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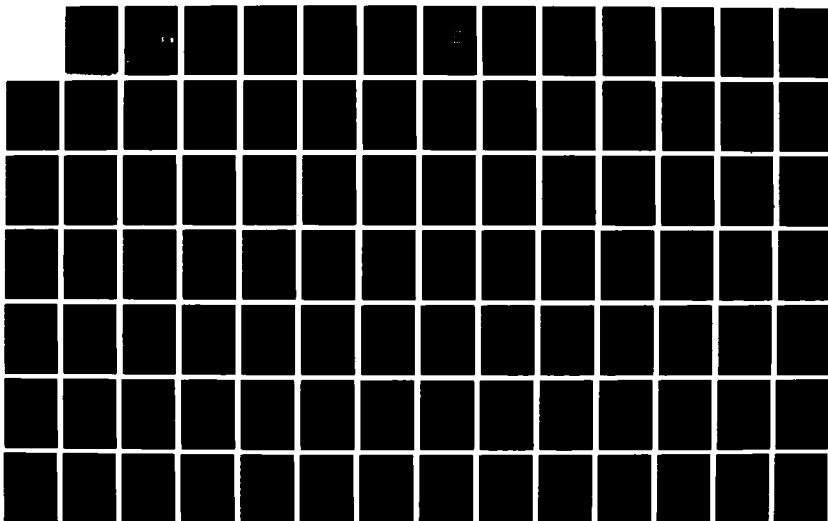
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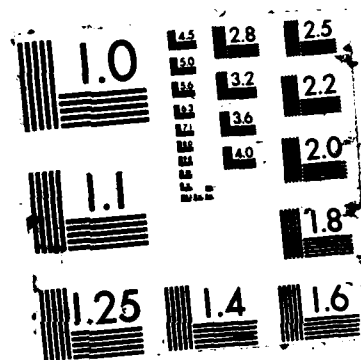
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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS
BEFORE COMPLETING FORM

1. REPORT NUMBER

AFIT/CI/NR 87-94T

2. GOVT ACCESSION NO.

ADA185-706

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)

Role Conflict, Role Ambiguity, and Role Strain
in United States Air Force Chief Nurse
Administrators

5. TYPE OF REPORT & PERIOD COVERED

THESIS/DISSERTATION

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

Durelle Mae Black Fullemkamp

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS

AFIT STUDENT AT:
Northwestern State University10. PROGRAM ELEMENT, PROJECT, TASK
AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS

AFIT/NR
WPAFB OH 45433-6583

12. REPORT DATE

1987

13. NUMBER OF PAGES

126

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

15. SECURITY CLASS. (of this report)

UNCLASSIFIED

15a. DECLASSIFICATION/DOWNGRADING
SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

APPROVED FOR PUBLIC RELEASE: IAW AFR 190-1

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

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Role Conflict, Role Ambiguity, and Role Strain in United States Air Force Chief Nurse Administrators

by

Durelle Mae Black Fullenkamp
Major, United States Air Force, Nurse Corps

1987

Number of pages in thesis: 126

Name of Institution: Northwestern State University

Degree Awarded: Master of Science in Nursing (MSN)

Abstract

This descriptive correlational and comparative study examined if a relationship exists among role conflict and role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (Rizzo, House, & Lirtzman, 1970), and role strain as measured by the Tennessee Stress Scale - R (TSS - R) (J. M. McWilliams, personal communication, July 21, 1986). A combination of The Theory of Role Dynamics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and Ward's (1986) explication of role strain was used as the conceptual framework for this study. Self-administered questionnaires were mailed to a convenience sample of all United States Air Force chief nurses (N = 85) in the continental United States, with a return rate of 94% (80), of which 90% (77) were useable.

Four major null hypotheses were tested and revealed significant relationships: (1) between role conflict and role ambiguity ($r = 0.3063$; $p = 0.007$), (2) between role conflict and total role strain ($r = 0.3059$; $p = 0.007$), (3) between role ambiguity and total role strain ($r = 0.5778$; $p < 0.001$), and (4) among mean total role strain scores and three groups (N = 74) representing general levels of role stress ($F = 9.0575$; $p = 0.003$).

It was concluded that the conceptual framework was appropriate for this study. Reliabilities of the RCAQ (alpha = 0.7479 role conflict; 0.8248 role ambiguity) and TSS - R (alpha = 0.8586) for this sample were also adequate. Role ambiguity was found to be low compared to other groups of managers; role conflict was high. However, ambiguity was more strongly related to adverse personal outcomes than conflict.

Recommendations were made to replicate this study using a larger nationwide randomized sample with a longitudinal design. Utilization of the conceptual framework in other studies as well as to study the eustress portion of the framework in relation to strain outcomes, were also suggested. Another recommendation was to conduct a descriptive study to ascertain coping responses to role conflict. *Keywords: job analysis, job satisfaction,*

nurses, nursing, physicians, theories

94

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**ROLE CONFLICT, ROLE AMBIGUITY, AND ROLE STRAIN IN
UNITED STATES AIR FORCE CHIEF NURSE ADMINISTRATORS**

BY

**DURELLE MAE BLACK FULLENKAMP
MAJOR, UNITED STATES AIR FORCE, NURSE CORPS**

THESIS

**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE IN NURSING**

**NORTHWESTERN STATE UNIVERSITY OF LOUISIANA
SHREVEPORT, LOUISIANA**

1987

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ROLE CONFLICT, ROLE AMBIGUITY, AND ROLE STRAIN IN UNITED STATES AIR FORCE CHIEF NURSE ADMINISTRATORS

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RESEARCH**

DATE _____

Fullenkamp, Durelle Mae Black, B. S. N., University of Maryland, 1976
Master of Science, Northwestern State University, Spring Commencement, 1987
Major: Nursing
Title of Thesis: Role conflict, role ambiguity and role strain in United States
Air Force chief nurse administrators
Thesis directed by Norann Y. Planchock, R. N., PhD
Pages in Thesis, 126. Words in Abstract, 335.

ABSTRACT

This descriptive correlational and comparative study examined if a relationship exists among role conflict and role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (Rizzo, House, & Lirtzman, 1970), and role strain as measured by the Tennessee Stress Scale - R (TSS -R) (J. M. McWilliams, personal communication, July 21, 1986). A combination of The Theory of Role Dynamics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and Ward's (1986) explication of role strain was used as the conceptual framework for this study. Self-administered questionnaires were mailed to a convenience sample of all United States Air Force chief nurses (N = 85) in the continental United States, with a return rate of 94% (80), of which 90% (77) were useable.

Four major null hypotheses were tested and revealed significant relationships: (1) between role conflict and role ambiguity ($r = 0.3063$; $p = 0.007$), (2) between role conflict and total role strain ($r = 0.3059$; $p = 0.007$), (3) between role ambiguity and total role strain ($r = 0.5778$; $p < 0.001$), and (4) among mean total role strain scores and three groups (N = 74) representing general levels of role stress ($F = 9.0575$; $p = 0.003$).

There were significant negative relationships between age and role ambiguity ($r = -0.3578$; $p = 0.001$) and age and total role strain ($r = -0.3432$; $p = 0.003$). Another significant finding was that the chief nurses' had an accurate perception of their levels of role conflict ($r_s = 0.3768$; $p = 0.001$) and role ambiguity ($r_s = 0.3921$; $p = 0.001$).

It was concluded that the conceptual framework was appropriate for this study. Reliabilities of the RCAQ (alpha = 0.7479 role conflict; 0.8248 role ambiguity)

and TSS - R ($\alpha = 0.8586$) for this sample were also adequate. Role ambiguity was found to be low compared to other groups of managers; role conflict was high. However, ambiguity was more strongly related to adverse personal outcomes than conflict. Finally, chief nurses could identify their role stress level with respect to their actual role stress scores which implied that with education in role stress reduction techniques, they could reduce their own level of role stress.

Recommendations were made to replicate this study using a larger nationwide randomized sample with a longitudinal design. Utilization of the conceptual framework in other studies as well as to study the eustress portion of the framework in relation to strain outcomes, were also suggested. Another recommendation was to conduct a descriptive study to ascertain coping responses to role conflict. An additional recommendation was to test the sensitivity of the TSS - R regarding role conflict stress responses.

DEDICATION

This study is dedicated to my husband and best friend, Bernie (who now knows why authors dedicate their works) and to my most precious daughter, Kristen. I love and thank you both for your love and support, and the many sacrifices you made on my behalf, to make my master's degree a reality.

ACKNOWLEDGEMENTS

I would like to express sincere thanks to my thesis chairperson, Dr. Norann Planchock, for her valuable time, expert guidance, and friendship throughout my graduate studies. I have grown ten-fold because of her ability to give me a glimpse of my potential and unique capabilities.

I am truly grateful to Brigadier General Carmelita Schimmenti, Colonel Georgianna Reichenbach, and the United States Air Force for making this Air Force Institute of Technology assignment possible.

Very special appreciation is extended to my dear friends and relatives, especially my parents, Ruth and Howard Black, whose many prayers and loving support decreased my role strain.

Above all, I thank Jesus Christ, for through Him all things are possible.

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CHAPTER 1

INTRODUCTION

Two dominant trends in American society are the rapid expansion of both high-technology and organizations in shaping individual and social life (Hardy, 1978; Hymson, 1983; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Toffler, 1970). Concomittent in these societal changes come emotional tension and frustrations as organizations become more impersonal and technology demands role evolution (Arndt & Laeger, 1970a). The nurse administrator is not exempt from these phenomena. The contemporary nurse administrator's role has become diversified and complex (Arndt & Laeger, 1970a; Kulbok, 1982). The role has changed in response to changes in health care demands and facilities, economic survival, high-technology, government and accrediting regulations, management concepts and nursing itself (Erickson, 1980; Molen, Jayne, Blyth, & McCloskey, 1985).

There are inherent problems associated with the multifaceted role of the nurse administrator. Role conflict and role ambiguity are phenomena common to diversified role sets such as that of the nurse administrator (Arndt & Laeger, 1970a; Snoek, 1966). Role conflict and ambiguity are two major sources of organizational stress which impact the individual. The negative outcome from role conflict and role ambiguity is role strain which may be considered the maladaptive response experienced by the individual (Ward, 1986). The purpose of this study was to examine the nurse administrator's levels of role conflict and ambiguity and their relationship to the level of role strain.

Problem Statement

The statement of the problem for this study was: Is there a relationship

between role conflict, role ambiguity, and role strain in United States Air Force chief nurses?

Need for the Study

With the rapid social changes and a desire for the American industrial society to be profitable and productive, organizational stress and strain have received widespread public attention (Lazarus & Folkman, 1984; Quick & Quick, 1984). Strain, the adverse outcome of stress, is detrimental for an organization in terms of economic hardship, such as low productivity, job dissatisfaction, absenteeism, propensity to leave, burnout and reduced motivation (Quick & Quick, 1984; Ward, 1986; Van Sell, Brief, Schuler, 1981). In terms of dollars, the cost of stress-induced illness costs businesses approximately \$60 billion annually in decreased productivity (Artz, 1981, cited in Lachman, 1983). This dollar figure does not reflect the human costs.

Role, task, physical, and interpersonal demands are four major categories of organizational stress or stressors (Quick & Quick, 1984). The organizational stress is the agent while the response to the stress is either strain (distress) or else eustress. Unmanaged organizational stress manifests itself in distressful behavioral, psychological, and physiological effects. Role stress is present in small or large organizations and may generate role strain in individuals (Quick & Quick, 1984; Hardy, 1978). Two major types of role stress are role conflict and role ambiguity (Kahn et al., 1964). Role theory posits that an individual is in a state of role conflict when the behaviors expected of the individual by others in the organization are inconsistent; role ambiguity occurs when the individual lacks necessary information about his/her organizational role obligations and/or the means to fulfill them (Kahn et al., 1964; Rizzo, House & Lirtzman, 1970). Role conflict and ambiguity have been related with a variety of dysfunctional organizational and personal outcomes such as job dissatisfaction, turnover, decreased productivity, job-related tension, and anxiety (Van Sell et al., 1981; Stout & Posner, 1984). The majority of studies have examined

conflict and ambiguity in relation to one specific strain indicator. For example, role conflict and role ambiguity have each been positively associated with job-related tension, job-related anxiety, and physical, emotional and mental exhaustion (Beehr, Walsh, & Taber, 1976; Brief & Aldag, 1976; Miles, 1975; Stout & Posner, 1984).

Investigations have not addressed conflict and ambiguity in relation to total job-related strain.

Ward (1986) declared that role stress

... is a frequently observed phenomenon in health care for both recipients and providers [Role strain in health care providers] is frequently reported and is often manifested by job dissatisfaction and burnout. Actions by physicians and nurses in response to role strain have included drug abuse and suicide (pp. 47-47).

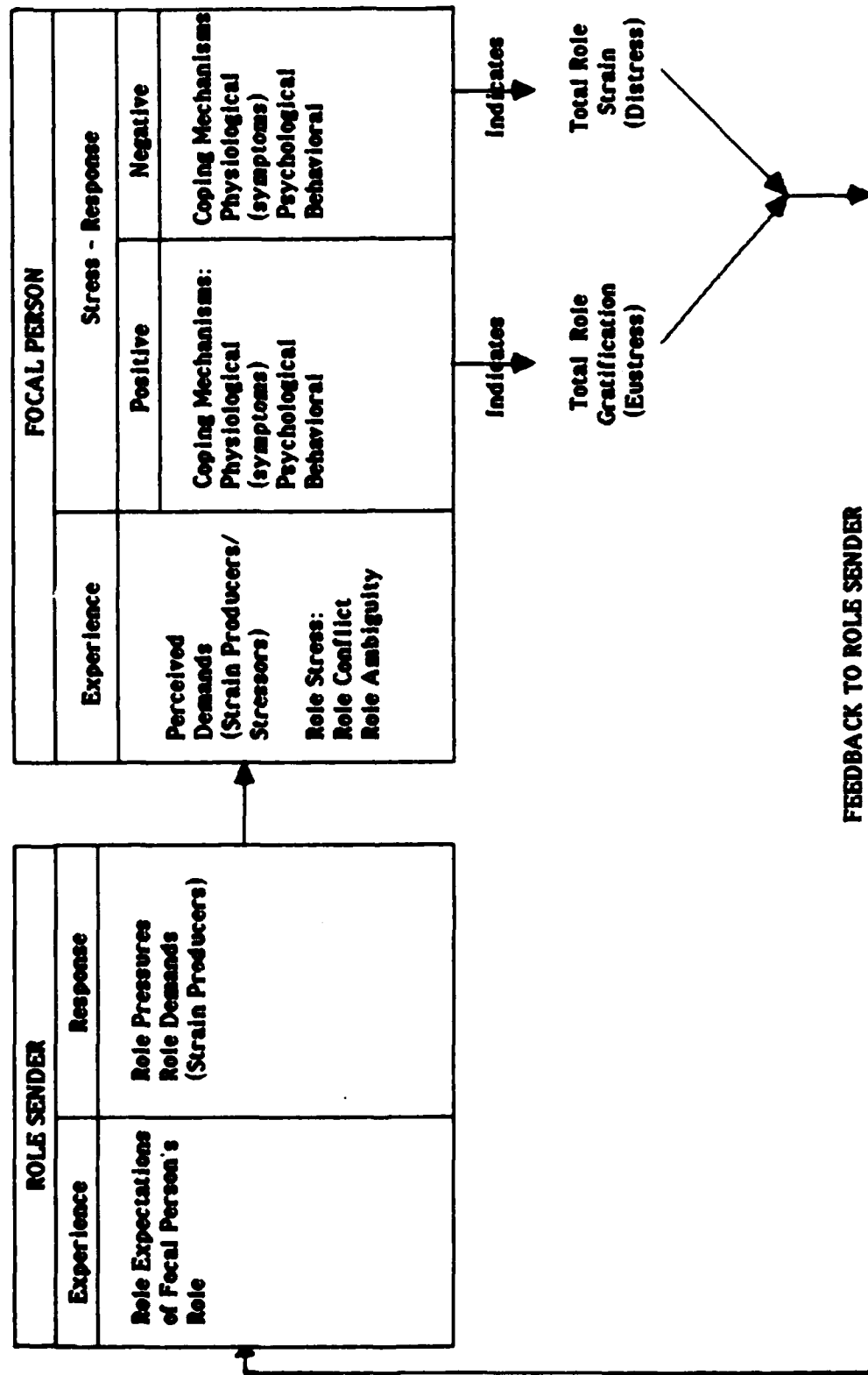
Kulbok (1982) purported that "the complex, high-technology, interdisciplinary health care environment of the '80s has significantly expanded the responsibility of the nursing service director" (p. 199). Aydolette (1984a) asserted that the nurse administrator role is undergoing powerful change including increased responsibility. Arndt and Laeger (1970a) identified role conflict and ambiguity as major strain producers in nurse administrators due to the role's diversified set. This investigator has found a paucity of literature reporting outcomes of role stress in nurse administrators. In fact, Hanson and Chater (1983) reported that limited research focusing on nurse administrators had been done. Kulbok (1982) suggested the need to investigate role strain in nurse administrators along with ways to cope with this dilemma "in order to enhance the overall performance and effectiveness of administration leadership" (p. 202). Studying the nurse administrator's levels of role conflict and ambiguity and their relationships to the level of role strain will enable nurses to better understand the effects of organizational environment on the nurse administrator. To this investigator's knowledge, research on role stress or role strain in military chief nurse administrators has not been conducted.

Introduction to Conceptual Framework

The framework for this study was based upon two major works: The Theory of Role Dynamics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and Ward's (1986) explication of role strain. The Theory of Role Dynamics provided insight into understanding organizational stress on individuals and their adjustment and response to the stress experience. Two major kinds of organizational stress are role conflict and role ambiguity; role stress that impresses the individual, or focal person (Figure 1). Role conflict occurs when the behaviors expected of the focal person by others in the organization are inconsistent; with role ambiguity the focal person lacks necessary information about his/her organizational role obligations and /or the means to fulfill them (Kahn et al., 1964).

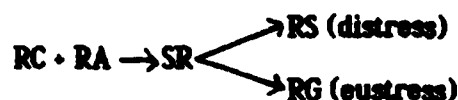
Although the two constructs frequently appear together in the literature, both are independent of one another. Expectations of how a focal person should behave in a role are sent by members (role senders) of the role set. The role set may include colleagues, subordinates, superiors, or extradepartmental peers. The role senders have certain expectations about the focal person's role and perceptions of his/her actual performance. By synthesizing these experiences, the role sender decides how the focal person should perform the role and exerts pressures to try to make the focal person conform to the role expectations. These pressures induce an experience of perceived demands known as stressors and strain producers, within the focal person which leads to a role stress response. The response the focal person adopts is "an attempt to attain or regain an adequately gratifying experience in the work situation" (Kahn et al., 1964, p. 28). These responses, are coping mechanisms, be they physiological (symptoms), psychological, or behavioral, used to deal with sources of stress such as role conflict and ambiguity. The responses are determined by the focal person's perceived amount of stress. Stress-reducing responses that are negative or undesirable states, indicate role strain. The opposite outcome or

Figure 1: Conceptualization of role stress on focal person.



(Adapted from Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Ward, 1986)

desirable effect of role stress is role gratification (Ward, 1986). This investigator specifically studied the role strain segment of the model, not role gratification. A linear model of the relationship among role conflict (RC), role ambiguity (RA), stress response (SR), role strain (RS), and role gratification (RG) follows:



The focal person's response feeds back to the role sender's experiences and the cycle continues.

