuals’ psychological status and situations affect the manner in which they cope with stress and therefore affects their psychological, physical and social well being. Lazarus & Folkman (1984) define coping as a “constantly changing cognitive and behavioral efforts to manage specific external and or external demand that are appraised as toxic or exceeding the resources of the person” (p. 141). Therefore, individual perceptions and behavior changes that nurses employ to assist with or minimize stressors increases positive versus negative outcomes related to the affects of stress. Refer to Figure 3.

Figure 3. Educational Intervention to change negative perceptions to positive perceptions.



Some nurses possess or develop effective coping skill, others do not. The practice environment of oncology and nephrology nurses is especially stressful because of the special relationships that evolve over time between nurses and their patients and the specific issues affecting this patient population. Lazarus and Folkman (1984) summarize the concept well, “It is

true that extreme environmental conditions result in stress for nearly everyone, just as certain conditions are so noxious to most tissues or to the psyche that they are very likely to produce tissue damage or distress (p. 19).” Nurses who view their work and work environment as positive view themselves as caring and assisting patient to live life to the fullest even though this entails “living” a good death. Nurses, who envision their work and work environment as negative, experience increased stress and increasing negative perceptions when caring for long term chronically ill patients. Negative perceptions and stress is increased with the high rate of morbidity and mortality in oncology and nephrology environments. Therefore, positive perceptions retain staff in the work environment and negative perceptions result in staff turnover.

Limitations

This study was limited to small groups of oncology and nephrology nurses in a specified geographic area. It is likely our limited sample groups included cultural diversity among the nurses in the study.

CHAPTER II

REVIEW OF LITERATURE

In a research study conducted by Aycock (2006), it was concluded that “nurses who experience...distress [in the workplace] acknowledge the presence of frustration, tension, and dissatisfaction with the profession, often generated from nurse and physician conflict over patients’ goals and expressed wishes” (Aycock, 2006, p. 183). This distress in the workplace leads to high rate of nursing turnover. It is imperative that the nursing community work to decrease the high rates of turnover if a quality, well educated and experienced staff is to be expected.

Sakulkoo and Suwadee (2002) endeavored to identify and explain the reasons nephrology nurses left or continued to work in dialysis units. They identified that nurses who remained had positive perceptions in relation to the job, patients, unit, and co-workers. Negative perception of the same variables influenced nurses to leave. A critical incident occurring in the unit could tip the balance between positive and negative perceptions and result in staff turnover (Sakulkoo & Suwadee, 2002).

Fillion and colleges provide a link between nurse’s job satisfaction and emotional distress. The occurrence of multiple deaths, discomfort encountered with death and discomfort of death and suffering of patients and families contributed to emotional stressors in a group of 209 palliative-care nurses (Fillion et al, 2007). Rabetoy and Blair (2007) substantiate the same emotional stressors occur in nephrology nurses as the struggle with ethical concerns over the life sustaining treatments they administer, when to address removal from treatment and issues of death and dying. One can readily ascertain the overwhelming number of end of life issues that nephrology nurses are facing by reviewing patient mortality rates. End stage renal disease

(ESRD) patients age 20-44 and 45-64 experience death rates of 83-174 deaths per 1,000 patient years at risk. This denotes a death rate eight times that encountered in the general population. Female ESRD patients in their 40's and 50's have a projected life span one-fifth of their non-ESRD counterparts (USRDS, 2008).

In the Morehouse study, 22 nurses working in dialysis units were interviewed. Morehouse and colleagues recognized that the relationship with patients in dialysis settings differ from most other settings. The researchers state that there are relatively few studies that explore the beliefs behavior links that affect nurses. The authors felt that attaining a better understanding for this concept would assist in the recruitment and retention of nurses in the field. (Morehouse, Colvin, Maykut, & Frauman, 2001)

Five year survival on dialysis is only 35%. The United States Renal Data System (USRDS) also reports that the number of ESRD hospice patients that remain on dialysis has increased from 20.3% in 2000-2001 to 26% in 2005-2006. Of those patients on hospice and continuing to receive dialysis, 14% have a malignancy (USRDS, 2008). Moorehouse et al. recognized in 2001 the relationship between nurses and patients that were specific to the dialysis setting, which they termed a "psychotherapeutic patient/therapist relationship (p. 6)." They looked at factors in a qualitative examination of 22 nurses that explored end of life issues, factors that draw and retain dialysis nurses, and internal and external factors that affect the mental health of dialysis nurses. A dynamic finding discovered in this qualitative study was that nurses entered the field for personal reasons of work hours, technical aspects, and patient contact but stated reasons for remaining were based on nephrology nurses' beliefs and practice related to the "psychotherapeutic patient/therapist relationship (Moorehouse, et al., 2001, p. 6)." Moorehouse,

et al. (2001) concluded their survey stressing the importance for further research in recruitment and retention of nephrology nurses.

Ridley and colleagues conducted a descriptive study of 300 randomly selected nephrology nurses to determine factors related to nurse retention. The study utilized Kanter's *Theory of Empowerment* as the theoretical framework to explore the relationship between nurse's perception of empowerment in relation to job satisfaction, occupational mental health, and work effectiveness. Four instruments were mailed: *The Nursing Work Index-Practice Environment Scale*, a 29 item questionnaire to measure traits attributed to magnet hospitals, *The Conditions of Work Effectiveness Questionnaire II* to measure job satisfaction and empowerment on six scales, *The Pressure Management Indicator* consisting of a two-part questionnaire to measure health outcomes and burnout, and *The Maslach Burnout Inventory* consisting of three subscales to further measure burnout (Ridley, Wilson, Harwood, & Laschinger, 2009).

From the 48.1% questionnaire response rate, the researchers concluded that Canadian nephrology nurses are coping well, however 40.8% reported "emotional exhaustion" a few times a month. The researches acknowledged the need to address issues in the workplace contributing to "emotional exhaustion" and the need for further research studies to identify strategies to bolster recruitment and retention of nephrology nurses (Ridley et al., 2009).

The need to have a proactive approach to stress was concluded by Murphy (2004) after conducting a qualitative study designed to explore perception of stress in 10 nephrology nurses in Northern Ireland. Semi-structured interviews were conducted on 10 randomly selected nephrology nurses who worked in different wards in a nephrology center. The interview transcripts were analyzed with a constant comparative method of grounded theory methodology. This methodology enabled the researcher to explore the respondents' own perspectives. Five

themes contributing to stress were identified: job content, resource issues, professional concerns, professional working relationships, and extrinsic factors (Murphy, 2004).

Six of the respondents reported being affected by the death of patients. Murphy concluded with a recommendation for management to address issues perceived by nephrology nurses as causing or contributing to stress. She referenced Lazarus and Folkman's description of the coping process as enabling nephrology nurses to manage stressful encounters (Murphy, 2004). Even though the sampling size of Murphy's study sample was small, factors she identified as contributing to stress are similar to those identified in studies with larger nephrology nurse sampling populations.

Gardner et al. (2007) examined the relationship of nephrology nurses' perceptions of their work environment, their intention to leave their current job, and nurse turnover rates. The *Practice Environmental Scale-Nursing Work Index* was utilized in this descriptive, correlational designed study to measure the perception of 199 nurses from 56 dialysis centers. This study explored the relationship between the nurses' perception of the work environment, nurse's intention to leave, the turnover rate, and their relationship to patient outcomes. The study concluded that participants' negative ratings of the work environment were significantly related to intentions to leave the workplace within the next year (10% of respondents).

A significant correlation between nurse turnover and patient hospitalization was also identified. Negative ratings by nurses were significantly related to hospitalizations of patients receiving hemodialysis more than 90 days in an outpatient setting. The *Practice Environmental Scale-Nursing Work Index* (PES-NW) was used to measure nurses' perceptions of the work environment. Patient hospitalizations were calculated based on at risk days and compared to nurses overall rating of the work environment on the PES-NW. Negative relations of work

environment were significantly related to work environment ($r = -.34, p < .05$) and there was a direct correlation between nurse turnover and hospitalizations ($r = .25, p .05$). Findings of the study acknowledged the need for future research to examine predictive factors to identify and intervene in the work environment to enable recruitment and retention of nephrology nurses and decrease cost of ESRD health care (Gardner, Thomas-Hawkins, Fogg, & Latham, 2007).

Medland and colleagues (2004) reference similar problems with ability to recruit and retain oncology nurses. The authors cite that oncology nurses ignore their own grief and this psychological impact proves overwhelming and contributes to nurses leaving the field. The authors relate that in a study done by Hinds, in 2004, they identified that failure to develop “coping skills” contributed to nurse turnover. Boyle, in 2000, addressed the importance of recognizing the psychological and emotional aspect of oncology nursing (Medland, 2004). All addressed the need for additional research regarding staff nursing “burnout” in the oncology setting.

Research supports a direct link between nursing turnover rates and the stress of oncology nursing. Research conducted by Italia et al. (2007) states that the “helping professions,” including oncology, have particularly high levels of nursing burnout.

A study conducted by Simon et al. (2005) found that oncology nurses experienced secondary traumatic stress disorder due to the high levels of stress and direct contact with traumatic events which increased nursing burnout and turnover rates. Another study conducted by Aycok and Boyle (2008) concluded that “work-related stress emanating from close interpersonal contact with patients with cancer and their families may result in physical, emotional, social, and spiritual adversity for oncology nurses” (p. 189). These bodies of research

conclude that the emotional stress of oncology patient care directly impacts nursing turnover rates.

Aycok and Boyle (2008) conducted a research study to determine interventions that could be made to manage compassion fatigue in oncology nurses. In particular, the study asked the recipients what resources were available for nursing staff to utilize to decrease their fatigue and stress on the job. The study was emailed to 231 chapter presidents of the Oncology Nursing Society. Roughly 100 responses were received. The research showed that only 12% of nursing departments have psychologists or psychological nursing liaisons for nurses to express concerns. Of the nurses responding to the survey, five percent reported that they had support groups available with seventeen percent reporting that they have no professional support available at their current position.

In order to reduce compassion fatigue, the researchers conclude that it is important for oncology departments to give various options for nurses to express their concerns and alleviate stress including but not limited to: training on communication skills, conflict resolution, ethical issues, and self care; allow for emotional expression; pastoral care; retreats; program planning allowing participants to work on timing and scheduling; strategy sessions on ways to decrease stress; and peer support groups.

Pfifferling and Gilley, 2000, state “Although burnout frequently results in less empathic responses to patients, withdrawal from emotion-laden clinical scenarios, and leaving one’s clinical position, compassion fatigue may result in more emotional giving that ultimately ends with an inability to attain a healthy balance of empathy and objectivity” (Aycock 2009). The fear is that once a nurse experiences compassion fatigue, the care provided to the patients suffers as

well. It is important for nurses to maintain a healthy level of balance in all areas of care in order to provide the patients with best possible medical support.

Research conducted by Simona et al., (2007) included 65 doctors and nurses at two different oncology units. The study observed three different categories contributing to staff turnover: emotional exhaustion, distancing, and reduced personal achievement. The basis of this research was to determine if art therapy, a specific form of treatment designed to increase a sense of personal well-being and achievement, would decrease turnover rates. The researchers used the *Maslach Burnout Inventory* (MBI) to determine level of burnout in two separate groups. The study concluded that there was medium-high level burnout at center A and mild burnout at center B.

From this data, an art therapy plan was devised for the groups. Each group met for four months, during 13 weekly meetings. The meetings used various techniques which included psychodrama techniques, play-therapy, Ericksonian relaxation techniques, and viewing an educational video relating to care of children with terminal illnesses (Simona, 2007). After the therapy was administered, the MBI test was given to both groups again. The study concluded that though there was a slight improvement in the level of burnout felt by some in the group, the overall level of burnout felt by the group did not significantly decrease. The researchers concluded that action must be taken in order to reduce feelings of burnout in order and secondarily to reduce patient impact. “The results of our study indicate that burnout syndrome exists among oncology...personnel. Attention...is required in order to improve the workers’ well-being, which thus has direct impact on the attention and dedication to patient care” (Simona, 2007, p. 679).

Summary for Review of Literature

A review of the literature presented four major concepts: nurses' negative or positive perceptions related to work environment, stress, burnout, and staff turnover. Review of the literature supported this conceptual opinion. Whether nurses' perception of the work environment, negative or positive, either increased or decreased their stress level. Increased stress in a nurse led to burnout and this was linked to nurse turnover.

Theoretically, a predictive relationship existed between changing nurses' perceptions of an event or series of events from a possible negative perception (helplessness) to a positive perception (assisting) thereby evoking decreased stress or no stress related to the event. Clearly a need existed to study the predictive relationship between these variables in oncology and nephrology nurses, who experience stress related to caring for long term chronically ill patients as supported in the literature.

CHAPTER III

METHODS AND PROCEUDRES

Research Design

This quantitative quasi-experimental study used a pre-test, post-test design to examine the effects of emotional overload and stress experienced by the participants to determine if these contribute to increased stress and projected staff turnover as measured with the Effort Reward questionnaire. An educational intervention based on Lazarus and Folkman's *Theory of Stress, Appraisal, and Coping* was provided to the experimental group to measure ability to change perception of stress.

Ethics

IRB approval was obtained through Southern Adventist University. In view of the fact that the research project was voluntary and responses were anonymous, administrative approval was sufficient to obtain access to nursing staff. Contact with the administrative staff at the various institutions and oncology and nephrology chairpersons of local nursing organizations were contacted either directly or by phone. Information regarding the proposed research, time involved participating and willingness to share the cumulative data was provided. Neither individual facility nor committee IRB approval was required.