Assumptions

The following assumptions were identified as endogenous to the study:

1. Role conflict and ambiguity are present in organizations (Quick & Quick, 1984).
2. Role expectations are communicated and lead to role pressures (Kahn et al., 1964).
3. Role conflict and role ambiguity can be measured subjectively (Van Sell et al., 1981).
4. Individuals can identify their responses to stress.

Null Hypotheses

The following null hypotheses were tested in this research study:

1. There will be no significant relationship between role conflict and role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) in United States Air Force chief nurses.
2. There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and:
 - 2a. total role strain
 - 2b. strain producers

2c. strain coping mechanisms

2d. strain symptoms

as measured by the Tennessee Stress Scale (TSS - R) in United States Air Force chief nurses.

3. There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and:

3a. total role strain

3b. strain producers

3c. strain coping mechanisms

3d. strain symptoms

as measured by the Tennessee Stress Scale (TSS - R) in United States Air Force chief nurses.

4. There will be no significant difference in the total role strain score measured by the Tennessee Stress Scale (TSS - R) and the role conflict and role ambiguity scores measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) among the following groups:

Group 1 - Those chief nurses whose scores reflect high levels of role conflict and role ambiguity.

Group 2 - Those chief nurses whose scores reflect a high level on either role conflict or role ambiguity and a low level on the other.

Group 3 - Those chief nurses whose scores reflect low levels of both role conflict and role ambiguity.

Limitations

The limitations seen as affecting this study are as follows:

- 1. The self-selected sample limits the generalizability of the findings.**
- 2. The limited use of the Tennessee Stress Scale - R is seen as a limitation.**

Definition of Terms

The major terms below were used throughout this study and are defined as follows:

1. Role conflict --

Theoretical definition -- "the simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with the other" (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964, p. 19).

Operational definition -- the score of the eight items designated for role conflict on the Role Conflict and Ambiguity Questionnaire developed by Rizzo, House, and Lirtzman (1970) (Appendix A). Possible scores ranged from 8 to 36; the higher the score, the greater the perceived conflict. Scores greater than or equal to the mean of the sample, indicated high role conflict; below mean scores indicated low role conflict.

2. Role ambiguity --

Theoretical definition -- lack of clear consistent information about one's role(s) in terms of expected behaviors and consequences of role performance (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964).

Operational definition -- the score of the six items designated for role ambiguity on the Role Conflict and Ambiguity Questionnaire developed by Rizzo, House and Lirtzman (1970). Possible scores ranged from 6 to 42; the higher the score, the greater the perceived ambiguity. Scores greater than or equal to the mean of the sample, indicated high role ambiguity; below mean scores indicated low role ambiguity.

3. Role strain --

Theoretical definition -- "is the subjective state of distress experienced by a role occupant when exposed to role stress" (Hardy, 1978, p. 76). Distress "is the

unhealthy, negative, destructive outcome of the stress response" (Quick & Quick, 1984, p. 8).

Operational definition -- the total score received on the Tennessee Stress Scale - R (Appendix B). Possible scores ranged from 0 to 60; scores 35 and above denoted severe levels of strain; 16 to 34 moderate; 15 or below mild.

a. **Strain producers** - the total score of items 1 to 20 received on the TSS - R. Possible scores ranged from 0 to 20; scores 12 or above denoted severe strain; 6 to 11 moderate; 5 or below mild.

b. **Strain coping mechanisms** - the total score of items 21 to 40 received on the TSS - R. Possible scores ranged from 0 to 20; scores 11 or above denoted severe use of negative coping mechanisms; 5 to 10 moderate; 4 or below mild.

c. **Strain symptoms** - the total score of items 41 to 60 received on the TSS - R. Possible scores range from 0 to 20; scores 12 or above denote a severe amount of strain symptoms; 5 to 11 moderate; 4 or below mild.

4. **United States Air Force Chief Nurse** --

Operational definition -- the nurse administrator in the United States Air Force with the Air Force Specialty Code 9716 and the rank of Major through Colonel identified from the Officer Career Development Regulation (1985); the 9716 having ultimate responsibility and accountability for the nursing department (American Nurses' Association, 1978).

Summary

The purpose of this study was to examine if role conflict and role ambiguity are related to role strain. The conceptual framework for this investigation was a combination of Kahn, Wolfe, Quinn, Snoek, and Rosenthal's (1964) Theory of Role Dynamics and Ward's (1986) explication of role strain. The need for the study, assumptions, limitations and the theoretical and operational definitions were also discussed. Four major null hypotheses were identified. The next chapter will provide

a review of the literature in terms of related theory and relevant research upon which this study was based.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter will present a review of the literature as it relates to role conflict, role ambiguity, and role strain experienced by nurse administrators. Also, the Theory of Role Dynamics and Ward's (1986) explication of role strain will be discussed in relation to this investigation.

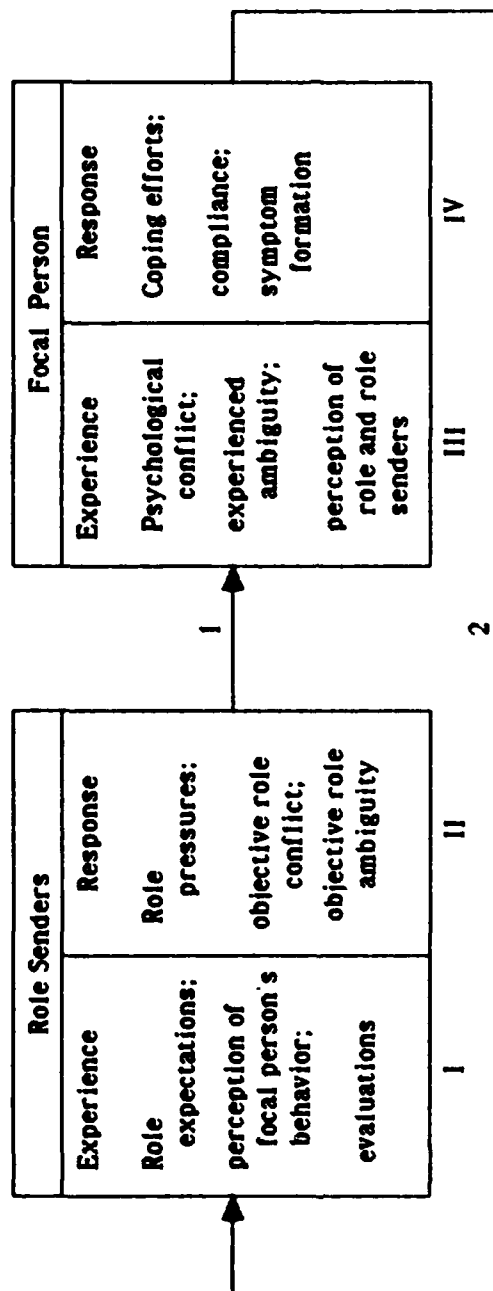
Conceptual Framework

A combination of the Theory of Role Dynamics and Ward's explication of role strain was used as the framework for this study. The Theory of Role Dynamics will be presented first, followed by Ward's explication of role strain. A conceptualization of role conflict, ambiguity, and strain as perceived by the investigator as it applies to this study will be discussed.

The Theory of Role Dynamics

The Theory of Role Dynamics was used as the basis for investigating role conflict and role ambiguity in individuals within the social structure of an organization. This theory provided a useful model for understanding role conflict, role ambiguity (organizational stressors) and adjustment to these stressors. The core of this model centers around the role episode (Figure 2). A role episode is a "complete cycle of role sending, response by the focal person, and the effects of that response on the role senders" (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964, p. 26). The achieved role is the behavior expected of an individual person called the focal person within his/her

Figure 2. A model of the role episode.



NOTE: *Organizational Stress: Studies in Role Conflict and Ambiguity* (p. 26) by R. L. Kahn, D. M. Wolfe, R. P. Quinn, J. D. Snoek, and R. A. Rosenthal, 1964, New York: John Wiley & Sons. Copyright 1964 by John Wiley & Sons. Reprinted by permission (Appendix C).

organization. Roles are influenced by the prescriptions and proscriptions, known as role expectations, held by other organizational members called role senders.

There are four events that represent the role episode: the experience and response of the role senders and the experience and response of the focal person. Role senders have expectations of the way the focal person should perform his/her role as well as perceptions of the way the focal person is actually performing the role. Objective role pressures, such as objective role conflict and objective ambiguity, are conditions of the environment, whereas subjective conflict and ambiguity are psychologically perceived, experienced states of the focal person.

The sent role pressures directly affects the focal person's role experience as indicated by arrow 1 (Figure 2). The focal person must respond to and cope with these pressures in some way. The response the focal person adopts is "an attempt to attain or regain an adequately gratifying experience in the work situation" (Kahn et al. , 1964, p. 28). Kahn et al. (1964) identified these coping mechanisms:

- (1) solving the problem by compliance
- (2) persuading the role senders to modify incompatible demands
- (3) avoiding the sources of stress
- (4) using defense mechanisms which distort the reality of a conflictual or ambiguous situation in order to relieve the anxiety of the distorted experience, and,
- (5) the formation of affective or physiological symptoms (p. 29).

The more severe the role stress becomes, the more maladaptive coping mechanisms the focal person will utilize. Rather than channel the emotional and motivational energy in effective ways, the focal person may cope by instituting defense mechanisms such as denial, repression, regression, and projection. Decreased attention, disrupted thought processes, disturbed sleep, increased visceral activity, low self-esteem, poor health, lack of energy and frequent feelings of failure can result from ineffective coping mechanisms, frustrated needs, and emotional strains. The focal person's responses are evaluated by the role sender indicated by arrow 2 (Figure 2) representing a feedback loop. The role sender may then alter expectations of the

focal person and send a different magnitude of role pressures. Hence, the role episode is ongoing and cyclic in nature.

The role episode events discussed above represent an occurrence at a given moment in time. However, the context in which the episode occurs must be considered in order to gain a complete understanding of the focal person's adjustment to role conflict and ambiguity in organizations. Three major factors to consider are organization, personality, and interpersonal relations (Figure 3). These factors are enduring states of the role episode.

Organizational factors formally dictate an individual member's role. These factors include those "structural qualities, functional specialization and division of labor, formal reward systems, and so on which dictate the content of a position in an organization" (Schmalenberg & Kramer, 1979, p. 231).

Personality broadly refers "to those factors that describe a person's propensities to behave in certain ways, his motives and values, his sensitivities and fears, his habits, and the like" (Kahn et al., 1964, p. 32). Personality factors may affect role episodes in three ways by: (1) modifying the role senders responses (arrow 4, Figure 3), (2) modifying the focal person's experienced role pressures (arrow 5, Figure 3), and (3) influencing use or preference of particular coping mechanisms (subsumed under focal person response). The focal person's responses or reactions to role experiences may also effect his/her own personality (arrow 8, Figure 3). For example, if the focal person's use of defense mechanisms becomes less adaptive, it may exaggerate or distort sent role pressures (arrow 5, Figure 3). Moreover,

other kinds of changes in the person, such as changes in his level of aspiration or the development of symptoms of ill health, may affect his associates' behavior toward him directly (arrow 4), creating a change in the role pressure (Kahn et al., 1964, p. 34).

The third factor, interpersonal relations, refers "to the more or less stable patterns of interaction between a person and his role senders and to their

The diagram illustrates a model of role theory with the following components and relationships:

- Organizational factors (A):** A circle on the left.
- Personality factors (B):** A circle on the top.
- Interpersonal factors (C):** A circle on the right.
- Role Senders:** A box containing "Role expectations" and "Role pressures".
- Focal Person:** A box containing "Experience" and "Response".
- Feedback Loops:** Dashed curved arrows labeled 4, 5, 6, 7, 8, and 9 connect the circles and boxes in a clockwise cycle.
- Internal Pathways:**
 - Path 1: From "Role expectations" to "Experience".
 - Path 2: From "Role pressures" to "Response".
 - Path 3: From "Organizational factors (A)" to "Role expectations".
 - Path 5: From "Personality factors (B)" to "Experience".
 - Path 6: From "Interpersonal factors (C)" to "Role pressures".
- Structural Elements:**
 - A vertical line separates the "Role Senders" box from the "Focal Person" box.
 - A horizontal line with a double-headed arrow connects the two boxes.
 - A large vertical rectangle encloses the central boxes and pathways.
 - Labels I, II, III, and IV are positioned along the vertical line.

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orientations toward each other" (Kahn et al., 1964, p. 32). Arrow 6 (Figure 3) indicates that the nature of interpersonal relations between the role sender and focal person will modify the kind of pressures exerted by role senders upon the focal person. Likewise, the "pressures will be interpreted differently depending on the affective bonds between focal person and role senders (arrow 7, Figure 3)" (Kahn et al., 1964, p. 33). As changes in interpersonal relations occur, be they adjustive or maladjustive, both the role sender's expectations and the type of response elicited by the focal person may be altered (arrows 6 and 9 respectively, Figure 3).

In summary, the role episode has been discussed along with those factors which help determine or impact the individual's response to the episode. The next section will expand this model by explaining the construct role strain and how it relates to role stress.

Role Strain

Many of the terms used in role theory have not yet been agreed upon by a scientific discipline. One such term is role strain. Ward (1986) recognized the importance of this term in furthering role theory formulation and therefore analyzed it. Role strain was described and utilized in this study according to Ward's (1986) explication.

The concept role strain was first described by Goode (1960) as "the felt difficulty in fulfilling role obligations" (p. 483). Ward (1986) noted an expansion to this definition in that: strain is a condition (noun) rather than an etiology (verb). "Following the terminology of the physical sciences, strain is the change in the state of the internal system which results from external stress" (Hall & Mansfield, 1971, p. 533). Properties identified as necessary elements of the concept were: perceptive, subject state, pressure of an etiological stimulus, and an undesirable or negative state (Ward, 1986). Hence, role strain is an outcome or

result of an antecedent condition. Ward identified role conflict and role ambiguity (role stress) as two antecedents of role strain. That is to say, role strain may result from the stressful and difficult fulfillment of role demands such as role conflict and role ambiguity. Role conflict and ambiguity are the role stressors (verb) resulting in role strain (noun).

The attributes of role strain are consistent with the literature reporting negative personal outcomes of stressors called distress. Ward (1986) listed the following as role strain attributes: fatigue, exhaustion depression, cognitive strain, insecurity, embarrassment, tension, anger, hostility, guilt, indecision, failure, job dissatisfaction, physiological stress, physical damage, anxiety, threat, and discomfort. Empirical referents include: fatigue, exhaustion, depression, anxiety, job related tension index, absenteeism, turnover, accident rate, blood pressure, catecholamine excretion, galvanic skin response, and fatty acid levels. Walker and Avant (1983) emphasized that the critical attributes and empirical referents may in many cases be identical.

Researchers have supported that not all stressors lead to negative outcomes. Rather, the stressors may produce a desirable effect of role gratification. Ward's (1986) explication of role strain is the distressful outcome versus the eustressful outcome of role stress on individuals.

Conceptualization of Role Stress and Role Strain

This researcher has combined The Theory of Role Dynamics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) by including the concept of role strain as explained by Ward (1986). This investigator found few studies which explored antecedents of role strain in relation to total perceived job-related strain (measured as total role strain in this study). The majority of studies have concentrated on the relationship of job stressors such as role conflict and ambiguity, in relation to one specific strain

indicator such as "job satisfaction, motivation, performance, and job withdrawal behavior" (Beehr & Newman, 1978, p. 667).

The aspects of role theory and role strain utilized in this study are depicted in Figure 1. The focal person is the nurse administrator, more specifically, the United States Air Force chief nurse. Role conflict and role ambiguity are job-related stressors measured by the Role Conflict and Ambiguity Questionnaire (RCAQ). The response to the role stress is two-fold. Either the person exhibits positive coping mechanisms, with adjustive/positive physiological, psychological, or behavioral outcomes (eustress/role gratification), or the opposite maladjustive/negative outcomes result in distress, an indicator of role strain. Biddle and Thomas (1966) cautioned that role strain is strain related to role stress which is what this researcher investigated. The following section elaborates on organizational strain producers, individual responses to the organizational stressors, and coping mechanisms used to attain a eustressful or distressful outcome to the stressors.

Organizational Strain Producers

Organizational stress producers are the job-related stressors that result in a stress response. Stressors are "any demand, either of a physical or psychological nature, encountered in the course of living" (Quick & Quick, 1984, p. 3). "Stress is the nonspecific response to any demand" (Selye, 1974, p. 14). This stress response can be an enhancing (beneficial) or distressing (destructive) experience (Quick & Quick, 1984; Beehr & Newman, 1978). When the outcome results in adverse individual consequences, the stressors can theoretically be termed strain producers.

There are four major categories of organizational stressors or strain producers: (1) task demands, (2) interpersonal demands, (3) physical demands, and (4) role demands (Quick & Quick, 1984). Task demands are concerned with the specific job-related activities the individual has at work, such as deadlines and decision-making responsibilities. Interpersonal stressors are "demands and pressures of

social system relations at work" (Quick & Quick, 1984, p. 35). Some individuals' personalities and behaviors may be positively stressful for some people and negatively stressful for others. Physical demands are physical environmental stressors such as extreme temperature and office design. Quick and Quick (1984) declared however that industry has all but mastered this organizational demand. The last stressor is role demands. This includes the expectations that others in the organization have of the individual's role behavior as well as the confusion often associated with work requirements. Role conflict and role ambiguity are the major role demands noted by Quick and Quick (1984). Role stressors will be elaborated on later in this literature review.

Individual Responses to Organizational Stressors

The key point to remember when discussing reactions to stressors is this: The response of an individual to a stressor is based on the individual's perception of the stressor (Hughes, Pearson, & Reinhart, 1984). One person may perceive a stressor as a challenge or a positive experience, while another person may perceive the same stressor as a threat or a negative experience. Regardless of whether the person perceives the stressors as negative or positive, a basic response occurs (Selye, 1956). Mismanagement of the basic response leads to long-term psychological, physiological, or behavioral consequences known as distress or strain (Quick & Quick, 1984). The stress response will be discussed, followed by the psychological, physical, and behavioral responses indicative of strain.

The Stress Response

When confronted by stressors, a generalized psychophysiological reaction occurs involving the sympathetic nervous system and the hormone system. This response is well-known as the fight-or-flight response (Selye, 1956, 1976). Sympathetic activity is caused by catecholamine release (primarily adrenaline and

noradrenaline) into the bloodstream (Quick & Quick, 1984). Manifested results include increased alertness, nervousness, wide-eyed appearance, dry mouth, palpitations, increased cardiac output, hyperventilation, a sensation of shortness of breath, hyperglycemia, pallor, sweaty palms and brow, possible exacerbation of skin conditions, body odor, piloerection, hypertension, muscle tremors, and increased serum fatty acid levels (Quick & Quick, 1984; Lachman, 1983; Schuler, 1980; Selye, 1956). Hormones released during the stress response include adrenocorticotrophic hormone (ACTH), cortisol, glucagon, adrenalin, and noradrenalin (Quick & Quick, 1984). These hormones contribute to increased levels of serum glucose and fatty acids, causes protein catabolism, inhibits immunity and inflammatory responses, shrinks lymphoid tissues, weakens bones, enhances chronotropic and inotropic effects on the heart, and causes hypertension (Quick & Quick, 1984).