Anonymity of respondents was ensured by allowing subjects to devise and enter a unique control identifier for their pre test and post test. This subject's controlled identifier enabled the researchers to link pre and post test questionnaire results to specific subjects. The subjects went to the appropriate website based on if they participated in an educational intervention as an online self study intervention done through the website or received no educational intervention. Subject control identifiers were documented through the website that was devised to further

maintain the subject's individual data and enable data to be entered into an SPSS program. Specific designations were entered to identify individuals who participated in the intervention group. Only the three researchers involved with the project had access to the data on the websites. It was the responsibility of the researcher at the designated facility to ensure that the subjects went to the correct and appropriate website depending on their random sampling designation.

Sampling & Setting

A convenience sampling method of nurses from eight locations in the local Chattanooga and Georgia area (four oncology locations and four nephrology locations) participated in completion of questionnaires. Nurses at four of the eight locations will serve as the experimental group and received an intervention projected to increase their coping mechanism between the administration of the pre and post test. Experimental group locations will be randomly selected in an effort to overcome selection and response bias.

Nurses included nurse practitioners, registered nurses, and licensed practical nurses. Participants were not excluded based on gender, age, ethnicity, or length of time working with long term oncology or nephrology patients. This method avoided researcher bias as each subject was given an equal chance of selection.

The selected groups of oncology and nephrology nurses in the Chattanooga and Georgia area are representative of other oncology and nephrology nurses caring for cancer and dialysis patients. The targeted sample population of oncology and nephrology nurses is representative of the accessible population and even with the small sample size is felt to be representative of these two nursing groups. This targeted population was projected to effectively yield between 20-30 respondents in both the control and experimental group.

Strategies these researchers employed to increase participation in this project included (Polit & Beck, 2008):

1. Face to face recruiting done by requesting nurses to completed questionnaire and describing the approximate time required to complete the pre test and post test questionnaire. Subjects at locations chosen to receive the educational intervention were informed of the time required for participation.
2. Assurance of confidentiality was maintained by asking respondents to complete online questionnaires through appropriate website using their personal identification code.
3. Study findings were disseminated to participates.
4. An incentive was provided to participants by having them place their names in a drawing for a chance to win two tickets to a local movie theatre.

Ethical Considerations

Study participants were selected at random from the sampling locations. Participants were not discriminated against on the basis of race, religion, sex, or sexual orientation. Patient information and data was not collected. No study participant was forced or coerced into study participation. All material received prior approval from the appropriate committee from Southern Adventist University.

Instrumentation

Lazarus and Folkman's *Theory of Stress and Coping* was utilized to develop the educational intervention in this project. Segrist's *Effort-Reward Imbalance* model questionnaire was used for use in this study. The questionnaire measures perceived work related stress; an individual's view of work rewards, and has a component that measures a nurse's over commitment to the job. Since nurses in these areas deal with patients over a long period of time the measurement of over commitment is a valid and important measurement. Other studies have validated the questionnaires ability to predict nurses leaving their jobs. The questionnaire uses a dichotomous design with additional ordinal choices. The study used data scores from prior

studies that denote staff turnover. These were used to predict staff turnover using a linear regression analysis with the data we obtained from post test scores.

The *Expanded Nursing Stress Scale* questionnaire was utilized to specifically measure nurse's self reported stress level. The *Expanded Nursing Stress Scale* questionnaire is divided into nine factors: Death and Dying, Conflict with physicians, inadequate emotional preparation, problems relating to peers, problems relating to supervisors, workload, uncertainty concerning treatment, patients and their families, and discrimination. This questionnaire specifically assesses potentially stressful conditions encountered by nurses. One factor is specific for measuring attitudes in relation to dealing with patient in pain or terminal stage of illness (Bonnetterre et al., 2008).

Procedure for Data Collection

After IRB and facility approval was obtained, one site was selected by a random drawing from all the sites. Subjects were approached and requested to participate in the research project and if willing pre test was administered. Researchers took the data and questionnaires from the websites and entered the data into SPSS. If more than 30% of the data is missing from the pre or post questionnaire then data for both questionnaires, it was excluded from the project data (Polit, et al., 2008). This initial approach was conducted in an effort to identify any processes with the collection or entry of data that were problematic and thereby enable the investigators to work out solutions. Additional subjects at other facilities were not approached until any problems were addressed and actions implemented to avoid reoccurrence.

Subject recruitment and completion of pre test questionnaires occurred over the next two weeks. Scheduling of educational intervention was coordinated with the administrative staff at the locations selected to receive the intervention. Sites selected were equally oncology and

nephrology based. Six to eight weeks after the educational intervention, subjects were instructed to visit the appropriate website for the post test questionnaire.

An important element of this study was the establishment of two distinct groups: those who received the stress interventions, and those who did not. After researching various methods, it was decided that the most effective method would be to utilize two distinct websites that would allow the subjects to participate in their selected group while insuring that the data would remain separate and distinct for each. The use of a website allowed for easier data collection and analysis as well as ease of participation. Study participants were able to complete the requirements of the study on their own time. Strickland et al. (2003) states that, "Internet data collection opens up many opportunities for compiling data for research studies that can allow additional access to participants" (p. 246).

The use of the Internet as a form of data collection as only been utilized in the past few years, but provides an excellent method for reaching study subjects who might not be able to participate otherwise. Research conducted by N.R. Ahern (2005) states:

The internet has become an everyday communication tool for countless people throughout the world. It has a variety of potential uses in education, practice and research, but only in the last decade have nurse researchers begun to take advantage of the multiple uses the internet has to offer. (p. 55)

Plan for Data Analysis

Data obtained from Segrist's *Effort-reward Imbalance* and *Expanded Nursing Stress Scale* questionnaires was analyzed by the use of the Statistical Package for the Social Sciences (SPSS) (Cronk, 2008). The Effort-Reward Imbalance questionnaire has a demographic component that will be described using a mean, frequency and standard deviation. Using

descriptive statistics is a method to make inferences about population groups. Demographic sample data was tabulated for each variable and a score will be reported descriptively using mean, frequencies, and standard deviation (Cronk, 2008). Both *Effort-reward Imbalance* and *Expanded nursing Stress Scale* questionnaires utilized a Likert-format scale. Values of items on a Likert scale are ordinal and sums of the ordinal data will represent interval data.

Since the study looked at differences in the two groups (group with educational intervention and group without educational intervention), we needed to use a one way ANOVA as this enables the evaluation of interventions. The significance level was set at .05 (Polit et al., 2008). In order to predict probability of staff turnover we took data from prior studies and compare to post score data we obtained using a Pearson Correlation Coefficient as this determines if there was a strong linear relationship between variables.

Limitations

One limitation of the project was the length of time during with the study took place. To fully and accurately determine stress levels and the decrease of nursing burnout through appropriate interventions, study participants should be followed for a longer period of time. In addition, the small sample size could affect the studies impact. Participants all worked and lived within a small geographic area and represented a limited cultural diversity. Participants rated their personal level of stress independently. Due to the fact that people view and assess stress in different ways, a true level of stress could be skewed.