Strain Symptoms

When the stress response occurs continuously and intensely and the individual does not cope positively (that is, finds a suitable outlet), strain results (Quick & Quick, 1984). This section will present physical, psychological and behavioral outcomes of mismanaged stress in the individual.

Physical Outcomes

Selye's (1956, 1976) three-stage general adaptation syndrome (GAS) described the flight or fight response as the alarm reaction; a destruction of homeostasis. This response initiated appropriate behavior (flight or fight) in the individual eliminating the stressful situation. Gal and Lazarus (cited in Schuler, 1980) suggested that flight or fight behavior in organizations was less feasible and resulted in dysfunctional physiological reactions. This parallels Selye's (1956) second stage of the GAS; the stage of resistance. The body attempts to adjust to the stressor to secure homeostasis "even if the flight or fight behavior is not forthcoming" (Schuler, 1980,

p. 201). The body uses a finite amount of adaptation energy to deal with the stressors. A side effect of this stage is that diseases of adaptation occur. Some of the diseases of adaptation include: cardiovascular disease, backache and arthritis, ulcer disease, headache, cancer, diabetes mellitus, liver cirrhosis, lung disease, skin disease, allergic afflictions, kidney disease, and hypertension (Quick & Quick, 1984; Selye, 1976, Schuler, 1980). Continued loss of adaptation energy will eventually lead to Selye's (1976) last stage; exhaustion and death. Because of the complex nature of physiologic symptoms and difficulty in obtaining objective measures of these variables, Beehr and Newman (1978) emphasized the difficulty in stating that a given stressor causes a particular physical symptom.

Psychological Outcomes

Among the psychological consequences of organizational stressors, the most frequently used variables used to represent psychological strain are job dissatisfaction, tension, anxiety, psychological fatigue, depression, burnout syndrome, sexual dysfunction, sleep disturbances, self-esteem, boredom, and psychogenic disability (Beehr & Newman, 1978; Schuler, 1980; Quick & Quick, 1984). Again, drawbacks in the studies using these variables is the use of self-report data and the use of correlational designs (Beehr & Newman, 1978). Cause and effect relationships between these variables and organizational stressors is inappropriate.

Behavioral Outcomes

Behavioral strain indicators are closely related to the physical and psychological outcomes. Some of the strains studied are smoking, alcohol and drug abuse, accident proneness, violence, and appetite disorders (over- or undereating) (Quick & Quick, 1984). Poor job performance, absenteeism, tardiness, turnover, etc. not only are viewed as negative individual outcomes, but also as direct detrimental organizational consequences (Schuler, 1980).

Strain Coping Mechanisms

Reduction of stress to a eustressful state, not a stress-free state, is the goal of coping mechanisms (Quick & Quick, 1984). The eustressful state is an optimum level of stress for each individual; that is, adaptive, constructive, and healthy. The nature of adaptive coping strategies is functional; problem-solving (Dobson, 1983). These strategies aim at dealing with the objective situation. The mismanaged state of stress is strain. The maladaptive or negative responses are self-defeating and contribute to the distress outcome.

The nature of these strain coping mechanisms is dysfunctional; affective behaviors that deal with emotional reactions to the stimulus. (Anderson, 1976; Dobson, 1983). Among the more noted strain coping mechanisms are cognitive distortion, defense mechanisms, mismanagement of both work environment and lifestyle (Dobson, 1983). Cognitive distortion includes overgeneralization, selective abstraction, arbitrary inference, magnification, minimization, dichotomous thinking, and personalization. This self-defeating, irrational pattern of thinking perpetuates negative beliefs (Beech, Burns, & Sheffield, 1982; Quick & Quick, 1984). Likewise, defense mechanisms involve self-deception and the distortion of reality. Displacement, repression, denial, projection, rationalization, intellectualism, and reaction formation are examples of such defense mechanisms (Dobson, 1983). Anderson (1976) declared that emotional reactions to the stressor involved withdrawal, hostility, aggression, and group affiliation. Lazarus (1976) called the use of defense mechanisms indirect action (palliation), whereby the individual was trying to reduce anxious feelings within himself rather than the stressor itself. Dobson (1983) emphasized that defense mechanisms are a temporary mode of response in reducing the perceived stressful situation until more direct positive problem-solving coping mechanisms can be instituted. Permanent use of defense mechanisms would indicate some kind of maladjustment. The person's well-being will be affected

and they may experience physical or mental ill-health (Dobson, 1983). Mismanaging both the work environment and one's lifestyle entails lack of awareness of the consequences of work stressors, being overcommitted to the job and hence deprived of a well-rounded life, difficulty in setting priorities and realistic goals, lack of social support, never relaxing, and poor diet, sleep and exercise practices (Venning, 1982).

Positive Coping Mechanisms

Coping mechanisms of a positive sort that favor eustressful outcomes are direct actions to deal with the actual stressor and strengthening one's adaptive energy (Lazarus, 1976; Selye, 1976). Positive coping mechanisms also include actions of taking charge of one's circumstances and actively managing the stress (Huges, Pearson, & Reinhart, 1984). Positive coping includes building personal resistance through proper diet, exercise, sleep, and relaxation. Cognitive restructuring is another direct strategy used to consciously change the perception of a stressor to that of a non-stressor. Approaching the would-be stressor as a challenge with realistic goals, developing space from work, developing social support, implementing relaxation techniques, meditating, along with proper diet, sleep, and exercise are all positive ways to cope with stressors in order to attain a eustressful experience (Lachman, 1983).

Anderson (1976) studied the relationships among perceived stress, coping behaviors, and organizational performance for 93 owner-managers of small businesses damaged by hurricane floods. Coping mechanisms were categorized as: Class I - problem-solving behavior aimed at dealing with the objective situation; and Class II - affective behaviors that dealt with emotional reactions to the stimulus (i.e., withdrawal, hostility, aggression, and group affiliation).

The hypotheses were "(a) perceived stress and performance display an inverted-U relationship, and (b) emotional coping mechanisms increase under higher stress" (Anderson, 1976, p. 30). The findings demonstrated an inverted-U

relationship between performance and perceived stress in a field setting. Problem-solving coping mechanisms bore an approximated inverted-U to perceived stress. Emotional behaviors approximated a linear relationship which accelerated markedly in slope at high stress levels ($r_s = .60, p < .001$). Thus, at a eustressful level, problem-solving coping mechanisms were utilized, whereas at high stress levels subjects exhibited a greater frequency of emotional and defensive behavior. Anderson concluded that the findings suggested "that problem-solving performance motivation was highest at moderate stress levels" (p. 34).

Albrecht (1982) looked at stress management techniques of 101 nurses (Registered and Licensed Practical Nurses) on all shifts in five acute care units of a major metropolitan hospital (325 bed) in the Northwest. The study sought to better understand the extent and usefulness of the coping strategies nurses used in facing job-related strain producing situations. Burnout was used as an outcome indicator of strain. Albrecht's report did not provide statistical information regarding the investigation. The high-burnout group demonstrated dysfunctional and indirect coping responses: binge eating and drinking, thinking about changing jobs, talking with friends and family, taking drugs and being depressed. Albrecht described this behavior as flight responses rather than problem-solving approaches utilized by the low-burnout group. In contrast, the low burn-out nurses responded with functional, direct coping mechanisms: evaluation of the difficulties and talking them out with other staff nurses in the same situation, exercise, prayer, seeking help from supervisors, studying nursing materials, communicating with others for joint solutions and becoming motivated to change the situation. Albrecht suggested that to optimize stress, nurses should maintain a healthy balance of self-oriented strategies (physical exercise, controlled dietary habits, creative home activities) and relational strategies (involvement in social participation in the functioning of the unit).

McWilliams (personal communication, July 21, 1986) investigated the levels of job-related stress of 156 professionals in helping professions. The Tennessee Stress Scale - R (TSS - R) was administered to four professional groups: (1) Education, (2) Medical, (3) Government Service, and (4) Industry. The total population mean scores were: total stress score 23.39, stress producers 8.16, stress coping mechanisms 7.84, stress symptoms 7.64. All scores fell within the moderate level. Nurses mean scores were: total stress score 24.36, stress producers 9.23, stress coping mechanisms 8.27, stress symptoms 7.77. Nurses' scores fell within the moderate levels as well. The most frequently reported symptoms from the population ($N = 156$) were fatigue (83.3%), nervousness (75%), irritability (72.4%), headache (62.8%), professional burnout (60.3%), undiagnosed pain (51.3%), and sleep problems (50.6%). There were no reported differences between staff, mid-level management and executive job classes.

Evidence from previous research suggests that role conflict and role ambiguity are related to physical, psychological and behavioral forms of strain. Role conflict and ambiguity with their reported adverse personal outcomes will be reviewed in the following section.

Role Conflict and Strain

Role conflict was defined as "the simultaneous occurrence of two or more sets of pressures such that compliance with one would make more difficult compliance with the other" (Kahn et al., 1964, p. 19). Another way of looking at role conflict is

in terms of the dimensions of congruency-incongruency compatibility-incompatibility in the requirements of the role, where congruency or compatibility is judged relative to a set of standards or conditions which impinge upon role performance (Rizzo, House, & Lirtzman, 1970, p. 155).

Van Sell, Brief, and Schuler (1981) summarized these definitions by viewing role conflict as a "situation in which [an individual] may be required to play a role

which conflicts with [his/her] value system or to play two or more roles which conflict with each other" (p. 44).

Kahn et al (1964) described several forms of role conflict that can occur in the organization: person-role conflict, interrole conflict, intersender conflict and intrasender conflict. Rizzo et al. (1970), developers of the Role Conflict and Ambiguity Questionnaire, described the various kinds of conflict:

- 1) Conflict between the focal person's internal standards or values and the defined role behavior (person-role conflict or intrarole conflict)
- 2) Conflict between the time, resources, or capabilities of the focal person and defined role behavior. When the incompatibility is generated by the organization it is intrasender conflict; generated by the focal person, it is person-role conflict.
- 3) Conflict between several roles for the same person which require different or incompatible behaviors or changes in behavior as a function of the situation (role overload and interrole conflict).
- 4) Conflicting expectations and organizational demands in the form of incompatible policies, conflicting requests from others and incompatible standards of evaluation [not labeled] (p. 155).

Studies of role conflict have been demonstrated to be correlated with organizationally dysfunctional outcomes as well as personally dysfunctional outcomes. Among the organizationally dysfunctional outcomes reported were job dissatisfaction (Kahn et al, 1964; Miles, 1975; Posner & Randolph, 1980; Tosi, 1971; Scalzi, 1984), decreased job performance (Posner & Randolph, 1980), decreased confidence in the organization (Kahn et al, 1964), decreased organizational commitment (Rosse & Rosse, 1981), propensity to leave (Brief & Aldag, 1976; Hamner & Tosi, 1974), inadequate perceived leader behavior (Rizzo, et al., 1970), and unfavorable attitudes toward role senders (Miles, 1975). In this particular study, individual strain was measured. Therefore, discussion of research here was limited to personally dysfunctional outcomes of role conflict.

Studies have found that the focal person's experienced job-related tension was positively related to role conflict (Kahn et al. 1964; Miles, 1975). The job-

related index used by Miles (1975) differed from Kahn et al's (1964). Miles (1975) noted a weakness in Kahn et al's study in that the job-related tension index used had an item selection bias problem. Therefore, Miles utilized the tension measure developed by House and Rizzo (1972). Miles' "correlational-causal analysis" (p. 337) demonstrated role conflict was related to job-related tension but causality was indeterminate ($N = 202$, $r = 0.27$, $p < 0.01$). Brief and Aldag (1976) measured job-related tension using a shortened version of the job-related tension tool used by Kahn et al (1964) and found role conflict significantly positive ($N = 77$, $r = 0.41$, $p < 0.001$). Miles and Brief and Aldag both used the Role Conflict and Ambiguity Questionnaire (RCAQ) to measure role conflict; mean role conflict scores were not reported.

Another adverse personal outcome associated with role conflict is job-related anxiety. In fact, some researchers have used the term interchangeably with tension. For example, Rizzo et al. (1970) measured job-induced anxiety, somatic tension and general fatigue and discomfort and called it anxiety. Questionnaires were administered to two randomly selected samples of employees in a large manufacturing company. All subjects were salaried managerial and technical employees, excluding salesman, first level foremen, and clerical personnel. Sample A ($N = 199$) were from the central office and main plant, while Sample B ($N = 91$) were research and engineering personnel. Mean role conflict scores for Samples A and B were 4.19 and 3.86 respectively. Job-induced anxiety positively correlated with role conflict but not at or below the 0.05 significance level. Group A showed positive correlation among role conflict, somatic tension ($r = 0.14$, $p = < 0.05$), and general fatigue/discomfort ($r = 0.24$, $p < 0.05$). Group B demonstrated a positive significant correlation only between role conflict and general fatigue/discomfort ($r = 0.21$, $p = 0.05$).

Tosi (1971) found that role conflict was positively related to anxiety and job threat ($N = 488$ managers, $r = 0.14$, $p < 0.01$). Tosi utilized a priori scale designed to measure the manager's concern about his job as it may be affected by conditions in the future over which he may have little or no control. Hamner and Tosi (1974) implemented the same tool on a sample of 61 high-level managers, and reported role conflict was positively related to perceived threat and anxiety ($r = 0.27$, $p < 0.01$).

Physical, emotional, and mental exhaustion were items measured by the Tedium Measure (Pines, Aronson, & Kafry, 1981). Stout and Posner (1984) utilized this tool to measure levels of job related stress in relation to levels of role conflict for a sample of direct service workers ($N = 138$). Using a 0.05 significance level, stress correlated positively with role conflict ($r = 0.21$).

Role Conflict and Coping Mechanisms

Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) revealed some degree of role conflict is inevitable. Coping with role conflict does not mean eliminating this form of role stress. As pointed out earlier, an optimum level of stress appears necessary and desirable both to prevent distress and strain and attain eustress. Little research has been done on coping methods to reduce stress from role demands (Van Sell, Brief, Schuler, 1981).

Kahn and associates' (1964) suggestions for coping or responding to role stress were presented earlier. Building upon the coping responses identified by Kahn et al., Schmalenberg and Kramer (1979) suggested six coping responses to reduce conflict: (1) consider the degree of involvement with the role senders (important/unimportant); (2) appraise the distribution of power of the role senders making the demands; (3) insulate role activities from observability by the role senders; (4) make the role senders aware of the conflicting demands; (5) obtain social support from role senders who are experiencing similar problems;

and (6) break off relations with the role sender making the demands. For new graduate nurses, Schmalenberg and Kramer discovered that these nurses could identify role conflict and ambiguity but coped inadequately by doing nothing or by complying to role senders demands. These coping mechanisms often resulted in symptom formation (physical and emotional illness); a maladaptive state. A final coping effort utilized by the new graduate nurses was entitled "Do it yourself" (p. 228). This meant that when other's were not meeting the focal person's expectations, he/she would accomplish the task; a response behavior which may or may not be maladaptive.

Creative problem solving is another technique in reducing role conflict (Schulz & Johnson, 1971). This implies that the focal person can identify the conflict. Then, role behavior is clarified, determined, and directly communicated to the role sender making role demands. Schulz and Johnson claimed that the participants subsequently focus on the end results and work toward those desired role behaviors. Creative problem-solving "maximizes creativity and sublimates hostility, self-pity and rigidity" (Schulz & Johnson, 1971, p. 47).

Role bargaining is another way to deal with role stress. Direct role bargaining involves the focal person communicating the perceived conflict to those role senders who established the role expectations. Then, the two parties mutually negotiate a change in those expectations (Tappen, 1983). Indirect role bargaining occurs when the focal person alters the role to suit himself/herself without discussing the change with role sender(s). Tappen contended this indirect method is inappropriate for some situations but may resolve the role pressure subtly and without resistance from the role sender(s).

Nonconformity is similar to indirect bargaining but involves a higher risk for the focal person. Unlike indirect bargaining where support from other people is employed, "nonconformity is used in spite of resistance" (Tappen, 1983, p. 31).

Withdrawal from a stressful role experience may be partial or complete. Partial withdrawal suggests less role participation along with diminished commitment to the role. This may effect the focal person's work performance and in the long run be detrimental to the person as well as the organization. Totally withdrawing from a highly stressful role is usually the last resort and may be constructive when the individual is distressed (Tappen, 1983).

Hall (1972) presented a model of coping with role conflict in 261 college-educated women. The model was based on three aspects of a person's roles: (1) structurally imposed demands, (2) personal role conception, and (3) role behavior. Through exploratory research methods, Hall categorized three general types of coping strategies: (I) structural role redefinition, (II) personal role redefinition, and (III) reactive role behavior. Hall explored if a relationship existed between the type of role coping behavior used by women and overall career satisfaction. Results indicated that Type III strategies (defensive in nature), were the strongest and most negatively correlated with satisfaction ($r = -0.33$, $p < 0.01$). However, Hall concluded that the simple act of coping versus noncoping was more strongly related to satisfaction than the particular type of coping strategy utilized.

Role Ambiguity and Strain

Role ambiguity was defined as a situation in which "the single or multiple roles which confront the individual may not be clearly articulated in terms of behaviors or performance levels expected" (Van Sell, Brief, Schuler, 1981, p. 44). A focal person may experience ambiguity either because information about the role is nonexistent or because existing information was communicated inadequately (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). In development of the Role Conflict and Ambiguity Questionnaire, Rizzo, House and Lirtzman (1970) utilized the term role ambiguity in terms of,

- (1) the predictability of the outcome or responses to one's behavior and,
- (2) the existence or clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate (p. 155).

In other words, the focal person is unclear regarding role expectations, methods of meeting the expectations and/or the consequences of role performance (Kahn et al., 1964; Rizzo et al., 1970).

Role ambiguity has been examined in much the same fashion as role conflict. Kahn et al. (1964) found a significant positive relationship between job-related tension and role ambiguity. Likewise, Brief and Aldag (1976) showed a positive relation between role ambiguity and job-related tension ($N = 53$, $r = 0.51$, $p < 0.01$). Miles (1975) supported a positive correlation between role ambiguity and job-related tension ($N = 202$, $r = 0.24$, $p < 0.01$). Of import was the finding that role ambiguity was more strongly related to adverse outcomes than role conflict.

Brief and Aldag (1976) found that anxiety-stress was significantly positively related to role ambiguity ($N = 77$, $r = 0.20$, $p < 0.05$). Rizzo et al. (1970) used a job-induced anxiety measure that included somatic tension, and general fatigue/discomfort. Group A ($N = 199$) demonstrated the following results: job-induced anxiety (nonsignificant), somatic tension (nonsignificant), and general fatigue/discomfort ($r = 0.22$, $p < 0.05$). Group B demonstrated significant ($p < 0.05$) findings for only job-induced anxiety ($r = 0.22$) and general fatigue/discomfort ($r = 0.25$). Using a priori scale for job threat and anxiety, Tosi (1971) showed that these variables were negatively ($r = -0.07$) but not significantly associated for 488 managers. On the contrary, utilizing this same tool on 61 high-level managers, Hamner and Tosi (1971) reported that role ambiguity was positively correlated with threat and anxiety ($r = 0.33$, $p < 0.01$).

Other measures of role strain have included depressed mood and low

self-esteem. Beehr (1976) sampled 651 subjects employed in five midwestern work organizations. Role ambiguity was significantly ($p < 0.01$) positively related to depressed mood ($r = 0.19$) and low self-esteem ($r = 0.19$). Increased fatigue ($r = 0.32$, $p < 0.01$) and nervous tension ($r = 0.32$, $p < 0.01$) were other adverse personal outcomes associated with role ambiguity identified by 143 white collar employees (Beehr, Walsh, & Taber, 1976). Caplan and Jones (1975) examined the role of Type A personality in the relationship between role ambiguity and psychophysiological strains. Role ambiguity was significantly positively associated with anxiety ($N = 122$, $r = 0.25$, $p < 0.05$) but not with heart rate, resentment or depression. Furthermore, stress (role ambiguity and overload) had greater effects on strain in the Type A individual versus the Type B personality. When strain was measured using the Tedium Measure (Pines, Aronson, & Kafry, 1981), a significant positive relationship with role ambiguity was noted ($N = 138$, $r = 0.42$, $p < 0.05$) (Stout & Posner, 1984).

Margolis, Kroes, and Quinn (1974) conducted a study to investigate the associations between strain and six different types of job stress among a representative population of American workers ($N = 1,496$). The following strain indicators were selected to represent valued behavioral states according to the perspectives of workers, their employers, and society at large: overall physical health, escapist drinking, depressed mood, self-esteem, life satisfaction, job satisfaction, motivation to work, intention to leave job, frequency of suggestions to employer, and absenteeism from work. The six job stress indices were: role ambiguity, underutilization, overload, resource inadequacy, insecurity, and non-participation. Data was obtained using an interview technique. Results indicated the overall job stress was significantly ($p < 0.001$) related to all measures of strain except one (frequency of suggestion to employer). Product-moment correlations between each of the job stresses and each of the strain measures were obtained.

Role ambiguity was significantly ($p < 0.05$) related to depressed mood ($r = 0.12$), intention to leave job ($r = 0.07$), self-esteem ($r = -0.16$), life satisfaction ($r = -0.08$), job satisfaction ($r = -0.13$), and motivation to work ($r = -0.06$).

Role Ambiguity and Coping Mechanisms

Management strategies for ambiguous role situations are quite similar to those used for role conflict. Problem solving is probably the most popular approach. Once the problem is identified as role ambiguity, the focal person must then determine whether the problem is due to lack of necessary role information or lack of communication of existing role information (LaRocco, 1978; Tappen, 1983). If the problem is lack of information, research must be done to enhance role definition. Schulz and Johnson (1971) contended that the focal person will suffer less role ambiguity if administrative tools such as management by objectives, job descriptions, and administrative manuals are available to the focal person. If communication is the problem, the focal person must actively seek to enhance communication (LaRocco, 1978).

Kahn et al. (1964) indicated that withdrawal may be a short-term coping response that relieves role stress, however in the long run is self-defeating. Afterall, role ambiguity is lack of information and withdrawal reduces the opportunities to acquire needed information. Kahn and his colleagues recommended that the focal person increasingly seek clarity by increasing the frequency of communication with role senders.

Role of Nurse Administrator

The role of the nurse administrator has evolved from that of a superintendent of nurses associated with the characteristics of feminine virtue, to that of a contemporary top-level executive confronted with multiple roles in a complex and turbulent health care delivery system (Aydelotte, 1984a; Kulbok, 1982;

Molen, Jayne, Blyth, & McCloskey, 1985). The current organizational climate in which the nurse administrator operates is characterized by sicker clients whose length of hospital stay has shortened, high technology, increasing specialization, tighter regulations, and greater economic constraints. The scope of his/her responsibilities extends beyond the nursing service department to functions as a member of the executive management and leadership team on administration of the entire health care organization (Kulbok, 1982).

The top level nurse administrator's primary concern is to "provide the highest quality of nursing care possible within the employing health care organization" (American Nurses' Association, 1978, p. 30). This charges the chief nurse executive with the overall responsibility for the practice of nursing within the health care facility along with the management in administration of the entire organization. Kulbok (1982) described the role as follows:

In the capacity of executive-level administrator, she is expected to perform an array of activities with an unusually diverse professional work group. This collection of activities, frequently labeled the 'role' of the administrator, is focused on planning, organizing, directing, controlling, and evaluating the performance of the entire nursing department in concert with the philosophy and goals of the organization (Kulbok, 1982, p. 199).

A recent survey of nurse-administrator members of the American Society of Nursing Service Administrators (ASNSA) provided a profile of the contemporary nurse administrator in the United States (Aydelotte, 1982a, 1982b). The sample of 500 was drawn randomly from top level nurse executives on the ASNSA membership list. Of this number, 343 persons (68.6%) responded to the questionnaire (Aydelotte, 1982b). The typical top level nurse administrator is female (96%), married (56%), and 40 to 49 years of age (43%). She has held the nurse administrator position one to five years. Basic nursing education had been in a hospital school of nursing (69.1%). Of the participants, 61.6% held master's degrees; 53.3% of this number had education in some area of administration. The

majority of nurse administrators were promoted within their institution with most of them reporting previous administrative experience as a head nurse or supervisor (Aydelotte, 1982a).

Aydelotte (1984b) claimed that contemporary nurse administrators allocate over 80% of their time to administrative activity, 5 to 25% to job-related community activity, another 5 to 25% to professional organizational activity, and 0 to 4% in other activities to include direct patient care, research, union-related, outside consultation, and formal teaching. Administrative responsibilities consisted of administrative coverage for the institution, planning and prioritizing the overall hospital budget, personnel management, and hospital committee participation.

Role Stress and Strain

The nurse administrator role described above can be classified as being a diversified role set in a boundary-spanning position making it prime for role stress and strain. Snoek (1966) described role-set diversity when the "requirement to maintain working relationships with persons in a wide variety of complementary roles" (p. 363) exists. Using a national sample of wage and salary workers (N = 596), Snoek found that high job-related tension was associated with frequency of interaction with different classes of role senders as well as with the total number of different role relationships required by the subject's job. Role-set diversity was more common in supervisory than in non-supervisory jobs. Snoek explained,

The greater the diversification of the role set, the greater the potential for role conflict and ambiguity because each class of senders is apt to develop expectations that are more attuned to its own goals, norms, and values than to the total requirements of the office holder's role (p. 364).

In addition, differences in role-set diversity and number of supervisory jobs accounted for the high prevalence of tension in large as compared to small organizations. Indeed, data provided some support for the hypothesis that high

diversity is positively related to more tension in large versus small organizations. Results also suggested that once role diversity and supervisory responsibility were accounted for, the relationships between tension and sex, age, or education were substantially reduced.

Kahn, Wolfe, Quinn, Snoek, and Rosenthal's (1964) investigation pointed out role conflict is especially likely to occur in boundary-spanning positions. These are role sender positions located in a different role system, be it within or out of the focal person's organization. Role pressures increase because each role system operates under a different umbrella of goals, objectives, and norms.

The nurse administrator, being in a highly diversified role, has great potential for role conflict and ambiguity. Arndt and Laeger (1970a) examined role strain in 47 California nurse administrators who had been in their positions for a minimum of one year. Twenty-one subjects were in hospitals of less than 250 beds; 24 were in larger hospitals. The purpose of the study was to determine if the nurse administrator's position is a diversified role set and if so, to explore its relationship to role strain. In addition, the investigators sought to relate tension with organizational size, length of service, age, and educational level.

The frequency of daily interaction with four classes of role senders (administrative superiors, colleagues/department heads, nursing colleagues and supervisees, and significant others, i.e., doctors, medical research, patients and families, and unions) was used to determine whether the administrator's role set was diversified. Role strain was measured using the Job Related Tension Index (Kahn et al., 1964) which actually measures common job problems of role conflict, role overload, person-role conflicts, and role ambiguity. Results showed that all four classes of role senders were part of the administrator's role set. Seventy-five percent of the subjects identified these as role senders whose demands were hard to predict and control. Of the four major classes of role senders, nursing colleagues

and supervisees were considered the most important role senders. These researchers felt it was likely that role set diversity produced role strain although they reported it was not possible to directly relate the two variables because of the limitations imposed by dealing with only one work situation. Role strain was not found to be dependent on hospital size, age, or educational level. However, decreased tension was likely to occur the longer the administrator served in the same institution and/or position although this was not statistically valid. When the tension scores for individual job problems were obtained, role conflict, role overload, and role ambiguity ranked highest as tension-producers. Another important point made in discussion of the findings was that the administrator was in a boundary-spanning position and thus was subject to conflicting role pressures (Arndt & Laeger, 1970b).

Scalzi (1984) conducted an exploratory study of the relationship between role conflict and ambiguity and depressive symptoms in top level nurse administrators of general medical surgical hospitals in Los Angeles County, California. The investigation was completed in two stages using survey questionnaires and interviews. In the first stage, the Role Conflict and Ambiguity Questionnaire (Rizzo et al., 1970) was used to determine the prevalence of role conflict and role ambiguity in top level nurse administrators ($N = 75$). The Center for Epidemiologic Studies Depression Scale was used to measure the prevalence of one type of role strain, depression, in top level nurse administrators. During stage two, detailed interviews with a randomly selected sample ($n = 30$) from the larger population were conducted to (1) control for possible confounding effects of demographics, organizational characteristics, and life stresses external to the job; and (2) examine potential mediating effects of perceived job satisfaction, perceived sources of job stress, self-reported coping strategies, and social support network on the experience of depressive symptoms.

The median role conflict score was 4.3 with a range of 1.4 to 6.9. The median role ambiguity score was 2.7 with an overall range of 1.7 to 3.0. The means for role conflict and role ambiguity were 4.0 and 2.7 respectively. These scores indicated a high level of role conflict and low level of role ambiguity.

Role conflict in top level nurse administrators was negatively related to years in present position ($r = -0.26, p < 0.05$) but not years of prior experience as a top level nurse administrator. Those nurse administrators with a master's degree experienced more role conflict than those with a bachelor's degree. Scalzi (1984) contended that nurse administrators exhibited a high level of role conflict primarily as overload. Overload was measured by one question on the RCAQ. However, the nurse administrators' scores were uniformly high compared to other comparable populations (Rizzo et al., 1970). Contributing factors were identified as role set diversity, boundary position, and clinical background. The most prevalent job-related stressor identified was the quality concern stressor; concerns regarding problems that effect the quality of client care. Scalzi agreed with McClure (1984) that one major source of conflict which often leads to stress and burnout in nurses in general, is the frustraion of trying to make the system responsive to patients' needs. High levels of the quality concern factor were associated with decreased job satisfaction ($r = 0.50, p < 0.01$), increased role conflict ($r = 0.50, p < 0.01$) and increased depressive symptoms ($r = 0.40, p < 0.05$). High role conflict was also associated with decreased job satisfaction ($r = 0.40, p < 0.01$) and depressive symptoms ($r = 0.40, p < 0.05$). The quality concern stressor may have confounded the conflict-depression relationship.

Role ambiguity was unrelated to the demographic variables. For a management group, the top level nurse administrators were characterized by an unusually low level of role ambiguity. Scalzi (1984) explained the low level could be due to being promoted to the nurse administrator position from the bottom-up

and increased communication with role senders. The only significant correlation reported for role ambiguity was with role conflict ($r = 0.40$, $p < 0.01$), a relationship often seen for these role stress constructs. No confounding effect of demographic variables or life stresses on the role stress-depression relationship was found.

Scalzi (1984) also interviewed subjects regarding job situations in which they felt stress and had them describe how they coped, responded to, or managed the stressful situation. Then, performing detailed content analysis, Scalzi identified 10 coping strategies or responses: (1) considers resigning, (2) psychologically drops out, (3) dysfunctional competition in attacking sources of frustration, (4) develops space at work, (5) develops space outside work, (6) identifies problem-solving resources, (7) utilizes support network, (8) security within corporation, (9) somatization, and (10) changes activity by physically leaving situation long enough to gain new perspective. Both high-depressive and low-depressive symptom groups utilized a social support network. The low-depressive symptom group used the strategy of identifying space at work, whereas the high symptom group considered resigning. Moreover, the high-depressive subjects demonstrated greater use of the strategies of somatization and changes activity.

Summary

This chapter has presented the literature review in relation to organizational strain producers and individual responses to those stressors in terms of biopsychophysiological outcomes. More specifically, role conflict, role ambiguity, and role strain in nurse administrators was discussed. The conceptualization of role stress and role strain based on the combination of the Theory of Role Dynamics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and Ward's (1986) explication of role strain was also elucidated. In the next chapter, methodology of this study is presented in detail.

CHAPTER 3

METHODOLOGY

The research design used for this investigation was nonexperimental in which no new treatments or changes were introduced to control or manipulate the variables (Polit & Hunglar, 1983). The approach utilized was both descriptive correlational in which the extent to which the variables are related were delineated, and descriptive comparative which sought to find if the dependent variable (role strain) was the same between groups (Shelley, 1984). These groups represented three general levels of role stress experienced by chief nurses: Group 1 - high levels of both role conflict and role ambiguity; Group 2 - a high level of either role conflict or role ambiguity and low level on the other; and Group 3 - low levels of both role conflict and role ambiguity. The variables under study were: role conflict, role ambiguity, and role strain. The purpose of this study was to determine if there is a relationship among role conflict and ambiguity and role strain in United States Air Force (USAF) chief nurses. In the following sections, the setting, population and sample, instruments, protection of human subjects, data collection and analysis to be used in this study are presented.

Setting

This study took place in a variety of United States Air Force health care facilities ranging from outpatient clinics to medical centers within the continental United States to which a chief nurse was assigned. All facilities were governed by USAF regulations which give broad guidelines for organizational policies and procedures. However, each chief nurse formulated and streamlined nursing service policies and procedures to his/her individual health care facility. Salary

and authorized manpower strength were determined at the Department of Defense Defense (DOD) level. All USAF health care facilities provided care to any active duty or retired military members and their dependents.

Population and Sample

There were a total of 85 USAF health care facilities in the continental United States that had a chief nurse assigned. Those subjects who met the following criteria were included in the study:

1. had a primary Air Force Speciality Code 9716
2. had the duty title and position of Chief, Nursing Service.

3. were listed in the USAF Worldwide Medical Directory for Command and Chief Nurses (M. Campbell, personal communication, August 7, 1986). A sample of at least 42 was considered sufficient for analysis of the data (Polit & Hunglar, 1983). Dillman's (1978) Total Design Method was used and a return rate of 60% (31 responses) was sought.

Instruments

The instruments used in data collection were a Demographic Data Sheet (Appendix D), the Role Conflict and Ambiguity Questionnaire (RCAQ) (Appendix A), and the Tennessee Stress Scale - R (TSS - R) (Appendix B). The Demographic Data Sheet, developed by the researcher was used to collect information about characteristics of the sample. The purpose of the RCAQ, developed by Rizzo, House, and Lirtzman (1970), was to determine the subject's perceived role ambiguity and role conflict. The purpose of the TSS - R, developed by J. M. McWilliams (personal communication, July 21, 1984) was to determine the levels of job-related stress, stress-producers, stress-coping mechanisms and stress symptoms. This study utilized the TSS - R to measure total role strain, strain producers, strain coping

mechanisms and strain symptoms. The instruments will be discussed in the following paragraphs.

Demographic Data Sheet

The first instrument was a Demographic Data Sheet (DDS) developed by the researcher for this study. It was used to describe the sample. The following information was requested: age, rank, gender, basic nursing education, highest degree earned, participation in the CN Residency Program, number of years in military service, length of time as a chief nurse (CN), length of time in current CN position, bed size of health care facility, average inpatient occupancy rate during Fiscal Year 86, average monthly outpatient visits for Fiscal Year 86, and overall perceived levels of role conflict and role ambiguity. The DDS was critiqued for clarity by 10 nurse colleagues prior to implementation of this study. No revisions were necessary.

Role Conflict and Ambiguity Questionnaire

The second instrument was the Role Conflict and Ambiguity Questionnaire (RCAQ) developed by Rizzo, House, and Lirtzman (1970) designed to measure role conflict and role ambiguity in complex organizations. The RCAQ was one of five questionnaires developed as part of a broader survey whose purpose was to identify management development needs and barriers to effective implementation of a management program in a large manufacturing company (Rizzo et al., 1970). The RCAQ was a 30-item self-administered questionnaire which took 15 to 20 minutes to complete. Questions 10 and 18 were repeated on the original survey, therefore it was actually a 29-item questionnaire. Fifteen odd-numbered items measured role conflict, for example: "I have to buck a rule or policy in order to carry out an assignment", "I receive an assignment without the manpower to complete it", and "I work on unnecessary things". Fourteen even-numbered items measured role

ambiguity, for example: "I feel certain about how much authority I have", "I know that I have divided my time properly", and "I know exactly what is expected of me". Specific questions for role conflict (items 5, 11, 13, 19, 21, 23, 25, 27) and role ambiguity (items 2, 4, 10, 12, 20, 26) were scored because they have been demonstrated to be factorially identifiable and independent (Rizzo et al, 1970).

The RCAQ was a Likert-type format with a seven-point scale that ranged from "definitely not true of my job" to "extremely true of my job". One point was assigned to definitely not true responses; seven points to extremely true responses. The maximum score for role conflict was 56; minimum score was 8. The higher the score on the conflict items, the higher the level of perceived role conflict. Scores greater than or equal to the mean, indicated high role conflict; below mean scores indicated low role conflict.

Role ambiguity questions were written in the direction of role clarity. Therefore, to indicate role ambiguity, one point was assigned to extremely true responses; seven points to definitely not true responses. The higher the scores on the ambiguity items, the higher the level of perceived role ambiguity. The maximum score for role ambiguity was 42; minimum score was 6. Scores greater than or equal to the mean, indicated high role ambiguity; below mean scores indicated low role ambiguity.

The construct validity of the RCAQ scale was obtained "against measures of organizational and management practices, leadership behavior, satisfaction, anxiety, propensity to leave, and demographic variables" (Rizzo et al., 1970, p. 155). The study utilized 290 salaried managerial and technical employees of a large company. Results of factor and item analysis indicated that "role conflict and ambiguity emerged as separate dimensions" (Rizzo et al., 1970, p. 162).

Using the Kuder-Richardson method with Spearman-Brown corrections, Rizzo et al. (1970) reported an estimate of internal consistency to be 0.82 and 0.816

for role conflict and 0.80 and 0.78 for role ambiguity for a group of research and engineering personnel, and a group of salaried managerial and technical employees respectively. Using 77 subjects, Brief and Aldag (1976) reported internal consistency reliabilities for role conflict and role ambiguity as 0.71 and 0.70 respectively.

Tennessee Stress Scale - R

The third instrument used was the Tennessee Stress Scale - R (TSS - R). The TSS - R was developed by J. M. McWilliams (personal communication, July 21, 1986) to measure work-related stress in professionals. The TSS - R was created out of J. M. McWilliam's (personal communication, August 27, 1986) interest in identifying job-related stressors specific to administrative and professional roles, and developing cognitive behavioral intervention strategies for stress management. Selye's (1956) fight or flight model was the basis for the definition of stress and the positive or negative handling of stress. The TSS - R was derived from a tool used to study the effects of stress on women in management in 1980. Professional colleagues served as judges for the original 160-item test. After administration to graduate students in psychology, women in management throughout the United States, and several pilot studies, two major revision occurred. The TSS - R used in this study is the final revision made in 1984.

The 60-item tool measured stress in three areas: Stress producers, stress coping mechanisms, and stress symptoms. For purposes of this study the term stress was changed to strain in keeping with the theoretical definition of strain. The TSS - R was a self-administered questionnaire which took 15 to 20 minutes to complete. Respondents marked either "yes" or "no" to the statements in the appropriate columns.