Plan for Dissemination of Findings

A copy of the research thesis will be bound in the Mckee library, located on the campus of Southern Adventist University. Currently, no plan is made for journalistic publication. The

websites used to facilitate the research will remain operational in order to research the topic further.

CHAPTER IV

DATA ANALYSIS

The purpose of this chapter is to provide information on study participants and analysis of self reported data obtained from subjects from responses to questions designed to measure levels of stress in the Nursing Stress Index and mental stress and job dissatisfaction as self rated on the Effort-Reward questionnaire. Analysis of questionnaire data was performed from instructions provided by the authors of the individual questionnaires.

Introduction

In order for subjects to be included in the data analysis a self created anonymous identifier was entered by the subject prior to completing the pre test and the same identifier was used prior to completion of the post test. Both control and experimental subjects completed the pre test questionnaire and four to six weeks later completed the post test questionnaire. Experimental group subjects underwent either a face to face or self conducted stress intervention four to six weeks prior to completion of the post test.

Participation

The study included data analysis on 37 subjects. A total of 57 subjects completed the pre test questionnaires. Of the 57 subjects, only 39 subjects completed the post test. Of the 39 subjects completing the post test, only 37 were included in the data analysis. Data from two subjects was excluded from the data analysis based on the following: one subject submitted conflicting data by indicating both they had and had not completed an educational intervention and a second subject did not complete an identifier that allowed researchers to link to pre test data. One subject identifier varied from pretest “jeff4” to posttest “jeff2” and was included in data analysis since the IP addresses were identical. Except for failure to create an identifier, all 37 subjects provided answers to 100 % of the questions on both the pres and post tests.

Experimental subjects (n = 20) completed either a self study intervention or a face to face educational intervention with control subjects (n =17) not participating in either type of educational intervention.

Demographic Data

Preintervention comparability of the groups was assessed to determine risk for selection biases. Of the 37 subjects included in the data analysis: 73 % (n=27) worked in oncology and 27 % (n = 10) worked in nephrology. Subjects were requested to self report years of work with 45.9% (n=17) working 0-5 years, 27% (n= 10) working 6-10 years, 13.5% (n=5) working 11-15 years and 13.5% (n=5) working sixteen or more years. Table 1 illustrates cumulative percent characteristics of the subject group along with comparison of the control and experimental group. Oncology nurses were represented more in both groups but average was consistent in both the experimental and control group.

TABLE 1 Characteristics of the 37 Subjects Enrolled

Characteristics	Intervention	Control	Cumulative %
Oncology	70.0 % (n = 14)	76.5% (n = 13)	73.0% (n=27)
Nephrology	30.0 % (n = 6)	23.5% (n = 4)	27.0% (n=10)
YRS of Work			
0-5 years	40.0% (n=8)	52.9% (n = 9)	45.9% (n=17)
6-10 years	25.0% (n=5)	29.4% (n = 5)	27.0% (n=10)
11-15 years	20.0% (n=4)	5.9% (n = 1)	13.5% (n=5)
16+ years	15.0% (n=3)	11.8% (n = 2)	13.5% (n=5)

Expanded Nursing Stress Scale

Instrument Reliability

In studies of nurse related stress the *Expanded Nursing Stress Scale* (ENSS) is a well know validated measurement tool. The scale consists of 59 questions that are divided into nine subscales: death and dying, conflict with physicians, inadequate preparation, problems with peers, problems with supervisors, workload, uncertainty concerning treatment, patients and their

families, and discrimination. Confirmatory factor analysis performed on the subscales denoted alpha coefficients of 0.70 and validity of the construct components.

Data Analysis

The researchers adhered to the scoring instructions provided by Dr. Susan French to analyze questionnaire scores from the ENSS. The data was entered into SPSS and a total stress score was computed by adding the total score on all 59 items. The category “not applicable” was scored as 0. Subjects provided answers to all 59 questions; therefore a need to address missing data was not a factor. According to the ENSS scoring guidelines: the higher the subject’s score whether for the total ENSS score or the individual ENSS subset score, the greater the subject’s stress.

Initially an independent samples *t* test was utilized to compare the control and experimental group’s ENSS total stress score for the pre and post test scores. The mean ENSS total stress score for the experimental group decreased from 206.5 (*sd* = 24.14) on the pretest to 135.10 (*sd* = 23.09) on the posttest. The mean ENSS total stress score for the control group increased from 181.18 (*sd* = 37.00) on the pretest to 184.18 (*sd* = 42.52) on the post test. The mean of the experimental group on the pre test was significantly higher ($m = 206.500$, $sd = 24.14$) than the mean of the control group ($m = 181.18$, $sd = 37.000$) while the mean of the experimental group on the post test was significantly lower ($m = 135.100$, $sd 23.09$) than the mean of the control group ($m = 184.18$, $sd 42.518$). Therefore, a significant difference was found between the mean scores of the experimental and control group on the pre test ($t(35) = 2.501$, $p < .01$) and the post test ($t(35) = -4.454$, $p < .01$). Refer to Table 2.

Table 2 Comparison of Group Statistics ENSS Pre and Post Test Scores

Groups	N	Pre test Mean \pm SD	95% CI*	<i>p</i>	Post test Mean \pm SD	95% CI*	<i>p</i>
--------	---	---------------------------	---------	----------	----------------------------	---------	----------

Experimental	20	206.50 ± 24.14	4.77 to 45.88	<0.1	135.10 ± 23.09	-71.45 to -26.71	<0.1
Control	17	181.18 ± 37.00	3.83 to 46.82	<0.1	184.18 ± 42.52	-72.89 to -25.26	<0.1

*CI, confidence interval

Based on the significant difference in the experimental and control group's pre test scores indicating a group difference greater than chance alone, a paired t test was performed on the experimental group's ENSS total stress scores on the pre and post test to study the effects of an educational stress reduction. The mean ENSS stress score decreased from 206.5 ($sd = 24.14$) on the pre test to 135.10 ($sd = 23.09$) on the posttest with a statistically significant difference in the two means at the .01 level ($t = 11.89$, $df = 19$). Thus the paired t test comparing ENSS total stress scores on a pre test with post test scores four to six weeks after an educational stress reduction revealed significant reductions in post test scores ($p < .001$).

A paired t test was then performed on the individual subscales of the ENSS comparing the experiential group's pre test scores with post test scores. In each of the individual subscales, the researchers demonstrated a significant decrease from pre test scores in the experimental group: ENSS subset *death and dying* stress score decreased from 25.35 ($sd = 2.74$) on the pre test to 16.75 ($sd = 2.63$) on the post test at the .001 level ($t = 11.18$, $df = 19$), ENSS subset *conflict with physicians* score decreased from 18.00 ($sd = 2.08$) on the pre test to 11.25 ($sd = 2.20$) on the post test significance at the .001 level ($t = 11.74$, $df = 19$), ENSS subset *inadequate emotional preparation* stress score decreased from 10.65 ($sd = 1.76$) on the pre test to 6.85 ($sd = 1.39$) on the post test at the .001 level ($t = 7.59$, $df = 19$), ENSS subset *problems relating to peers* stress score decreased from 21.85 ($sd = 3.18$) on the pre test to 14.85 ($sd = 2.50$) on the post test at the .01 level ($t = 9.85$, $df = 19$), ENSS subset *problems with supervisors* stress score decreased from 25.25 ($sd = 3.14$) on the pre test to 16.00 ($sd = 3.26$) on the post test at the .001 level ($t = 10.94$, $df = 19$), ENSS subset *workload* stress score decreased from 32.75 ($sd = 4.31$) on the pre test to

20.45 ($sd = 3.41$) on the post test at the .001 level ($t = 10.68$, $df = 19$), ENSS subset *uncertainty concerning treatment* stress score decreased from 32.60 ($sd = 4.11$) on the pre test to 20.95 ($sd = 4.32$) on the post test at the .001 level ($t = 9.30$, $df = 19$), ENSS subset *patients and their families* stress score decreased from 28.85 ($sd = 3.38$) on the pre test to 18.60 ($sd = 3.17$) on the post test significant at the .001 level ($t = 15.25$, $df = 19$) and ENSS subset *discrimination* stress score decreased from 11.20 ($sd = 2.12$) on the pre test to 9.40 ($sd = 3.83$) on the post test significant at the .01 level ($t = 2.30$, $df = 19$). Refer to Table 3 Evaluation of factors in Expanded Nursing Stress Scale. After computing a paired sample t-test on pre and post test scores for the experimental group, the researchers concluded there was a consistent significant decrease from pre test to post test scores after the stress reduction intervention in each of the subsets.

Table 3 Evaluation of factors in Expanded Nursing Stress Scale

Experimental group	Pre-test score Mean \pm SD	Post-test score Mean \pm SD	t	95% CI
Death & Dying	25.35 + 2.74	16.75 + 2.63	11.18	6.99 -10.21
Conflict with Physicians	18.00 +2.08	11.25 + 2.20	11.73	5.55 - 7.95
Inadequate Emotional Preparation	10.65 + 1.76	6.85 + 1.39	7.59	2.75 - 4.85
Problems Relating to Peers	21.85 +2.85	14.85 + 2.50	9.85	5.51 - 8.49
Problems With Supervisors	25.25 + 3.14	16.00 + 3.26	10.94	7.48 - 11.02
Workload	32.75 + 4.31	20.45 + 3.41	10.68	9.89 - 14.71
Uncertainty Concerning Treatment	32.60 + 4.11	20.95 + 4.32	9.30	9.03 - 14.27
Patients and Their Families	28.85 + 3.38	18.60 +3.17	15.24	8.84 - 11.66
Discrimination	11.20 + 2.12	9.40 + 3.83	2.30	0.16 -3.44

$df = 19$, $p < .001$ for all subsets except discrimination $p < .01$

Effort - Reward Imbalance Questionnaire

Instrument Reliability

Bonnetterre and associates reported that the Effort-Reward Imbalance questionnaire had validity when used to assess hospital nurse's intentions to leave the nursing profession in a review of international scientific articles published between 1980 and July 2008. The Effort-

Reward Imbalance questionnaire measures the self reported effort a nurse expends in their work environment balanced with their self perceived rewards from their efforts. Bonneterre et al. summarized there was evidence that the questionnaire had been tested for scale reliability, factorial structure, convergent validity, discriminate validity, and criterion validity with data reported in the literature and scale reliability measured by Cronbach's was reported to have internal consistency and test retest reliability and therefore was reported to provide accurate measurements especially in the nursing population. (Bonneterre et al., 2008)

The researchers adhered to the Effort-Reward Imbalance at work *coding procedure* obtained from Dr. Siegrist to input data into SPSS, analyze scores and calculate data from subject questionnaires. The Effort Reward Imbalance questionnaire consisted of 17 effort and reward items coded eri1 – eri17 and six over commitment items coded oc1-oc6. Scores for the pre and post test were calculated based on the following data sets: *effort with physical demands, rewards, esteem, job security, job promotion and salary, effort/reward, and over commitment*. Scoring for *reward items* on the questionnaire were scored with a higher score correlating to higher rewards. The researchers used the six item version of the Effort-Reward to measure extrinsic effort because this version measures manual labor which the researcher felt was appropriate to include for this oncology and nephrology nursing population.

Data Analysis

Extrinsic Effort. Six questions from the Effort-Reward questionnaire were used to measure extrinsic effort. A score between six and thirty was possible with a higher score denoting the subject's rating of a higher expended effort at work. Pre test scores ranged from 11 to 25 with a mean of 18.97 and post test scores ranged from 10 to 27 with a mean of 17.51. The

researchers used an independent sample t test to compare the scores of the pre and post test data. An independent sample t test comparing the mean scores of the pre test variable of effort with physical demand was performed to determine the correlation coefficient. A significant difference was found between the pre test scores of the experimental and control groups ($t(35) = 2.211, p < .05$) with the mean of the control group ($m = 17.82, sd = 3.21$) significantly lower from the mean of the experimental group ($m = 19.95, sd = 2.65$). Since there was a significant difference in the pre test scores of the control group and the experimental group, the researchers used a paired sample t test to compare pre and post test scores of the control and experimental groups. The paired samples t test comparing the control group's mean extrinsic effort pretest score (mean 17.82 ($sd = 3.21$)) to their post test score (mean 21.29 ($sd = 4.47$)) showed a significant increase in the self reported extrinsic effort of the control group ($t(17) = -4.904, p < .001$). A significant difference was also found with the experimental group ($t(20) = 6.095, p < .001$) but there was a significant decrease in the self reported extrinsic effort from a pretest mean of 19.95 ($sd = 2.65$) to the posttest mean of 14.30 ($sd = 2.75$). The researchers were unable to account for the increase in the effort reported by the control group. The decrease in extrinsic effort reported by the experimental group occurred four to six weeks after the educational intervention.

Reward. The reward score was obtained from eleven items on the questionnaire. Three factorial structures were used to measure the construct of self reported occupational reward: *financial and status, esteem, and job security*. An individual score between eleven and fifty-five was possible with a higher score indicating self perceived higher rewards. A paired samples t test indicated no significant difference ($t(17) = 1.428, p > .05$) in the pretest scores (mean 32.94 ($sd = 7.95$)) of the control group compared to the post test scores (mean 30.06 ($sd = 9.11$)). A significant increase ($t(20) = -8.30, p < .001$) was noted in the experimental group's pre test score mean of

23.40 ($sd = 6.80$) to the post test reward mean of 40.90 ($sd = 5.44$). Individual components of the reward score were then analyzed using same testing methodology. *Esteem* was measured by three questions. The control group's mean score on the post test 13.41 ($sd = 4.03$) was significantly decreased ($t(17) = 2.287, p < .05$) from the mean pretest score of 15.76 ($sd = 4.21$). A significant increase ($t(20) = -8.529, p < .001$) in the *esteem* mean pretest score 10.65 ($sd = 2.80$) of the experimental group to the mean post test *esteem* score 18.40 ($sd = 2.50$) was noted. *Job security* was measured from two questions with no significant difference ($t(17) = .543, p > .05$) in the scores of the control group from the pre test mean score of 5.59 ($sd = 1.77$) to the post test score mean of 5.35 ($sd = 2.15$). Data findings were similar for *job promotion/salary* measured from four questions. The control group mean score revealed no significant difference ($t(20) = .319, p > .05$) in the pre test mean of 11.59 ($sd = 3.04$) to the post test mean score of 11.29 ($sd = 3.37$).