Items 1 through 20 measured strain producers and addressed statements such as: "I compare my job performance with others in my organization", "I

assume a nurturing leadership role", and "I lack experience in major decision making responsibilities". All items that had 'yes' responses were scored as 1 except items 7 and 8. 'No' responses for items 7 and 8 were scored as 1. The total score was the strain producer score categorized as follows: mild (score of 5 or below), moderate (6 to 11), severe (12 or above).

Items 21 through 40 measured strain coping mechanisms and addressed statements such as: "When under stress, I exercise regularly", "When problems arise, I tend to blame others", and "When under stress, I find a cocktail before dinner is relaxing". All items with 'yes' responses were scored as 1 except items 21, 26, 27, 28, 29, 32, 34, 35, 38, and 39. 'No' responses for these 10 items were scored as 1. The total score was the strain coping mechanism score categorized as follows: mild (4 or below), moderate (5 to 10), severe (11 or above).

Items 41 through 60 measured strain symptoms and addressed statements such as: When work is stressful, I have experienced the following: High blood pressure, ulcers, allergies. All items that had 'yes' responses were scored as 1. The total score was the strain symptom score categorized as follows: mild (4 or below), moderate (5 to 10), severe (12 or above).

The total strain score was obtained by summing the above three sub-scores. The total strain score was categorized as follows: mild (15 or below), moderate (16 to 34), severe (35 or above).

J. M. McWilliam's (personal communication, August 27, 1986) test-retest reliability was $r = 0.88$ on all three scales. Validity measures showed that all measures on the TSS - R were correlated highly with the Neuroticism Scale of both the Eysenck Personality Inventory and the Eysenck Personality Questionnaire, $r = 0.89$ and $r = 0.83$ respectively.

Protection of Human Subjects

This research study proposal, the subject cover letter with Privacy Act Statement (Appendix E), first follow-up postcard reminder (Appendix F), and second follow-up reminder (Appendix G) was approved by the Northwestern State University Committee on Protection of Human Subjects in Research (Appendix H) and by the United States Air Force (Appendix I). Once approval from these agencies was granted, data collection began. Privacy, anonymity, and confidentiality was guaranteed by explaining in the cover letter that individual subject's questionnaire results would be returned to a disinterested third party distribution service. Subjects were assured anonymity by requesting they write no names on the instruments and that the code on the return envelope was for administrative purposes only and did not identify their responses. Finally, participants were insured that only summarized results would be made public.

Benefits and risks were addressed in the cover letter. Possible risks or discomforts included: (1) the period of time required to complete the questionnaires, and (2) some of the questions may have made the participant uncomfortable or may have been difficult to answer. Possible benefits included: (1) subjects may have developed an awareness of their role stress, (2) the results may contribute to profiling the USAF chief nurses, and (3) results may help to understand the impact of the organizational environment on USAF chief nurses. The investigator's name, address, and telephone number were included in the cover letter; subjects were told to contact the investigator regarding any concerns or questions about the study. Each subject was informed of his/her freedom to withdraw consent and discontinue participation without penalty up until the time the questionnaire packet was mailed to the distribution service.

Data Collection Procedures

The data for this study were collected from early-November 1986 through mid-December 1986 (11-4-86 to 12-16-86) via a mail-survey. Polit and Hunglar (1983) noted that mail-surveys are useful when the sample is distributed over a wide geographical location. Information was obtained from chief nurses assigned within the continental United States.

Each subject received a questionnaire packet containing the following items: A letter of explanation with a Privacy Act Statement in accordance with AFR 12-35 (Appendix E), a postage-paid (first-class) white envelope ($3\frac{5}{8}$ inches by $6\frac{1}{2}$ inches) preaddressed to the distribution service with the distribution service's return address, the Role Conflict and Ambiguity Questionnaire (RCAQ), the Tennessee Stress Scale - R (TSS - R) and the Demographic Data Sheet. The information was put in an individual postage-paid (first-class) white envelope ($4\frac{1}{8}$ by $9\frac{1}{2}$ inches) and sealed. This questionnaire packet was originally mailed on a Tuesday. Dillman (1978) suggested this day of the week for several reasons: (1) the subject receives the packet as soon after the mailout date as possible; (2) weekend mail buildup is avoided; and (3) if the packet is forwarded, the respondent will most likely receive it the same week it was mailed. Respondents were requested to complete and return the questionnaire packet within two weeks (11-18-86). An information letter (Appendix J) was sent to all respective United States Air Force (USAF) command nurses as a matter of protocol letting them know that their chief nurses were being asked to participate in a USAF approved survey. Follow-up mailings were made to participants at one and three weeks after the initial mailing. At one week, a postcard reminder (Appendix F) was sent to everyone thanking those who had responded and reminding those who had not. At three weeks, a short cover letter (Appendix G) and replacement questionnaires

were sent to nonrespondents only as identified by the distribution service's use of the coded response envelopes.

As questionnaire packets were returned, the distribution service matched the two-digit coded return envelope with the subject's name. To assure anonymity, only the distribution service maintained a list of respondents and nonrespondents for use in the three-week follow-up letter. The distribution service was responsible for implementing the follow-up mailing at three weeks and for making a roster of those subjects requesting aggregate results of the study. The code on the three-week follow-up return envelope included the letter "D" to prevent use of two surveys from one respondent. As the investigator received each questionnaire packet from the distribution service, a two-digit code was placed in the upper left-hand corner of each set of surveys in numerical order beginning with "01" to facilitate organization of data.

Methods of Data Analysis

The planned methods of data analysis are described here. Demographic data were used to describe the characteristics of the sample. Descriptive statistics were used to analyze the demographic data. Frequencies, percentages, means, and standard deviations were calculated.

Null hypothesis 1 was treated using the Pearson's product moment correlation (r). Using interval data obtained from the Role Conflict and Ambiguity Questionnaire (RCAQ), this correlation method "measured the 'co-relation' between sets of data, that is the way in which scores covaried with respect to one another" (Wynne, 1982, p. 184). Scatter plotting was demonstrated to "visualize the nature of correlation" (Wynne, 1982, p. 187). In order to reject the null, the critical value must be met or exceeded at a preset significance level of 0.05 or less.

Null hypotheses 2 and 3 were treated by using the Pearson product moment correlation (r). Scatter plotting was also used for these null hypotheses. At a preset

significance level less than or equal to 0.05, the critical value must be met or exceeded in order to reject these null hypotheses.

Null hypothesis 4 was treated using one-way Analysis of Variance (F-ratio) which compared the three groups (representing three general levels of role stress) simultaneously. To reject the null hypothesis, the critical value must be met or exceeded at a preset significance level less than or equal to 0.05.

Summary

This chapter has described the methodology of this study. The design, setting, sample, and protection of human subjects were presented. The instruments for data collection along with data collection procedures and the plan for data analysis were disclosed.

CHAPTER 4

FINDINGS

This chapter addresses a description of the sample and the findings of this study which were structured according to the four null hypotheses, instruments, and additional findings. Discussion of these findings and a summary concludes this chapter.

The data were collected by mail survey over a six week period (11-4-86 to 12-16-86). A total of eighty-five chief nurses were considered for inclusion in the study to gain a minium convenience sample of forty-two. Eighty (94%) questionnaires were returned and seventy-seven (90%) were useable. One of the questionnaires was incomplete, another was not answered because an interim chief nurse did not meet the sample selection criteria of the duty title and position of Chief, Nursing Service, and one questionnaire packet was returned unopened because of addressee unknown.

Description of Sample

The descriptive characteristics for this sample will be identified in this section. The characteristics will include age group, gender, basic nursing education, highest degree earned, current rank, years of military service, years as a chief nurse, time in current chief nurse position, participation in the chief nurse residency program, bed size of health care facility, average outpatient visits per month and average hours worked per week. Where missing data occurred, it was recorded on the respective table.

The presentation of the age group distribution, gender, and chief nurses' education for this sample (N = 77) is provided on Table 1. The mean age for the chief

Table 1
Age group distribution, gender, and education for 77
United States Air Force chief nurses

Variable	Number	Percentage
<u>Age</u>		
30 - 39	14	18
40 - 49	48	62
50 - 59	13	17
Missing Data	2	3
<u>Gender</u>		
Male	4	5
Female	72	94
Missing Data	2	3
<u>Basic Nursing Education</u>		
Diploma	52	68
Associate	1	1
BSN	23	30
Missing Data	1	1
<u>Highest Degree Earned</u>		
BSN	22	29
Master's	49	63
Other	5	7
Missing Data	1	1

nurses was 44.76 years and the range of ages was 34 to 56 years. There were 14 chief nurses between the ages of 30 to 39. They represented 18% of the sample. In the next group, 40 to 49 years of age, there were 48 chief nurses or 62% of the sample. Within the third age group, 50 to 59 years of age, were found 13 chief nurses or 17% of the sample. Of the 77 participants, 72 (94%) were female and 4 were male (5%).

The chief nurses' education is also summarized in Table 1. The diploma prepared chief nurses represented 68% (n = 52) of the sample for entry level education. The baccalaureate prepared nurses were the next largest group representing 30% (n = 23) of the sample. The associate degree chief nurses represented 1% (n = 1) of the sample. The subjects in this study distributed themselves across three categories which represented the highest degree completed by the respondent. Those chief nurses completing master's degrees represented 63% (n = 49) followed by the respondents with baccalaureate degrees in nursing science (n = 22; 29%). The chief nurses who responded to "other" were those subjects with non-nursing baccalaureate degrees.

Information about the subjects' current rank, their total number of years in military service, years as a chief nurse, time in current chief nurse position and participation in the chief nurse residency program is summarized in Table 2. The majority (n=72; 94%) of the chief nurses held the military rank of lieutenant colonel followed by colonel (n = 19; 25%). Majors (n = 4; 5%) composed the rest of the sample.

The chief nurses had a mean of 19.32 years active military service, with a range of 12 to 28 years. Those chief nurses with 12 to 15 years of service numbered 15 (19%). The largest number of chief nurses (n = 30; 39%) fell into the second category, 16 to 20 years, followed by the 21 to 25 year category which accounted for 28% (n = 22) of the subjects. The last category was 26 to 28 years of service constituting 8% (n = 6) of the sample.

Subjects indicated the length of time they had been a chief nurse ranged from 1 month, to 17 years, 8 months with a mean of 3 years, 11 months. These data were placed into seven categories. There were 9 (12%) chief nurses in the first category with less than 1 year experience in a chief nurse position. The second category, 1 to 2 years, was the largest with 29 (38%) chief nurses. The third category, 3 to 4 years, accounted for 17% (n = 13) of the sample while the fourth category, 5 to 6 years, was

Table 2
Current rank, years in military service, and chief nurse experience
for 77 United States Air Force chief nurses

Variable	Number	Percentage
<u>Current Rank</u>		
Major	4	5
Lieutenant Colonel	72	94
Colonel	19	25
Missing Data	1	1
<u>Years Military Service</u>		
12 - 15	15	19
16 - 20	30	39
21 - 25	22	28
26 - 28	6	8
Missing Data	5	6
<u>Years as a Chief Nurse</u>		
<1	9	12
1 - 2	29	38
3 - 4	13	17
5 - 6	14	18
7 - 9	5	7
10 - 12	4	5
13 - 18	3	3
Missing Data	1	1
<u>Time in Current Chief Nurse Position</u>		
<1	25	32
1 - 2	42	55
3 - 4	9	12
Missing Data	1	1
<u>USAF Chief Nurse Residency Program</u>		
Attended	13	17
Did not attend	62	81
Missing Data	2	3

slightly larger with 18% ($n = 14$). The fifth category, 7 to 9 years experience in a chief nurse position, yielded 7% ($n = 5$) of the sample. The last two categories, 10 to 12 years and 13 to 18 years, reflected 5% ($n = 4$) and 3% ($n = 3$) of the sample respectively.

The length of time chief nurses held their current chief nurse position was categorized into three groups. Time in their current position ranged from 1 month to 4 years with a mean of 1 year, 6 months. The first category were chief nurses with less than 1 year time in their current position ($n = 25$; 32%). The second category, 1 to 2 years, was the largest with 42 chief nurses (55%). The last category, 3 to 4 years constituted 12% ($n = 9$) of the study sample.

The United States Chief Nurse Residency Program was attended by 13 (17%) of the subjects. The greatest number of chief nurses ($n = 62$; 81%) did not attend.

The sample was also described in terms of workload (Table 3). Workload items included bed size and the average outpatient visits of the health care facility to which the chief nurse was assigned, along with the average number of hours the chief nurse reported working in one week's time in relation to chief nurse duties. The size of the health care facility was determined by the number of authorized inpatient beds. The mean size was 76 beds. The smallest facilities ranged in size from 4 to 48 beds ($n = 39$; 51%); medium size facilities from 50 to 100 beds ($n = 10$; 13%); large medical facilities from >100 to 350 beds ($n = 8$; 11%). One medical center, 1000 beds, was categorized separately. The other 18 facilities treated outpatients only.

Average outpatient visits per month were separated into 7 categories with a mean of 15,041 visits per month. The first category, 0 to 999, accounted for 2 (2%) of this study sample. The second category, 100 to 9,999 average outpatient visits per month, represented the largest group ($n = 28$; 36%). The third category, 10,000 to 19,999, made up the second largest grouping with 25 (32%) of the sample. The fourth category, 20,000 to 24,999, comprised 4 (5%) of the sample. The next two categories had 1 (1%) case each with 76,293 and 214,000 average outpatient visits per month.

Table 3
Descriptive statistics on workload items for 77
United States Air Force chief nurses

Vari ble	Number	Percentage
<u>Bed Size of Health Care Facility</u>		
0	18	23
1 - 50	39	51
51 - 100	10	13
>100 - 350	8	11
1000	1	1
Missing Data	1	1
<u>Average Outpatient Visits/Month</u>		
0 - 999	2	2
1000 - 9999	28	36
10,000 - 19,999	25	32
20,000 - 24,999	4	5
76,293	1	1
214,000	1	1
Missing Data	12	16
<u>Average Hours Worked/Week</u>		
40 - 55	38	50
56 - 70	34	44
Missing Data	5	6

The last workload item was average hours the chief nurse worked per week on chief nurse related duties. Those chief nurses working 40 to 55 hours per week constituted 50% ($n = 38$) fo the sample. Those working 56 to 70 hours represented 44% ($n = 34$); 6% ($n = 5$) was missing data. The mean for this demographic variable was 55 hours per week.

The typical chief nurse in this study was a 47 year old female lieutenant colonel with approximately 19 years of military service. She entered nursing via a

diploma program, did not attend the Chief Nurse Residency Program and subsequently earned a master's degree. The composite chief nurse has been a chief nurse for 3 years, 11 months, and has held her current position for 1 year, 6 months. She works 55 hours per week in a 76-bed health care facility which also treats 15,041 outpatients per month.

Findings

The statistical findings for each of the four hypotheses are discussed in this section. The statistics were accomplished utilizing the computer software program entitled the Statistical Package for the Social Sciences, second edition (SPSS^x, 1986).

Hypothesis 1

The first null hypothesis was: There will be no significant relationship between role conflict and role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) in United States Air Force (USAF) chief nurses. The Pearson product moment correlation coefficient was used to test this relationship using 77 subject's scores. The resultant r value was 0.3063, $p = 0.007$ (Table 4). The critical value determined prior to the analysis set at the 0.05 level of significance, was ± 0.1892 . Thus, the first null hypothesis was rejected. It was concluded that for this study sample there was a significant positive relationship between role conflict and role ambiguity.

Hypothesis 2

The second null hypothesis was: There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and: total role strain, strain producers, strain coping mechanisms, and strain symptoms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The Pearson product moment correlation coefficient was used to

Table 4
Correlation of role conflict and role ambiguity scores
for United States Air Force chief nurses (N = 77)

Study Variables	r*	p
Role conflict/Role Ambiguity	0.3063	0.007

*Critical value of $r = \pm 0.1892$, $df = 75$, at the 0.05 level of significance

test these relationships (Table 5). Findings from each subhypothesis are presented separately.

Table 5
Analysis of role conflict and the strain scale variables
for United States Air Force chief nurses (N = 77)

Subhypothesis	Variables	r*	p
2a	role conflict/total role strain	0.3059	0.007
2b	role conflict/strain producers	0.3982	< 0.001
2c	role conflict/strain coping mechanisms	0.1773	0.123
2d	role conflict/strain symptoms	0.1562	0.175

*Critical value of $r = \pm 0.1892$, $df = 75$, at the .05 level of significance

Subhypothesis 2a

Subhypothesis 2a stated: There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and total role strain as measured by the Tennessee Stress Scale - R (TSS - R) in United

States Air Force chief nurses. The resultant r value for the variables role conflict and total role strain was 0.3059, $p = 0.007$. Therefore this null hypothesis was rejected. It was concluded for this study sample that there was a significant relationship between the amount of role conflict and total role strain.

Subhypothesis 2b

Subhypothesis 2b stated: There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain producers as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The computed r value for the variables role conflict and strain producers was 0.3982, $p = < 0.001$. Thus, this hypothesis was rejected which meant that a significant relationship existed between role conflict and strain producers.

Subhypothesis 2c

Subhypothesis 2c stated: There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain coping mechanisms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The resultant r for the variables role conflict and strain coping mechanisms was 0.1773, $p = 0.123$. A scattergram did not show a curvilinear relationship. Hence, this hypothesis was not rejected. It was accepted that role conflict was not significantly related to strain coping mechanisms.

Subhypothesis 2d

Subhypothesis 2d stated: There will be no significant relationship between role conflict as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain symptoms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The r value for the variables role conflict and strain symptoms was 0.1562, $p = 0.175$. A scattergram did not show a curvilinear relationship.

Since the r value fell within the predetermined critical value, the hypothesis was not rejected. It was accepted that role conflict was not significantly related to strain symptoms.

Hypothesis 3

The third null hypothesis was: There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and: total role strain, strain producers, strain coping mechanisms, and strain symptoms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The Pearson product moment correlation coefficient was used to test these relationships (Table 6). Findings from each subhypothesis are presented separately.

Table 6

Analysis of role ambiguity and the strain scale variables
for United States Air Force chief nurses (N = 77)

Hypothesis	Variables	r^*	p
3a	role ambiguity/total role strain	0.5778	< 0.001
3b	role ambiguity/strain producers	0.6272	< 0.001
3c	role ambiguity/strain coping mechanisms	0.4693	< 0.001
3d	role ambiguity/strain symptoms	0.2931	0.010

*Critical value of $r = \pm 0.1892$, $df = 75$, at the 0.05 level of significance

Subhypothesis 3a

Subhypothesis 3a stated: There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and total role strain as measured by the Tennessee Stress Scale - R (TSS - R) in United

States Air Force chief nurses. The resultant r value for the variables role ambiguity and total role strain was 0.5778, $p = < 0.001$. Therefore, the null hypothesis was rejected. It was concluded for this study sample that there was a significant relationship between the amount of role ambiguity and total role strain.

Subhypothesis 3b

Subhypothesis 3b stated: There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain producers as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The resultant r value for the variables role ambiguity and strain producers was 0.6272, $p = < 0.001$. Thus, this hypothesis was rejected which meant a significant relationship existed between perceived role ambiguity and strain producers.

Subhypothesis 3c

Subhypothesis 3c stated: There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain coping mechanisms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The resultant r for the variables role ambiguity and strain coping mechanisms was 0.4693, $p = < 0.001$. Consequently, this hypothesis was rejected and indicated a significant relationship existed between role ambiguity and strain coping mechanisms.

Subhypothesis 3d

Subhypothesis 3d stated: There will be no significant relationship between role ambiguity as measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) and strain symptoms as measured by the Tennessee Stress Scale - R (TSS - R) in United States Air Force chief nurses. The resultant r value for the variables role ambiguity and strain symptoms was 0.2931, $p = 0.010$. Hence, this hypothesis was rejected. It was

concluded for this study sample that there was a significant relationship between role ambiguity and strain symptoms.

Hypothesis 4

The fourth null hypothesis was: There will be no significant difference in the total role strain scores measured by the Tennessee Stress Scale - R (TSS - R) and the role conflict and role ambiguity scores measured by the Role Conflict and Ambiguity Questionnaire (RCAQ) among the following groups:

Group 1 - Those United States Air Force (USAF) chief nurses whose scores reflect high levels of both role conflict and role ambiguity.

Group 2 - Those USAF chief nurses whose scores reflect a high level on either role conflict or role ambiguity and a low level on the other.

Group 3 - Those USAF chief nurses whose scores reflect low levels of both role conflict and role ambiguity.

A one-way analysis of variance (ANOVA) was used to test the difference among the mean scores of the three groups and the dependent variable, total role strain (Table 7). There were 3 subjects who had missing data on one of the subparts of the total role strain scores. Therefore, the data from 74 subjects were used in the analysis of this hypothesis. The ANOVA yielded $F = 9.0575$, $p = 0.003$. Thus the null hypothesis was rejected and it was concluded that there was a significant difference among the mean total role strain scores and the three general levels of role stress.

Descriptive statistics about the three role stress groups are reflected in Table 8. The mean total role strain scores for each group was: Group 1 ($n = 22$) = 24.77; Group 2 ($n = 30$) = 18.20; and Group 3 ($n = 22$) = 15.63. Also, the mean scores were all in the moderate total role strain category range of 16 and 34. Post hoc analysis using contrast analysis indicated a significant difference did not exist between Groups 2 (low role conflict and high ambiguity or vice versa) and Group 3 (low on both role conflict and ambiguity). There was a significant difference between total role

Table 7

One-way analysis of variance for United States Air Force chief nurses (N = 74)
grouped according to role stress scores and total role strain mean scores

Source	df	Sum of Squares	M.S.	F. Ratio*	F. Prob
Between Groups	2	989.8806	494.9403	9.0575	0.003
Within Groups	71	3879.7545	54.6444		
Total	73	4869.6351			

*Critical value for $F_{2,71} = 3.72$, at the 0.05 significance level

Table 8

Descriptive statistics for the three levels of role stress in
United States Air Force chief nurses (N = 74)

Group	n	Mean total role strain	S. D.	S. E.
1	22	24.77	7.05	1.50
2	30	18.20	7.06	1.28
3	22	15.63	8.12	1.73

Group 1 (high on both role conflict and role ambiguity)

Group 2 (high on either role conflict or role ambiguity and low on the other)

Group 3 (low on both role conflict and role ambiguity)

strain scores of Groups 1 and 2, and Groups 1 and 3 at the 0.05 significance level

(Table 9).

Table 9

Post hoc analysis on total role strain scores by the three role conflict and role ambiguity groups in United States Air Force Chief Nurses (N =74)

Contrast	Groups	Value	S. Error	T-value	df	p
1	1 + 2	6.5727	1.9816	3.317	45.4	0.002
2	1 + 3	9.1364	2.2948	3.981	41.2	<0.001
3	2 + 3	2.5636	2.1599	1.187	41.5	0.242

Group 1 (high on both role conflict and role ambiguity)

Group 2 (high on either role conflict or role ambiguity and low on the other)

Group 3 (low on both role conflict and role ambiguity)

Instruments

Two instruments were utilized for this study. The findings of the Role Conflict and Ambiguity Questionnaire (RCAQ) and the Tennessee Stress Scale - R (TSS - R) are presented here.

Role Conflict and Ambiguity Questionnaire

The Role Conflict and Ambiguity Questionnaire (RCAQ) was a 30-item, 7-point Likert scale questionnaire, in which one question was repeated. The possible score range for role conflict was 8 to 56. The role conflict scores for the study sample (n = 77) ranged from 8 to 54 with a mean of 30.75. Possible score range for role ambiguity was 6 to 36. The role ambiguity scores for the study sample (n = 77) ranged from 6 to 30, with a mean of 15.59. The higher the scores, the higher the role conflict and role ambiguity respectively.

The average item mean score for role conflict was 3.87 with a range of 2.72 to 4.98 (Table 10). The highest ranking role conflict item was, "I work with two or more

Table 10
Mean item score and ranking of the role conflict items for the
United States Air Force chief nurses (N = 77)

Role Conflict Item*	Rank	Mean Item Score
I work with two or more groups who operate quite differently.	1	4.987
I receive an assignment without the manpower to complete it.	2	4.545
I do other things that are apt to be accepted by one person and not accepted by others.	3	4.187
I receive an assignment without adequate resources and materials to execute it.	4	3.905
I have to do things that should be done differently.	5	3.766
I receive incompatible requests from two or more people.	6	3.506
I work on unnecessary things.	7	3.373
I have to buck a rule or policy in order to carry out an assignment.	8	2.727
Total Item Mean Score		3.874

*Range for scores = 1 to 7/item

groups who operate quite differently" (mean = 4.8). The item ranking second highest was, "I receive an assignment without the manpower to complete it" (mean = 4.5). The second to the lowest item was "I work on unnecessary things" (mean = 3.37). The lowest scored item for role conflict was, "I have to buck a rule or policy in order to carry out an assignment" (mean = 2.72).

The average mean score for role ambiguity items was 2.63 with a range of 1.74 to 3.46 (Table 11). The highest ranking role ambiguity item was, "I know I have

Table 11
Mean item score and ranking of the role ambiguity items for the
United States Air Force chief nurses (N = 77)

Role Ambiguity Item*	Rank	Mean Item Score
I know that I have divided my time properly.	1	3.461
Explanation is clear on what has to be done.	2	3.392
I have enough time to complete my work.	3	2.494
Clear, planned goals and objectives for my job.	4	2.427
I know exactly what is expected of me.	5	2.312
I know what my responsibilities are.	6	1.740
Total Item Mean Score		2.637

*Range for scores = 1 to 7/item

divided my time properly" (mean = 3.34). The second to the highest ranking item was, "Explanation is clear on what has to be done". The second lowest item was "I know exactly what is expected of me" (mean = 2.31). The lowest scored item for role ambiguity was, "I know what my responsibilities are" (mean = 1.77).

Tennessee Stress Scale - R

The Tennessee Stress Scale - R (TSS - R) was a 60 item scale with a total role strain score range of 0 to 60. The study sample ranged from 3 to 31, with a mean of 19.1. The tool also measured strain in three areas: strain producers, strain coping mechanisms, and strain symptoms. Mean item scores and ranking of the TSS - R items for this study sample are depicted in Appendix K.

A total possible score for strain producers ranged from 0 to 20. The chief nurses' scores ranged from 0 to 16 with a mean of 7.041. The highest ranking item was, "I assume a nurturing leadership role" (mean = 0.878) (Table 12). The second to the highest scored item was, "My position forced me to develop a more forceful-aggressive role" (item mean = 0.667). The second lowest ranking item was, "I lack experience in major decision-making responsibilities" (item mean = 0.078). The lowest ranking item was, "I feel my subordinates resent my authority" (item mean = 0.041).

Table 12

The two highest and two lowest mean item TSS - R strain producer scores
for United States Air Force chief nurses (N = 74)

TSS - R Strain Producer Item	Rank	Mean Item Score *
I assume a nurturing leadership role.	1	0.878
My position forced me to develop a more forceful-aggressive role.	2	0.667
I lack experience in major decision-making responsibilities.	19	0.078
I feel my subordinates resent my authority.	20	0.041

*Range score per item = 0 to 1

A total possible score for strain coping mechanisms ranged from 0 to 20. The study sample scores ranged from 1 to 14 (mean = 6.429) (Table 13). The highest ranking item was, "When under stress, I am more impatient with others" (mean = 0.789). The second to the highest ranking item was, "When under pressure, I seek support or advice from a close friend" (item mean = 0.776). However, this question was misworded on the questionnaire and should have read, "When under pressure, I accomplish more". Therefore, it was not a valid item and was disregarded. Thus, the

Table 13

The two highest and two lowest mean item TSS - R strain coping mechanism scores for United States Air Force chief nurses (N = 77)

TSS - R Strain Coping Mechanism Item	Rank	Mean Item Score*
When I am under stress, I am more impatient with others.	1	0.789
When under stress, I exercise regularly.	2	0.613
When work is stressful, I am able to identify factors that cause me stress.	19	0.052
When problems arise, I tend to blame others.	20	0.039

*Range score per item = 0 to 1

next highest ranking item was, "When under stress I exercise regularly" (item mean = 0.613). The next to lowest ranking item was, "When work is stressful, I am able to identify factors that cause me stress" (item mean = 0.052). The lowest scored item was, "When problems arise, I tend to blame others" (mean = 0.039).

A total possible score for strain symptoms ranged from 0 to 20. The study sample scores ranged from 0 to 18 (mean = 5.896) (Table 14). The highest ranking strain symptom item was, "When work is stressful I have experienced fatigue" (mean = 0.805). The second to the highest ranking item was, "When work is stressful I have experienced irritability toward others" (mean = 0.505). The third highest ranking item was, "When work is stressful I have experienced sleep problems" (mean = 0.500). The second lowest ranking item was, "When work is stressful I have experienced weight loss" (item mean = 0.065). The lowest ranking item was, "When work is stressful I have experienced ulcers" (item mean = 0.039).

Table 14
The three highest and two lowest mean item TSS - R strain symptom
scores for United States Air Force chief nurses (N = 77)

TSS - R Strain Symptom Item	Rank	Mean Item Score*
Fatigue	1	0.805
Irritability toward others	2	0.505
Sleep problems	3	0.500
Weight loss	19	0.065
Ulcers	20	0.039

*Range score per item = 0 to 1

Reliability of Tools

Cronbach's Alpha was used to ascertain the reliability of the Role Conflict and Ambiguity Questionnaire (RCAQ) and the Kuder-Richardson 20 for the Tennessee Stress Scale - R (TSS - R). The reliability coefficient of the RCAQ scores for the study sample (N = 77) yielded an alpha of 0.7479 for the role conflict variable, and 0.8248 for the role ambiguity variable. The reliability coefficient of the TSS - R scores for the study sample (N = 77) yielded an alpha of 0.8565 for the total role strain variable, 0.7160 for the strain producers variable, 0.7227 for the strain coping mechanisms variable, and 0.7453 for the strain symptoms variable.

Additional Findings

The additional findings acquired through this investigation are presented in the following paragraphs. Application of the Pearson product moment correlation coefficient showed significant negative relationships between age and role ambiguity ($r = -0.3578$; $p = 0.001$) and age and total role strain ($r = -0.3432$; $p = 0.003$).

Age was not significantly related to role conflict. No significant differences were found between the years in military service, size of facility, time as a chief nurse, or time in current chief nurse position in relation to the three key study variables, role conflict, role ambiguity, and total role strain.

The independent t - test was utilized to test for differences between the mean role conflict, role ambiguity, and total role strain scores and the highest degree held by the chief nurses. The highest degree held fell into two groups: bachelor in nursing science and master's degrees. No significant differences were found in the degree held and the three major study variables.

The study variables were examined in relationship to the perceived scores and the actual computed mean scores (Table 15). The mild role conflict group ($n = 47$) had a mean role conflict score of 28.70; moderate ($n = 24$; mean = 33.95); severe ($n = 1$; mean 41.00). Role ambiguity scores were: mild ($n = 51$; mean = 14.01); moderate ($n = 18$; mean = 19.38), severe ($n = 1$; mean = 26.00). The total role strain scores were: mild ($n = 18$; mean = 16.72), moderate ($n = 51$; mean = 19.21) and severe ($n = 4$; mean = 31.75).

Table 15

Perceived scores and actual scores for role conflict, role ambiguity, and role strain
for United States Air Force chief nurses

Study Variables	Perceived Scores	N	Actual Mean Scores
Role Conflict	Mild	47	28.70
	Moderate	24	33.95
	Severe	1	41.00
Role Ambiguity	Mild	51	14.01
	Moderate	18	19.38
	Severe	1	26.00
Role Strain	Mild	18	16.72
	Moderate	51	19.21
	Severe	4	31.75

Spearman's Rank Order Correlation was used to test for relationships between perceived role conflict, role ambiguity and role strain scores, and actual respective mean scores. Significant relationships were demonstrated for role conflict, ($r_s = 0.3768$; $p = 0.001$; $N = 72$) and for role ambiguity ($r_s = 0.3921$; $p = 0.001$; $N = 70$). No significant relationship was found between the perceived amount of role strain and the actual score. All the mean total role strain scores fell within the Tennessee Stress Scale - R moderate score range of 16 to 34. A summary of this information is in Table 16.

Table 16
Analysis of perceived levels and actual scores of the three study variables
for United States Air Force chief nurses

Variables	N	r_s^*	p
role conflict	72	0.3768	0.001
role ambiguity	70	0.3921	0.001
total role strain	74	0.2249	0.054

*Critical value of r_s preset at 0.05 level of significance

Summary

This chapter presented the statistical analyses of the data obtained from the two tools utilized: Role Conflict and Ambiguity Questionnaire (RCAQ) and the Tennessee Stress Scale - R (TSS - R). The sample was described, the findings presented in table and narrative format for the hypotheses, the instruments, and the additional findings. The results indicated a relationship between role conflict and role ambiguity (null hypothesis 1). Role conflict was significantly related to total strain and strain producers but not to strain coping mechanisms or strain symptoms (null

hypothesis 2). Null hypothesis 3 was rejected since relationships were found between role ambiguity and all strain variables. The fourth null hypothesis did demonstrate significant differences between total role strain scores and Groups 1 and 3, 1 and 2, but not between Groups 2 and 3.

The following chapter provides a summary of the study. A discussion of the findings are provided and the conclusions, implications, and recommendations are also presented.

CHAPTER 5
SUMMARY , DISCUSSION, CONCLUSIONS, IMPLICATIONS,
AND RECOMMENDATIONS

A summary of the study will be presented. Discussion of the findings are presented as they relate to the demographic data, hypotheses, instruments, and additional findings. Next, conclusions and implications are explored as they relate to the conceptual framework, the limitations, tools, and the study as a whole. Finally, recommendations are enumerated.

Summary

The problem of this correlational and comparative study was to ascertain the relationship between role conflict, role ambiguity and total role strain. A combination of the *Theory of Role Dynamics* (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and Ward's (1986) explication of role strain formed the conceptual framework for this study. Self-administered questionnaires were mailed to a convenience sample comprised of 85 United States Air Force chief nurses in the continental United States with a return rate of 94% (80), of which 90% (77) were useable. The Role Conflict and Ambiguity Questionnaire (RCAQ) was used to measure role conflict and role ambiguity while the Tennessee Stress Scale - R (TSS - R) measured total role strain along with strain producers, strain coping mechanisms, and strain symptoms.

There were four major null hypotheses stated and tested. The first null hypothesis was rejected for data analysis determined that a significant relationship existed between role conflict and role ambiguity ($r = 0.3063$; $p = 0.007$).

The second major null hypothesis demonstrated relationships between role

conflict and total role strain ($r = 0.3059$; $p = 0.007$) as well as role conflict and strain producers ($r = 0.3982$; $p = < 0.001$). The subhypotheses measuring the relationships between role conflict and strain coping mechanisms ($r = 0.1773$; $p = 0.123$) and role conflict and strain symptoms ($r = 0.1562$; $p = 0.175$) were not rejected.

The third major null hypothesis indicated strong relationships between role ambiguity and (a) total role strain ($r = 0.5778$; $p = < 0.001$), (b) strain producers ($r = 0.6272$; $p = < 0.001$), (c) strain coping mechanisms ($r = 0.4693$; $p = < 0.001$) and (d) strain symptoms ($r = 0.2931$; $p = 0.010$). Based on these findings, the entire third null hypothesis was rejected.

The fourth null hypothesis was used to investigate differences in the variable total role strain among three groups. These groups represented three general levels of role stress experienced by chief nurses: Group 1 - high levels of both role conflict and role ambiguity; Group 2 - a high level of either role conflict or role ambiguity and low level on the other; and Group 3 - low levels of both role conflict and role ambiguity. A one-way analysis of variance (ANOVA) revealed a significant difference among the mean scores of the three groups ($N = 74$) and total role strain ($F = 9.0575$; $p = 0.003$). Post hoc analysis also showed a significant difference between Groups 1 and 2 ($p = 0.002$), 1 and 3 ($p = < 0.001$), but not 2 and 3 ($p = 0.242$).

Additional findings revealed interesting relationships. There were significant negative relationships between age and role ambiguity ($r = -0.3578$; $p = 0.001$) and age and total role strain ($r = -0.3432$; $p = 0.003$). Another significant finding was that the chief nurses' perceived role conflict and role ambiguity scores were related to their actual role conflict scores ($r_s = 0.3768$; $p = 0.001$) and role ambiguity scores ($r_s = 0.3921$; $p = 0.001$). No significant difference existed between the perceived total role strain score and the actual score ($r_s = 0.2249$; $p = 0.054$).

The tools utilized in the study were reliable. The Role Conflict and Ambiguity Questionnaire (RCAQ) alpha for role conflict was 0.7479 and for role ambiguity was

0.8248, using Chronbach's alpha reliability. Likewise, the Tennessee Stress Scale - R (TSS - R) also yielded an adequate alpha of 0.8565, using the Kuder-Richardson 20 alpha reliability.

Discussion

Discussion of the findings of this study is presented according to the demographic data, hypotheses, instruments, and additional findings.

Demographic Data

This study's composite chief nurse typified the nurse administrator described by Aydelotte (1982b). The majority of subjects in both samples were female, between 40 to 49 years of age and had held the position of nurse administrator from 1 to 5 years. Basic nursing education had been in a hospital school of nursing and more than half of both samples held master's degrees. With respect to this commonly collected demographic data, the chief nurses were representative of Aydelotte's nationally obtained sample of nurse administrators.

Hypotheses

The first null hypothesis established a relationship between the role conflict and role ambiguity scores of the study sample. Scalzi (1984) noted this is a common finding as both these variables are types of role stress. For Scalzi's nurse administrator sample, the item mean for role conflict was 4.0 while this sample's item mean = 3.87. Rizzo, House, and Lirtzman's (1970) role conflict mean item score was 4.79 and 3.86 (Group A and B). As a group, the chief nurses' scores indicated a comparable level of role conflict to other samples. The chief nurses demonstrated a lower ambiguity mean item score (2.63) than Scalzi's sample (item mean = 2.7) as well as Rizzo et al's groups (Group A = 3.79; Group B = 4.03). This meant that this study sample had comparable lower role ambiguity than the other samples.