Over commitment. The component *over commitment* was measured from six questions with low scores denoting low commitment and high scores indicative of over commitment. A significant difference in the mean scores of the pre and post tests was found in neither the control nor the experimental group. The control group pre test mean was 3.29 ($sd = .85$) and the post test mean was 3.41 ($sd = .71$) without a significant difference in the means ($t(17) = -.621, p > .05$). A pre test mean in the experimental group of 2.80 ($sd = 1.36$) and a post mean of 2.65 ($sd = .67$) indicated the decrease in the mean score from pre test to post test was not significant ($t(20) = .389, p > .05$).

Effort Reward Ratio. *Effort reward ratio* scale was calculated by using the *effort* score as the numerator and the *reward* score as the denominator. The *effort* score contained a variable for manual labor and was multiplied by a correction factor of 0.5454 to adjust for the unequal

number of questions. A score greater than one indicated the individual perceived themselves as expending a high effort at work and receiving lower rewards for their efforts.

The *Effort-Reward Ratio* in the experimental group was noted to increase from a pretest mean of .21 ($sd = .18$) to a post test mean of .66 ($sd = .20$) which was a significant increase ($t(20) = -4.636, p < .001$). The control group post test mean (1.47 ($sd = .67$)) significantly increased ($t(17) = -8.198, p < .001$) from the pre test mean .20 ($sd = .08$). Therefore, even though the mean score of both groups significantly increased from the pre to the post test scores the control group post test mean score exceeded a score of one indicating subjects in the control group perceived they were expending more work effort compared to rewards received at work. An individual's perception that they are expending more effort than rewards is indicative of leaving the work over the next year.

Table 4 Effort Reward Pearson Correlation for Scale & Subscale Variables

	Control Group				Experimental Group			
	Pre Test Mean ± SD	Post Test Mean ± SD	<i>t</i> n=17	<i>p</i>	Pre Test Mean ± SD	Post Test Mean ± SD	<i>t</i> n=20	<i>p</i>
Effort /Physical Demand	17.82±3.21	21.29±4.47	4.904	.000	19.95±2.65	14.30±2.75	6.095	.000
Rewards	32.94±7.95	30.06±9.11	1.428	.172	23.40±6.80	40.90±5.44	-8.301	.000
Esteem	15.76±4.21	13.41±4.03	2.287	.036	10.65±2.80	18.40±2.50	-8.529	.000
Job Security	5.59±1.77	5.35±2.15	.543	.595	4.15±1.35	7.35±1.63	-6.263	.000
Job Promotion/Salary	11.59±3.04	11.29±3.37	.319	.754	8.60±2.95	15.15±1.92	-8.192	.000
Over commitment	3.29±0.85	3.41±0.71	-.621	.543	2.80±1.36	2.65±0.67	.389	.702
Effort/Reward Ratio	0.21±0.08	1.47±0.67	-8.198	.000	0.35±0.18	0.66±0.20	-4.636	.000

df = 16 control group and 19 experimental group; p=Sig.(2-tailed)

Analysis of Hypothesis

Self Appraised Rating of Stress Level

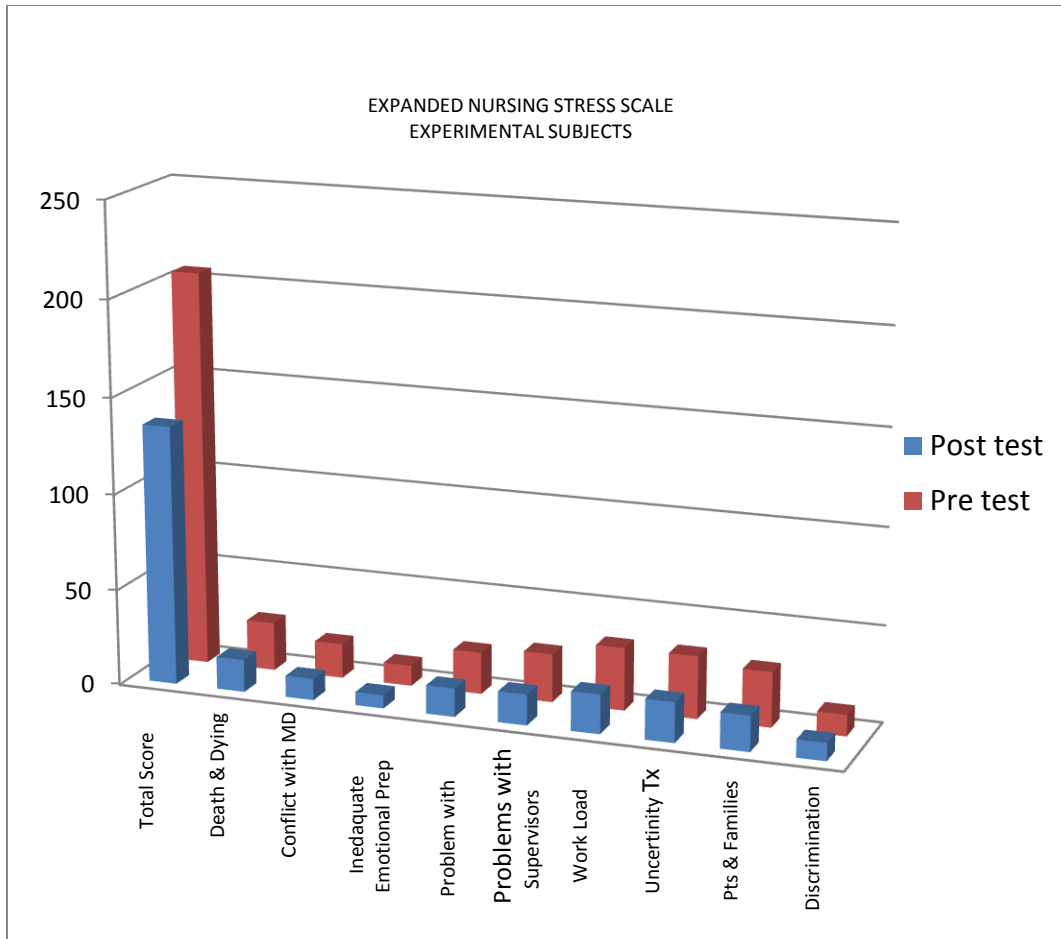
A significant difference was found to be present between the mean scores of the experimental and control group on the pre test ENSS questionnaire. The experimental group's pre test stress scores were higher on both the measurement of the total stress score and on the

individual subsets of stress. This indicated that the subjects that chose to participate in the educational intervention rated themselves as having higher stress levels and may have contributed to their willingness to participate in the educational intervention. The experimental group reported a higher extrinsic effort score than the control group which correlated with a higher stress levels and dissatisfaction at work.

Educational Intervention Effect on Stress

The experimental group's post test scores four to six weeks after the educational intervention revealed significant reductions in post test scores. Evaluation of all subsets of the ENSS indicated a consistent significant decrease from pre test to post test scores after the stress reduction intervention in the experimental group. Refer to Figure 4.

Figure 4 Experimental Subjects Pre test / post test scores



Educational Intervention Effect on Job Effort / Job Reward

Siegrist's theory in the Effort-Reward Model emphasizes that self perceived job effort and rewards either contribute to mental stress and dissatisfaction or lessen mental stress and decrease dissatisfaction. Scores of *extrinsic effort* for the experimental group were significantly decreased after the educational intervention but scores for the control group were shown to significantly increase. The significant increase in the extrinsic effort in the control group was not determined by the researchers. An increase in the experimental subjects post test reward score indicated that an educational intervention increased self perceived job related rewards. The

researchers found no significant difference in the over commitment data analysis scores of the control group in relation to the experimental group. The *effort reward ratio* score increased in both the control and experimental group from pre test to post test but the score of the experimental group remained less than one which indicated a higher self perceived reward vs. effort in the control group. Higher self perceived efforts vs. rewards have been linked to increased staff turnover in the literature.

Summary

Data analysis from both the ENSS and Effort - Reward model questionnaires indicated higher self reported stress level mean scores and higher level of self perceived mean effort expended scores on the job in relation to mean reward scores from their job when compared with scores of the control group. However, the experimental groups mean scores were shown to have significantly decreased four to six weeks after the educational intervention.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Purpose

The purpose of this chapter is to identify and discuss the meaning of the statistical findings of this study. The hypothesis and each research purpose statement is discussed individually in relation to the findings of this study. The conclusion obtained from this study will enhance healthcare facilities approach to dealing with work related stress linked to nursing staff turnover. This study demonstrates the positive use of website to bring stress reducing educational intervention to staff nurses and therefore decrease staff turnover related to self perceived stress. Finally, recommendations for further study are given.

Summary

This study was to test the effectiveness of an educational intervention on nephrology and oncology nurses in decreasing self perceived stress linked to staffing turnover. This study used the framework Lazarus and Folkman's *Theory of Stress and Coping* in an effort to explain that a nurse's manner of dealing with stressful issues contributed or lessened emotional overload (1984). *Segredist Reward Imbalance Model* was employed to illustrate how nursing self reports of job satisfaction contributed to their intention to remain on the job or leave (Bonneterre, Liaudy, Chatellier, Lang, & Gaudemaris, (2008). Neuman's *Health Care Systems Model* was utilized in order to formulate interventions that would strengthen nursing professionals "flexible line of defensive" or increase the individual nurse's ability to respond positively to stress (Alligood, 2002). The study participants were selected through convenience sampling from the same geographical area.

The first intent of the study was to identify self appraised stress level among nephrology and oncology nurses. The nature of the relationships among nephrology and oncology nurses caring for chronically ill patients causes increased stress, and fatigue. It was found that the sample group N=37 in the study had significant differences among them prior to any educational intervention at the statistically significant .01 level. The study did not answer the reason for this difference among the participants.

The second research purpose was to identify self appraised coping mechanisms in nephrology and oncology nurses. The study identified that nephrology and oncology nurses in the experimental group N=20 lacked coping mechanism prior to the educational intervention. The experimental group findings post intervention identifies increase coping among participants demonstrated by decrease stress scores.

The third research purpose was to demonstrate affects of stress and coping among oncology and nephrology nurses on staff turnover in these areas. Although, long term follow up was not conducted in this study to verify for certain the negative effects of stress on staffing turnover , the use of the two questionnaires in this study are reliable indicators of nurses stress leading to staff turnover. The results of this study correlate with questionnaire findings that the higher the stress scores in both of these questionnaires the higher indication possibilities of staff turnover.

The fourth research purpose was to evaluate educational intervention in improving self appraised stress and coping among nephrology and oncology nurses. This study determined that the educational intervention done through web-site and on site educational activity was effective in reducing experimental group self appraise stress level. The reduction from pre- test score to

post test score was significant with a mean score of 206.5 pre-test to a mean score post –test score of 135.1.

The fifth research purpose was to assess if an educational intervention positively affects staff turnover outcomes. Since the time of this study was limited this question was not answered by this study although, the indicators based on the two questionnaires used can be used as indicators for staffing turnover outcomes.

Discussion of Findings

The hypothesis of this study states that nurses, who care for long term chronically ill patients, experience emotional fatigue and increased stress causing negative perceptions that can predict staff turnover. Experimental group subjects participating in an educational intervention based on Lazarus and Folkmans *Theory of Stress and Coping* will have lower mean stress scores than the control group subjects. The study conducted to prove this hypothesis was successful in verifying that nurses caring for chronically ill patients in nephrology and oncology areas due to the nature of chronic illness and high mortality develop increase stress and that the educational intervention experienced by the experimental group did lower the mean stress scores as evidenced by the data.

Notable differences were found all participants before interventions. Further study would be necessary to find causality for this difference. A larger sample group with identification of participants' age and length of time working in this particular area would be beneficial to answer this question. The control group demonstrated insignificant change from pre-test to post test mean scores. This strengthens the validity of the experimental group data findings with significant change in the pre- and post test score. The experimental groups mean scores improved significantly with the educational intervention. The affects of stress on nurses working

in these areas can improve with educational interventions. The study length is limited in follow up to assess the effects of the intervention over time. This would be beneficial to ascertain the needed frequency of educational interventions to maintain low mean stress scores among nephrology and oncology nurses.

The actual nursing staff turnover was not evaluated due to limitations on length of study and follow up with participants to identify turnover rates. Further study in this area would allow evidence based changes to occur in staff education and assistance in regards to work related stress. The findings of this study indicate the necessity for further study into this area and the importance of staff education and assistance in these very high demand high stress areas. The use of social media in this study is also important in demonstrating the future of nursing education and ease of accessibility through this mean. To continue to provide excellent and compassionate care it is essential for nurses to care for themselves to better serve patients.

Conclusion

It would be beneficial to educational institutions and healthcare institutions to identify the need to address nursing stress in oncology and nephrology nurses in a time of nursing shortage and rising healthcare cost. The educational intervention used in this study may be used to provide needed self stress appraisal in nurses working in nephrology and oncology area.