Rejection of Hypotheses 2a and 2b, regarding role conflict, total role strain, and strain producers was made. This indicated the chief nurse perceived role conflict as a strain producer which was also related to the total experienced role strain. Hypothesis 2c and 2d, regarding role conflict, strain coping mechanisms, and strain symptoms were not rejected. This was not consistent with the literature which indicated role conflict was related to personal strain outcomes such as tension, anxiety, fatigue, and discomfort, to name a few (Miles, 1975; Rizzo et al., 1970; Tosi, 1971). Perhaps the chief nurses found other coping mechanisms than those items listed on the Tennessee Stress Scale - R (TSS - R). There may have been other eustress variables confounding the results but those variables were not studied or measured in this investigation. As Van Sell, Brief, and Schuler (1981) pointed out, research is still needed on specific coping methods to reduce strain from role stress. This study did not support the relationship of role conflict and symptom formation. Miles (1975) emphasized that role ambiguity was more strongly related to adverse outcomes than role conflict which this study demonstrated. Although role conflict was identified as a strain producer adding to one's total role strain, the chief nurses were apparently securing homeostasis in some manner other than diseases of adaptation (Selye, 1956).

Rejection of all subparts of the third hypothesis supported the conceptual framework. Role ambiguity was significantly related to total role strain, strain producers, strain coping mechanisms, and strain symptoms. As the amount of perceived role ambiguity increased, so did the use of strain coping mechanisms, strain symptoms and total role strain. This was consistent with the literature which showed relationships between role ambiguity and tension, anxiety, depressed mood, and low self-esteem (Beehr, 1976; Brief & Aldag, 1976; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964).

The fourth hypothesis was rejected which stated no difference existed among three general levels of role stress and the dependent variable, total role strain. This

meant that as the total role stress increased, so did the total role strain. This was consistent with Kahn and his colleagues (1964) who asserted that as role stress becomes more severe, the more negative coping mechanisms the focal person will utilize. When this occurs, total role strain results (Ward, 1986). However, post hoc analysis revealed that one contrast was not significant. This was between groups 2 (moderate role stress) and 3 (low role stress); the mean total role strain scores for these groups were not significantly different. The total role strain scores all fell within the moderate strain level. Of import, is that neither Kahn et al.(1964) nor Ward (1986) explored the strain level outcome when the focal person utilized a combination of positive and negative coping mechanisms. Anderson (1976) argued that at a eustressful level, positive coping mechanisms were utilized, whereas at high stress levels subjects' use of negative coping mechanisms increased. The fact that the low and moderate stress level scores were not significantly different could indicate a state of the use of positive as well as negative coping mechanisms that buffered the total role strain score. Once a higher level of role stress occurred, the more negative coping mechanisms were employed and hence were reflected in a higher role strain mean score.

Instruments

The findings of the two major tools used in this study were also analyzed. The first tool, the Role Conflict and Ambiguity Questionnaire (RCAQ) measured role conflict and role ambiguity. It is worth noting that chief nurses most frequently perceived conflict in terms of overload and lacking the manpower to complete an assignment. This was evidenced by the fact that the highest ranking role conflict item represented the overload aspect of role conflict. Leading to the least conflict was having to buck a rule or policy in order to carry out an assignment and working on unnecessary things. This researcher did not find a breakdown of the role conflict

scale in the literature review except for Scalzi (1984) who noted nurse administrators experienced role conflict most frequently in terms of overload.

The role of the chief nurse has been described as having role-set diversity or working with two or more groups of people who operate quite differently. This was consistent with Scalzi's (1984) findings in which she identified not only role-set diversity as a contributing factor but also position, and clinical background. The chief nurse also experienced role conflict in the form of intrasender conflict. The organization defined the role behavior but did not provide manpower to fulfill role obligations. In the military setting, Congress authorizes manpower; the chief nurse has little to no control over hiring additional personnel.

The sample most frequently perceived role ambiguity in terms of not having a clear explanation on what has to be done or knowing that their time was divided properly. Again, a breakdown of the role ambiguity scale was not found by this investigator in the literature in order to make comparisons. These results are not surprising considering executives are supposed to be self-directed individuals. The fact that their overall level of role ambiguity was low, indicated that they do understand their role expectations. What can be concluded is that they may benefit from time management strategies in order to guide their behavior appropriately.

The TSS - R scores indicated that chief nurses experienced a moderate level of total role strain. The findings of each of the three subscales will be discussed in this section. The foremost strain producers related to role demands in that the chief nurses felt a need to assume an additional role; nurturing leadership role. This is consistent with role overload in which several roles are required of the same focal person (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Also, the next highest scoring item dove-tailed into the overload aspect of role conflict in which the chief nurse position forced the focal person to develop a more forceful-aggressive role. The least

strain producing items dealt with decision-making experience and subordinates resenting the chief nurses authority.

The strain coping mechanisms utilized most frequently were increased impatience with others and lack of physical exercise. Kahn et al. (1964) expressed the importance of interpersonal relations between the focal person and role sender. Coping in the form of impatience with role senders may alter the interpersonal relationship and elicit the role sender's expectations (arrows 6 and 9, Figure 3).

The lack of exercise reflects nonutilization of positive coping mechanisms. Lachman (1983) encouraged the use of exercise to build personal resistance in attaining a eustressful experience.

Least cited strain coping mechanisms were not being able to identify factors that cause strain and blaming others when problems arise. This study sample indicated problems could be identified. This is the first step in problem resolution. Nor did this sample of chief nurses attempt to displace the role strain by blaming others (Dobson, 1983).

The last subscale in the total role strain scale, is strain symptoms. Fatigue ranked highest followed by irritability toward others and sleep problems. These findings were consistent with Stout and Posner (1984) who found role ambiguity and role conflict to relate positively to physical, emotional, and mental exhaustion. Weight loss and ulcers were the least reported items. McWilliams' (personal communication, August 27, 1986) sample (N = 156) ranked fatigue (83.3%) first, irritability (75%) second, and sleep problems (50.6%) seventh, but did not report the lowest ranked items.

Additional Findings

The study variables were examined in relationship to some of the demographic data. There were no significant findings for any of the demographic variables except age. Significant negative relationships were demonstrated for age and role ambiguity

as well as age and total role strain. That is, the older the subject, the less amount of experienced role ambiguity and total role strain. This finding was not in agreement with the findings of Scalzi (1984) who reported the demographic variable age was not related to role conflict or role ambiguity. Furthermore, Scalzi noted that there was a significant negative relationship between the time the nurse administrator was in his/her position and the amount of role conflict. One explanation for this finding is that possibly the older the person becomes, the better his/her problem solving skills become and the ability to discern the source of ambiguity heightens (LaRocca, 1978; Tappen, 1983). Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) recommended the focal person decrease ambiguity by increasing the frequency of communication with role senders. Possibly, the older the subject is, the more frequently he/she communicates with role senders.

Utilizing an independent t - test, no significant difference in role conflict, role ambiguity, and total role strain scores were noted among these variables and the two types of highest degrees held. Whether the chief nurse held a bachelor's or master's degree did not impact on their role conflict, role ambiguity, or total role strain scores. This differed from Scalzi (1984) who reported that nurse administrators with master's degrees experienced more role conflict than those with bachelor's degrees. Scalzi never elaborated on this particular finding. This investigator did not locate any other literature to concur with, or refute this additional finding.

A significant finding was that chief nurses' perceived levels of role conflict and role ambiguity (mild, moderate, severe) and their respective actual scores were congruent among the three perceived levels. In other words, nurses who scored high on role conflict perceived themselves as having a severe level of role conflict. The same was true for role ambiguity. There were no significant differences among the mild, moderate, and severe levels of perceived total role strain and the actual mean role strain scores. Perhaps the Tennessee Stress Scale - R (TSS -R) was not a

sensitive indicator of total role strain. Also of interest, was that all the mean role strain scores fell within the moderate range. This could mean that for this sample, the TSS - R's scoring could be as follows" mild = 16 or below; moderate = 17 to 31; severe = 31 or above.

Conclusions and Implications

The conclusions and implications arising from this investigation are presented next. They are discussed from the standpoint of the conceptual framework, the limitations, the instruments, and finally, the study as a whole.

Conceptual Framework

The experienced role stress was found to relate to the amount of total role strain. As the amount of role stress (role conflict and role ambiguity) increased so did the total role strain score. Strain producers were perceived by the focal person (chief nurse) and lead to a role stress response. The role ambiguity strain producer was significantly related to the coping mechanisms and strain symptom formation. However, role conflict was not significantly related to the negative coping mechanisms and strain symptoms. It was concluded that perhaps there were other coping mechanisms and symptoms for role conflict which did not appear on the TSS - R. The total role strain response feeds back to the role sender and may induce added strain producers in the form of role pressures and role demands made on the focal person by the role sender. The higher the role stress, the higher the strain scores.

The conceptual framework was appropriate for this study. The implication that an increased level of role stress could lead to an increased level of role strain could be made. The literature review showed that this was a negative outcome for the focal person and that a eustressful outcome is possible. There is a need to determine

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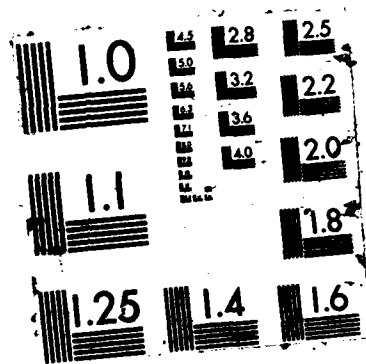
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how to measure eustress and its possible confounding effect upon the total role strain experience.

Limitations

The limitations stated in Chapter 1 included the sample selection process, and the limited use of one of the instruments (Tennessee Stress Scale - R). Additional limitations are also presented.

The self-selected convenience sample yielded a sufficient amount of data, and demonstrated significant relationships for each of the four major null hypotheses. A larger, random sample is needed to further corroborate or else refute these findings.

The limited use of the Tennessee Stress Scale - R (TSS - R) is a possible limitation to this study. Although the reliability was statistically determined to be adequate, it may not have been sensitive to role conflict strain coping mechanisms or role conflict strain symptoms. Also the TSS - R's scoring still needs to be standardized.

A further limitation lies in the inability of a longitudinal design to confirm causal relationships. In this descriptive correlational and comparative study, causality can not be established. The need for causal modeling is implied here.

In summary, the conclusions drawn about the limitations are that they are noted, but not thought to affect the significance of the study. The implications are that a larger randomized sample would increase the generalizability of this study. Further research and use of the TSS - R is necessary to obtain standardized scores.

Instruments

The Role Conflict and Ambiguity Questionnaire (RCAQ), the Tennessee Stress Scale - R TSS - R, and the Demographic Data Sheet are discussed next. The first of these three tools used in this study was the researcher developed demographic data sheet. An item about the subject's marital status was inadvertently omitted. Also, subjects indicated trouble answering the question, "What was the average occupancy rate for

FY 86 at the health care facility to which you are assigned?" because of incorrectly worded response selections. The multiple choice selections were "____inpatients/month" and "Not applicable". Asking for a percentage rather than a number of inpatients would have resolved the confusion.

Three major conclusions were made about the RCAQ: (1) its reliability was adequate, (2) role overload was the most frequently answered item consistent with the findings in the literature, and (3) role ambiguity in nurse administrators was low compared to other occupational groups, also consistent with the literature.

This implies that the RCAQ adequately measured the concepts role conflict and role ambiguity. Coupled with the fact that it was consistent with the literature, the RCAQ was an appropriate tool for purposes of this study.

The TSS - R had adequate reliability for this study sample. Question 37 ("When under pressure, I seek support or advice from a close friend) was misworded from the original tool and should have read, "When under pressure, I accomplish more". This typographical error however, did not significantly effect the tool's reliability.

From the conclusions drawn about role conflict not being related to strain coping mechanisms or strain symptoms, it is implied the TSS - R may not be sensitive to role conflict stress responses. Another implication is that the original scoring of mild, moderate, severe, may need to be adjusted for this population as follows: mild = 16 or below; moderate = 17 to 31; severe = 31 or above. Additional testing of the TSS - R is necessary to secure belief in its sensitivity to measure role conflict.

Study

Conclusions and implications of this study as a whole are made next. The implications this generates are also presented.

Role conflict and role ambiguity were significantly related role stressors. Role conflict occurred at a similar level found in other studies (Rizzo House, & Lirtzman, 1970; Scalzi, 1984). This result was anticipated by this investigator since the nurse

administrator is in a boundary-spanning position with role-set diversity (Snoek, 1966). The unusually low role ambiguity result was also expected. Scalzi's (1984) nurse administrator population demonstrated similar low role ambiguity. It was concluded that the contributing factor to this outcome was the fact that promotion from a clinical background to the nurse administrator position enabled the subjects to more clearly understand the role expectations in administering patient care. Also, information about the role behaviors and expected performance levels are apparently communicated to the chief nurses.

This infers that chief nurses do have a clear understanding of their role, but because it is a diversified, boundary-spanning position, role conflict is a much more pervasive role stressor than role ambiguity. Some ambiguity may come from a lack of time management knowledge in deciding where and when behavior is appropriate. This implies the need to educate chief nurses on conflict resolution strategies to reduce the experienced role conflict and on time management strategies to curtail role ambiguity.

It was concluded that role conflict and role ambiguity were related to the total experienced role strain. In addition, role ambiguity was strongly related to strain coping mechanisms and strain symptoms while role conflict was not. One reason for this could be that the Tennessee Stress Scale - R (TSS - R) did not adequately address strain coping mechanisms and strain symptoms for the concept role conflict and that chief nurses responded in other unidentified ways. That is, they could have been attempting to secure homeostasis in some other manner other than diseases of adaptation (Selye, 1956). Another explanation could be that eustress variables not explored in this study confounded the findings. Findings also concluded that role ambiguity was more strongly related to adverse personal outcomes than role conflict.

These findings imply that identification of negative stress responses for role conflict along with identification of eustress variables would help clarify responses to

role stress as well as the conceptual model. Once identified, new role conflict management strategies might be developed. The fact that role ambiguity was low for this group of managers, yet was so strongly related to all the strain variables implied its causticity and the need for organizations to curtail role ambiguity. Thus, further exploration of why nurse administrators suffer less role ambiguity than other managers must be done in hopes of helping other occupational groups of managers reduce their role ambiguity.

The post hoc analysis finding that the contrast between Groups 2 (moderate role stress) and 3 (low role stress) is of interest. It was concluded that this finding might have occurred because of a buffering effect on the total role strain score.

The implication is that eustress must be measured in relation to its effect on the total role strain score. In addition, the suggested change in the TSS - R scoring would be implemented.

The conclusion was made that perhaps the older the person, the better his/her problem solving skills and the greater his/her ability to discern the source of ambiguity. Additionally, the older subject may communicate more frequently with role senders and therefore experience less role ambiguity. These conclusions imply the need to study problem solving skills and frequency of communication in specific age groups in relation to role ambiguity.

The conclusion that chief nurses could identify their role stress level with respect to their actual role stress scores is important. It implies that since chief nurses could identify their levels of role stress that with further education in role stress reduction techniques, they could reduce their own level of role stress.

The chief nurses exhibited irritability toward others, fatigue, and were not found to cope via the positive use of exercise. The implication here is that the chief nurse should increase his/her exercise and obtain proper rest as positive steps in reducing strain. This may help decrease total role strain and in turn, irritability

toward others. By reducing irritability toward others, this implies enhanced communication with others and thus a step toward reduction in role conflict.

The previous paragraphs have discussed the conclusions and their implications drawn from the results of this investigation. Listed next are the recommendations made by this researcher.

Recommendations

The following recommendations are suggested for future research endeavors and for possible alterations in role stress management.

1. It is suggested that this study be replicated using a larger nationwide randomized sample with a longitudinal design for purposes of adequately representing the nurse administrator population in the continental United States.
2. Utilize this conceptual framework and same definition of terms in similar investigations so that a single theory of role stress might emerge.
3. Implement causal modeling utilizing this conceptual framework.
4. Study the eustress portion of the conceptual framework in relation to the strain outcomes.
5. Conduct a descriptive study to ascertain coping responses for role conflict.
6. Test the sensitivity of the Tennessee Stress Scale - R (TSS - R) in relation to role conflict and strain responses.
7. Educate chief nurses on conflict resolution and time management strategies.
8. Add marital status to the demographic data sheet and request a percent occupancy rate rather than number of inpatients per month.
9. Use a shortened form of the Role Conflict and Ambiguity Questionnaire (RCAQ) with only those 14 items actually scored.

This correlational and comparative study examined the relationship between role conflict, role ambiguity, and total role strain in chief nurses. The results and

findings were presented and discussed in depth and implications were made. Finally, recommendations for future research endeavors and possible alterations in role stress management were enumerated.

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APPENDICES

APPENDIX A

ROLE CONFLICT AND AMBIGUITY QUESTIONNAIRE

ROLE CONFLICT AND AMBIGUITY QUESTIONNAIRE

Directions: The following statements will describe some specific characteristics about your particular job. Rate how true each statement is of your particular job using the rating scale below. Please place the number that signifies your perception of each statement in the blank to the left of that statement.

Definitely
NOT TRUE
of my job

1 2 3 4 5 6 7

Extremely
TRUE
of my job

- ___ 1. I have enough time to complete my work.
- ___ 2. I feel certain about how much authority I have.
- ___ 3. I perform tasks that are too easy or boring.
- ___ 4. Clear, planned goals and objectives for my job.
- ___ 5. I have to do things that should be done differently.
- ___ 6. Lack of policies and guidelines to help me.
- ___ 7. I am able to act the same regardless of the group I am with.
- ___ 8. I am corrected or rewarded when I really don't expect it.
- ___ 9. I work under incompatible policies and guidelines.
- ___10. I know that I have divided my time properly.
- ___11. I receive an assignment without the manpower to complete it.
- ___12. I know what my responsibilities are.
- ___13. I have to buck a rule or policy in order to carry out an assignment.
- ___14. I have to "feel my way" in performing my duties.
- ___15. I receive assignments that are within my training and capability.
- ___16. I feel certain how I will be evaluated for a raise or promotion.
- ___17. I have just the right amount of work to do.

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Definitely
NOT TRUE
of my job

1 2 3 4 5 6 7

Extremely
TRUE
of my job

- ___18. I know that I have divided my time properly.
- ___19. I work with two or more groups who operate quite differently.
- ___20. I know exactly what is expected of me.
- ___21. I receive incompatible requests from two or more people.
- ___22. I am uncertain as to how my job is linked.
- ___23. I do things that are apt to be accepted by one person and not accepted by others.
- ___24. I am told how well I am doing my job.
- ___25. I receive an assignment without adequate resources and materials to execute it.
- ___26. Explanation is clear of what has to be done.
- ___27. I work on unnecessary things.
- ___28. I have to work under vague directives or orders.
- ___29. I perform work that suits my values.
- ___30. I do not know if my work will be acceptable to my boss.

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By Tami Ann Cundy

Business Manager

P E R M I S S I O N G R A N T E D G R A T I S



Johnson Graduate School
of Management

Cornell University
Ithaca, NY 14853-4201
Telephone 607/256-5117

APPENDIX B

TENNESSEE STRESS SCALE - R

TENNESSEE STRESS SCALE - R

TSS - R

Work Related Stress Inventory For Professionals

Jettie M. McWilliams, Ed.D.

Please answer the following:

Average hours worked per week ____

Sex __ M __ F

Children: Number __ Ages ____

Number of Pets: ____

Related to my job, I would say my overall level of stress is:

- ☐ Mild
☐ Moderate
☐ Severe

Directions:

This inventory contains statements dealing with stress that are related to your work. Please read each statement carefully and respond as it usually relates to you. Mark your answers under the columns headed "Yes" or "No".

YES NO

1. I compare my job performance with others in my organization. . . () ()
2. I take on more responsibility to prove I am as capable as others. . . () ()
3. I am overly critical of my performance in my job responsibilities. () ()
4. I feel my subordinates resent my authority () ()
5. My position forced me to develop a more forceful-aggressive role . () ()
6. I assume a nurturing leadership role. () ()
7. Higher levels of administration reinforce me for my work. () ()
8. My colleagues express sufficient appreciation for my hard work
done in their behalf. () ()

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YES NO

9. Meeting constant deadlines at work causes me stress. () ()
10. I feel vulnerable in my work in that my willingness to take high risk tasks may backfire. () ()
11. My personal limitations on the job cause me stress. () ()
12. The idea that I'm not O.K., learned from childhood experiences, affects my professional competencies. () ()
13. I feel that no matter how hard I try at work, I will not receive the recognition I deserve. () ()
14. My professional colleagues assume that I will take a passive leadership role () ()
15. The frequency interruptions while performing job tasks causes me frustration constantly. () ()
16. My position makes me feel socially isolated. () ()
17. Unclear job responsibilities cause me undue stress () ()
18. I lack experience in major decision making responsibilities. . . . () ()
19. Being placed in a leadership role without authority creates a problem for me () ()
20. I underestimate my skills and abilities () ()
21. When I experience stress at work, I set realistic expectations for myself () ()
22. When work becomes difficult, I feel I have "fallen short" () ()
23. When I am under pressure at work, I express more hostility. . . . () ()
24. When I am under stress, I am more impatient with others () ()
25. When I am stressed, I avoid job tasks which are frustrating. . . . () ()
26. When I have work pressures, I am able to transcend my stress by seeing the humorous aspects and laugh. () ()
27. When I am under stress at work, I take time for myself. () ()
28. When work pressures increase, I make it a point to get sufficient amounts of rest and sleep. () ()
29. When under stress, I exercise regularly () ()

YES NO

30. When I am under stress at work, I become more depressed and withdrawn () ()
31. When pressure is great at work, I find that my interpersonal relationships deteriorate () ()
32. When under stress at work, I turn problems into opportunities . . () ()
33. When things are stressful at work, I overreact to criticism () ()
34. When work is stressful, I am able to identify factors that cause me stress () ()
35. When personal conflicts arise, I prefer to directly confront people () ()
36. When problems arise, I tend to blame others () ()
37. When under pressure, I accomplish more () ()
38. When under stress, I seek support or advice from a close friend . . () ()
39. When difficulties arise, I allow time to resolve the issue () ()
40. When under stress, I find a cocktail before dinner is relaxing . . . () ()
- When work is stressful, I have experienced the following:
41. High blood pressure () ()
42. Excessive smoking () ()
43. Skin irritations () ()
44. Decrease in sexual interest () ()
45. Diarrhea () ()
46. Weight gain () ()
47. Nausea () ()
48. Weight loss () ()
49. Nervousness () ()
50. Fatigue () ()
51. Stomach pains () ()
52. Ulcers () ()

YES NO

53. Headaches () ()
54. Backaches () ()
55. Pain or discomfort which is medically undiagnosed () ()
56. Tightness or soreness of muscles () ()
57. Professional burnout () ()
58. Allergies () ()
59. Sleep problems () ()
60. Irritability toward others () ()

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Phoenix Regional Offices
1817 West Indian School Road
Phoenix, Arizona 85015
(602) 230-1311

Durelle B. Fullenkamp
2807 Loriwood Drive
Haughton, La. 71037

Dear Durelle:

I was pleased to receive your telephone call as a follow-up to your letter. You have my permission to use the Tennessee Stress Scale-R in your Master's thesis. You also have permission to copy the TSS-R for data collection purposes!

As I indicated to you on the phone, I am requesting that you send me a copy of the results of your study. If I can reference your work in a publication, I will let you know.

Enclosed is the information on scoring, and TSS-R validation for your use. I hope that the test meets your needs. Please let me know if I can be of further assistance.

My best wishes,

Jettie M. McWilliams
Professor of Educational Psychology
(602) 230-1311

Enclosures

JMM/kab

APPENDIX C
COPYRIGHT APPROVAL

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New York, NY 10158

26 June 1986

I am a graduate student in Adult Nursing at Northwestern State University School of Nursing, Shreveport, Louisiana. I am requesting permission to reproduce two figures in my master's thesis that appeared in Organizational Stress: Studies in Role Conflict and Ambiguity (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). They are:

- (1) Figure 2-1, A model of the role episode, page 26
- (2) Figure 2-2, A theoretical model of factors involved in adjustment to role conflict and ambiguity, page 30.

Permission granted
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our work and its copyright.

Sincerely,

Durelle B. Fullenkamp
Durelle B. Fullenkamp
2807 Loriwood Drive
Haughton, LA 71037
(318) 949-4595

Teresa Hartnett
Teresa Hartnett
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APPENDIX D
DEMOGRAPHIC DATA SHEET

DEMOGRAPHIC DATA SHEET

DIRECTIONS: Please complete this form. DO NOT leave any items unanswered.

a. Year of birth: 19_____

b. Current Rank:

- ____ 1. 03
- ____ 2. 04
- ____ 3. 05
- ____ 4. 06

c. Gender:

- ____ 1. Male
- ____ 2. Female

d. Basic R.N. education you completed:

- ____ 1. Diploma
- ____ 2. Associate Degree
- ____ 3. BSN

e. Highest degree earned:

- | | |
|--------------------------|-----------------------------------|
| ____ 1. Diploma | ____ 5. Master's - specify _____ |
| ____ 2. Associate Degree | ____ 6. Doctorate - specify _____ |
| ____ 3. BSN | ____ 7. Other - specify _____ |

f. Were you a resident in the Chief Nurse Residency Program?

- ____ 1. Yes
- ____ 2. No

g. Number of years in military service _____

h. Length of time as a chief nurse. Years _____ Months _____

i. Length of time in current chief nurse position. Years _____ Months _____

j. Authorized number of beds of health care facility to which you are assigned:

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k. What was the average monthly inpatient occupancy rate for FY 86 at the health care facility to which you are assigned?

1. _____ inpatients/month
2. _____ Not applicable

l. What was the average monthly outpatient visits for FY 86 at the health care facility to which you are assigned?

1. _____ outpatients/month
2. _____ Not applicable

m. Related to my job, I would say my overall level of role conflict is

- ___ 1. Mild
- ___ 2. Moderate
- ___ 3. Severe

n. Related to my job, I would say my overall level of role ambiguity is

- ___ 1. Mild
- ___ 2. Moderate
- ___ 3. Severe

APPENDIX E

COVER LETTER WITH PRIVACY ACT STATEMENT



NORTHWESTERN

STATE UNIVERSITY OF LOUISIANA
Natchitoches, Louisiana 71497

108

Name of Health Care Facility/SGHN
Attn: Chief Nurse
AFB, XX XXXXX

4 November 1986

Dear Rank, Last Name

I am an AFIT graduate nursing student conducting a study to examine role stress and strain in USAF chief nurses. Studies have shown that role conflict and ambiguity (role stress) are inherent features of any major organization. Role conflict and ambiguity can potentially cause individual strain; adverse personal outcomes. There is a paucity of information regarding the multifaceted role of the nurse administrator, especially along the lines of role stress and strain. I need your help in seeking the answer to the following study question: Is there a relationship between role conflict, role ambiguity, and role strain in USAF chief nurses?

This study will profile USAF chief nurses and provide valuable information about your chief nurse role, not only for yourself but for our future nurse corps leaders. The information gathered will be included in my master's thesis and a copy sent to the Chief of the Air Force Nurse Corps.

Your assistance in responding to this survey is of utmost importance so the results will truly represent USAF chief nurses. It is imperative that the questionnaire packet be completed and returned NLT 18 November 1986. Please do not delegate questionnaire completion or results will be skewed.

To insure anonymity, do not write your name on the questionnaire. The student control number in the bottom left-hand corner of this letter and the questionnaire packet indicates USAF approval for this project and in no way identifies your responses. The code on the return envelope is for administrative purposes only and does not identify your responses. A disinterested distribution service will use this code for mailing purposes only. The distribution service will open all envelopes and only send me the questionnaire packets so that anonymity will be insured. In accordance with Public Law 93-573, the Privacy Act of 1974, you have been informed of the purposes and uses of the survey information as provided in paragraphs 1 and 2. Your completion and return of the questionnaire packet indicates your consent to voluntarily participate in this study. After reading the privacy act statement and completing the questionnaire packet, please mail the questionnaire packet in the enclosed prepaid addressed envelope.

Benefits to you include: (1) developing an awareness of your role stress, (2) profiling your chief nurse population, and (3) helping to understand the impact of the organizational environment of chief nurses so job-enhancement techniques can be developed. No research study is risk-free. The period of time required to complete the questionnaire packet (35-50 minutes) along with some of the question content, may make you uncomfortable. Should you have any questions or concerns, please call me collect (318) 949-4595. For your participation I can send you a summary of the results but am not allowed to reimburse you monetarily. To receive a summary of results, write "copy of results requested" on the back of the return envelope, and print your name and address below it. The distribution service will note your request; I will not be able to identify your responses. Please do not put this information on the questionnaire packet.

Thank you for your assistance--I hope this does not add to your role stress!

Durelle B. Fullenkamp

DURELLE B. FULLENKAMP, Major, USAF, NC

AFIT Graduate Nursing Student

Northwestern State University,

Nursing Education Center

(Supervising Thesis Chair: Norann Y. Planchock, R.N., PhD.)

2 Atch

1. Questionnaire Packet

2. Return Envelope

PRIVACY ACT STATEMENT

In accordance with AFR 12-35, paragraph 8, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 5 U.S.C. 301, Departmental Regulations, and/or

(2) 10 U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(3) DOD Instruction 1100.13, 17 Apr 68, Surveys of Department of Defense Personnel; and/or

(4) AFR 30-23, 22 Sep 76, Air Force Personnel Survey Program.

b. Principal Purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine Uses. The survey data will be converted to information for use in research of management-related problems. Results of the research, based on the data, whether in written form or presented orally, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

APPENDIX F
POSTCARD FOLLOW-UP REMINDER

POSTCARD FOLLOW-UP REMINDER**12 November 1986**

Last week a questionnaire packet seeking your input about the levels of role conflict and ambiguity and role strain in USAF chief nurses was mailed to you.

If you have already completed and returned it to me please accept my sincere thanks. If not, please do so today. Because it has been sent to only a small, but representative, sample of chief nurses it is extremely important that yours also be included in the study if the results are to accurately represent USAF chief nurses.

If by some chance you did not receive the questionnaire packet, or it got misplaced, please call me right now, collect (318-949-4595) and I will get another one in the mail to you today.

Sincerely

**DURELLE B. FULLENKAMP, Maj, USAF, NC
AFIT Graduate Nursing Student**

APPENDIX G
SECOND FOLLOW - UP LETTER



Name of Health Care Facility
Attn: Name of Chief Nurse/SGHN
AFB, XX XXXXX

25 Nov 86

Dear Rank, Last Name

About three weeks ago I wrote to you seeking your help to answer the following question: Is there a relationship between role conflict, role ambiguity, and role strain in USAF chief nurses?

Role conflict and role ambiguity are inherent features of any major organization that can potentially result in adverse personal outcomes. There is a paucity of information regarding the multifaceted role of the nurse administrator, especially along the lines of role stress and strain. Understanding the impact of the organizational environment on USAF chief nurses would lend insight into the chief nurse role and could lead to the development of job-enhancement strategies.

You are very important to this study to insure the findings truly represent USAF chief nurses. It is for these reasons that I am sending this by certified mail to insure delivery. In case my correspondence did not reach you, a replacement questionnaire package with the original cover letter explaining benefits, risks, confidentiality, and questionnaire instructions is enclosed. May I urge you to complete and return the questionnaire packet as quickly as possible. If this letter and your returned questionnaire packet have crossed in the mail, please disregard this follow-up request and accept my thanks.

Your contribution to the success of this study will be greatly appreciated.

DURELLE B. FULLENKAMP, Major, USAF, NC
AFIT Graduate Nurse Student
Northwestern State University,
Nursing Education Center
(Supervising Thesis Chair: Norann Y. Planchock, R.N., PhD.)

1 Atch
Questionnaire Packet

APPENDIX H

HUMAN SUBJECTS APPROVAL

DATE 10-16-86

TO: Durelle B. Fullenkamp

FROM: Dr. Patricia A. Moxley

Chairperson, Committee on the Protection of Human Subjects in Research

AT THE COMMITTEE ON THE PROTECTION OF HUMAN SUBJECTS IN RESEARCH MEETING
OF October 15, 1986YOUR PROPOSAL ENTITLED Role conflict, role ambiguity, and role strainin United States Air Force chief nurses

WAS APPROVED

X

WAS NOT APPROVED

IF YOU HAVE ANY QUESTIONS, PLEASE PHONE THE CHAIRPERSON AT 677-3100

APPENDIX I

UNITED STATES AIR FORCE APPROVAL



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MILITARY PERSONNEL CENTER
RANDOLPH AIR FORCE BASE TX 78150-6001

117

3 DEC 1986

Major Durelle B. Fullenkamp
2807 Loriwood Drive
Haughton, Louisiana 71037

Dear Major Fullenkamp

Thank you for providing a copy of your final research package for our files. As indicated in our 30 Oct 86 telephone conversation, a survey control number (SCN) of USAF SCN 86-131 is your authority to utilize the instrument through 31 Jan 87.

We wish you much success in this effort and continued success in your academic pursuits.

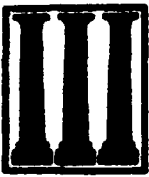
Sincerely

A handwritten signature in cursive script, appearing to read "Charles H. Hamilton".

CHARLES H. HAMILTON, GM-13
Chief, Personnel Survey Branch

APPENDIX J

COMMAND NURSE INFORMATION LETTER



4 November 1986

Dear

I am an AFIT graduate student in Adult Nursing with a focus in a leadership functional role at Northwestern State University interested in researching role stress and role strain in USAF chief nurses. This study will partially fulfill the requirements for a master's degree.

The purpose of my study is to examine if there is a relationship between role conflict, role ambiguity, and role strain in USAF chief nurses in CONUS. The information gathered will be included in my thesis report and also sent to USAF/SGN. This investigation will profile USAF chief nurses in CONUS and enable the Nurse Corps to begin to understand the effects of organizational environment on our chief nurses.

This study received preliminary approval by AFMPC/SGCN and AFMPC/SGEN. Final approval was granted by AFIT/CIMI, AFIT/XPX, and AFMPC/MPCYPS as well as Northwestern State University Human Subjects in Research Review Committee. I have enclosed, for your review, the survey package that your chief nurses will receive. Should you have any questions or concerns, please call me collect at (318) 949-4595.

Thesis abstracts will be made available on your request. I appreciate your assistance and support in this endeavor.

DURELLE B. FULLENKAMP, Major, USAF, NC
AFIT Graduate Nursing Student
Northwestern State University,
Nursing Education Center
(Supervising Thesis Chair: Norann Y. Planchock, R.N., PhD.)

1 Atch
Survey Package

APPENDIX K

MEAN ITEM SCORE AND RANKING OF THE TENNESSEE STRESS SCALE - R (TSS - R)

ITEMS FOR UNITED STATES AIR FORCE CHIEF NURSES

Appendix K

Mean item score and ranking of the Tennessee Stress Scale - R (TSS - R) items for United States Air Force chief nurses

TSS - R Item*	Rank	Mean Item Score
<u>Strain Producers (N = 74)</u>		
I assume a nurturing leadership role.	1	0.878
My position forced me to develop a more forceful-aggressive role.	2	0.667
Meeting constant deadlines at work causes me stress.	3	0.653
The frequency of interruptions while performing job tasks causes me frustration constantly.	4	0.581
I compare my job performance with others in my organization.	5	0.573
I am overly critical of my performance in my job responsibilities.	6	0.507
My position makes me feel socially isolated.	7	0.395
I feel vulnerable in my work in that my willingness to take high risk tasks may backfire.	8	0.382
I underestimate my skills and abilities.	9	0.364
My personal limitations on the job cause me stress.	10	0.320
Higher levels of administration reinforce me for my work.	11	0.301

Table 12 (continued)

TSS-R Item*	Rank	Mean Item Score
I take on more responsibility to prove I am as capable as others.	12	0.280
Being placed in a leadership role without authority creates a problem for me.	13	0.233
My colleagues express sufficient appreciation for my hard work done in their behalf.	14	0.227
The idea that I'm not OK, learned from childhood experiences, affects my professional competencies.	15	0.197
I feel that no matter how hard I try at work, I will not receive the recognition I deserve.	16	0.120
Unclear job responsibilities cause me undue stress.	17	0.143
My professional colleagues assume that I will take a passive leadership role.	18	0.117
I lack experience in major decision-making responsibilities.	19	0.078
I feel my subordinates resent my authority.	20	0.041
TOTAL MEAN -		0.352
<u>Strain Coping Mechanisms (N - 77)</u>		
When I am under stress, I am more impatient with others.	1	0.789

Table 12 (continued)

TSS -R Item*	Rank	Mean Item Score
When under pressure, I seek support or advice from a close friend. (This item not on original TSS -R)	2	0.776
When under stress, I exercise regularly.	3	0.613
When I am stressed, I avoid job tasks which are frustrating.	4	0.532
When things are stressful at work, I overreact to criticism.	5	0.472
When work pressures increase, I make it a point to get sufficient amounts of rest and sleep.	6	0.382
When I am under pressure at work, I express more hostility.	7	0.373
When pressure is great at work, I find that my interpersonal relationships deteriorate.	8	0.368
When I am under stress at work, I take time for myself.	9	0.351
When work becomes difficult, I feel I have "fallen short".	10	0.338
When under stress, I find a cocktail before dinner is relaxing.	11	0.312
When I experience stress at work, I set realistic expectations for myself.	12	0.260
When under stress at work, I turn problems into opportunities.	13	0.208
When I am under stress at work, I become more depressed and withdrawn.	14	0.195

Table 12 (continued)

TSS-R Item*	Rank	Mean Item Score
The frequency of interruptions while performing job tasks causes me frustration constantly.	15	0.160
When I have work pressures, I am able to transcend my stress by seeing the humorous aspects and laugh.	16	0.122
When difficulties arise, I allow time to resolve the issue.	17	0.117
When personal conflicts arise, I prefer to directly confront people.	18	0.078
When work is stressful, I am able to identify factors that cause me stress.	19	0.052
When problems arise, I tend to blame others.	20	<u>0.032</u>
TOTAL MEAN - 0.338		
<u>Strain Symptoms (N = 77)</u>		
Fatigue	1	0.805
Irritability toward others	2	0.505
Sleep problems	3	0.500
Weight gain	4	0.494
Tightness or soreness of muscles	5	0.421

Table 12 (continued)

TSS-R Item*	Rank	Mean Item Score
Headaches	6	0.408
Professional Burnout	7	0.403
Nervousness	8	0.395
Excessive smoking	9	0.377
Decrease in sexual interest	10	0.273
High blood pressure	11	0.195
Skin irritations	12.5	0.156
Backaches	12.5	0.156
Allergies	14	0.145
Stomach pains	15	0.143
Diarrhea	16	0.130
Pain or discomfort which is medically undiagnosed	17	0.118
Nausea	18	0.117

Table 12 (continued)

TSS -R Item *	Rank	Mean Item Score
Weight loss	19	0.065
Ulcers	20	<u>0.032</u>
	TOTAL MEAN - 0.294	

*Range for scores - 0 to 1/item

END

12-87

DTIC