It is important not only for oncology and nephrology nurses to be aware of the demands that are causing stress but, also for employers to recognize the need to address stress in nurses working in this area and the affect this may have on staffing turnover and patient outcomes. The study demonstrated that an educational intervention decreased stress scores significantly and this could be of benefit to all involved.

Recommendations

One recommendation would be to continue the study for a further length of time with modifications such as a larger sample size, identifying age and gender of participants. This would possible identify the existing differences among participants. A second recommendation would be to continue follow up of participants at different intervals and track staff turnover along with post test scores at intervals. This would accomplish two things to evaluate positive effects of intervention and also track staffing turnover on all the participants. Practice changes can be addresses in regards to patient acuity levels and assisting staff in dealing with stress related to work. A website would not be expensive to make available to staff and would produce positive outcomes for employer.

Summary

Findings of this study indicate the need for further investigation of this subject matter. The study demonstrates that stress scores can be reduced with and educational intervention and if the two questionnaires are effective indicators of staff turnover than the educational intervention will also decrease staff turnover related to increase stress scores. Nurses are a valuable asset to healthcare and patient outcomes; it is imperative that we address the need to assist nurses in caring for themselves and finding the best tools to assist in this matter. This study showed that self perceived stress can be reduced by using and educational intervention.

REFERENCES

- Ahern, N.R. (2005). Using the internet to conduct research. *Nurse Researcher*, 13, 55-70.
Retrieved April 25, 2010, from CINAHL with Full Text database
- Aycock, N., & Boyle, D. (2008, August 24). Intervention to Manage compassion Fatigue in Oncology Nursing. *Clinical Journal of Oncology Nursing*, 13, 183-191. Retrieved May 18, 2009, from CINAHL with Full Text database
- Allgood, M., & Tomey, A. (2002). *Nursing Theory: Utilization & Application*. (3rd ed.). St. Louis: Mosby.
- Bonneterre, V., Liaudy, S., Chatellier, G., Lang, T., & Gaudemaris, R. (2008, November 3). Reliability, validity, and health issues arising from questionnaires used to measure psychosocial and organizational work factors (POWFs) among hospital nurses: a critical review. *Journal of Nursing Measurement*, 16, 207-230. Retrieved May 18, 2009, from <http://www.workhealth.org> with Full Text database
- Department of Medical Sociology (2006). Duesseldorf University, Duesseldorf. Retrieved March 1, 2010 from http://www.uniduesseldorf.de/MedicalSociology/Questionnaire_download.119.0.html
- Hasselhorn, h., Tackenberg, P., Peter, R., & NEXT-Study-Group. (2004). Effort –Reward imbalance among nurses in stable countries and in countries in transition. *Journal of Occupational Environmental Health*, 10(4), 401-408.
- Cashavelly, B., Donelan, K., Mailhot, J., Clair-Hayes, K., & Maramaldi, P. (2008, May). The forgotten team member: meeting the needs of oncology support staff. *Onocologist*, 13(5), 530-538. Retrieved May 11, 2009, from CINAHL with Full Text database.
- Fillion, L., Tremblay, I., Truchon, M. Cote, D., Struthers, C. Dupris, R. (2007). Job satisfaction and emotional distress among nurses providing palliative care: Empirical evidence for an

integrative occupational stress- model. *International Journal of Stress Management*, 14(1), 1-25. Retrieved May 18, 2009, from <http://www.workhealth.org> with Full Text database

French SE; Lenton R; Walters V; Eyles J; *Journal of Nursing Measurement*, 2000 Fall-Winter; 8 (2): 161-78 (journal article - research, tables/charts) ISSN: 1061-3749 PMID: 11227582 CINAHL AN: 2001034878

Gardner, J., Thomas-Hawkins, C., Fogg, L. & Latham, C. (2007, May-June). The relationships between nurses' perceptions of the hemodialysis unit work environment and nurse turnover, patient satisfaction, and hospitalizations. *Nephrology Nursing Journal*, 34(3), 271-282. Retrieved May 18, 2009 from <http://www.annanurse.org> with Full Text database

Hall, E., (2001, May). Nurse burnout in a high stress health care environment: prognosis better than expected? Retrieved May 18, 2008 from http://eprints.otago.ac.11212781/Hall_working_paper2.pdf.

Lazarus, R., Folkman, S. *Stress, Appraisal, and Coping*. (1984). New York: Springer

Medland, J., Howard-Ruben, J., Whitaker, E. (2004). Fostering psychosocial wellness in Oncology nurses: Addressing burnout and social support in the workplace. *Onocology Nursing Forum* vol31, no 1

Moorehouse, R., Colvin, E. Maykut, P., Frauman, A. (2001 June). Nephrology nurse-patient relationships in the outpatient dialysis setting. *Nephrology Nursing Journal*, 28(13), 295. Retrieved May 15, 2009 from <http://galenet.galegroup.com.exproxy.southern.edu:2048/servlet/HWRC-g110>

- Murphy, F. (2004, July-August). Stress among nephrology nurses in Northern Ireland. *Nephrology Nursing Journal*, 31(4), 423-431. Retrieved May 18, 2009, from <http://www.annanurse.org> with Full Text database
- Quattrin, R., Zanini, A., Nascig, E., Annunziata, M., et al. (2006). Level of Burnout Among Nurses Working in Oncology in an Italian Region. *Oncology Nursing Forum*, 33, 815-820. Retrieved May 19, 2009 from CINAHL with Full Text database
- Rabetoy, C., Bair, B. (2007). Nephrology nurses' perspectives on difficult ethical issues and practice guidelines for shared decision making. *Nephrology Nursing Journal*, 34(6), 599-629.
- Ridley, J., Wilson, B., Harwood, L., & Laschinger, K. (2009, January-March). Work environment, health outcomes and magnet hospital traits in the Canadian nephrology nursing scene. *CANNT Journal*, 19(1), 28-35. Retrieved May 15, 2009, from CINAHL with Full Text database
- Sakulkoo, S. (2002). Factors influencing nursing turnover and intent to stay in renal dialysis units. Ph.D dissertation, University of Kansas, United States – Kansas. Retrieved May 18, 2009, from Dissertations & Theses; Full Text database. (Publication No. AAT 3082671).
- Simona, I., Favara-Scacco, C., Di Cataldo, A., & Russo, G. (2007). Evaluation and art therapy treatment of the burnout syndrome in oncology units. *Psycho-Oncology*, 17, 676-680. Retrieved May 18, 2009 from CINAHL with Full Text database
- SPSS technique series:statistics on Likert scale surveys (5/18/2009)
<http://www.uni.edu/its/us/document/stats/spss2.html>
- Strickland, O., Moloney, M., Dietrich, A., Myerburg, S., Cotsonis, G., & Johnson, R. (2003). Measurement Issues Related to Data Collection on the World Wide Web. *Advances in*

Nursing Science, 26, 246-256. Retrieved April 26, 2010 from CINAHL with Full Text
databse