THE RELATIONSHIP BETWEEN INTERPERSONAL COMMUNICATION SATISFACTION AND BIOLOGICAL SEX: THE NURSE-PHYSICIAN RELATIONSHIP

THESIS

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF ARTS

By

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1994
Glenn, Theresa Hammerstein, The Relationship Between Interpersonal Communication Satisfaction and Biological Sex: The Nurse-Physician Relationship. Master of Arts (Communication Studies), August, 1994, 78 pp., 5 tables, 1 figure, references, 85 titles.

This study examined to what extent the biological sex of the nurse-physician interactants affects the interpersonal communication satisfaction experienced by the nurse. Hypotheses One and Two predicted that communication satisfaction would differ significantly across various combinations of sex of nurse and sex of physician dyads. Hypothesis Three predicted that male nurses would experience higher levels of communication satisfaction than would female nurses. Interpersonal communication satisfaction was operationalized by two self-report instruments. The sample included 153 male and female nurses. Results indicated that same-sex interactions were more satisfying for female nurses, while mixed-sex interactions were more satisfying for male nurses. Nurses reported greater communication satisfaction when interacting with female physicians. Hypothesis three was not supported.
ACKNOWLEDGMENTS

I wish to thank my advisor, Dr. Jill Rhea, for her patience, understanding, zeal for correctness, and her ability to instill in me the encouragement needed to complete this study. Without her guidance and assistance this project would not have been completed. I also wish to express my appreciation to my committee members, Dr. Mark DeLoach and Dr. Frank Rachel, for their unending support and encouragement.

I wish to thank the participating hospitals for their cooperation and the hospital personnel who aided me in data collection.

I also wish to thank my family, friends, and husband who have stayed by my side throughout this project. I thank them for their patience, love and support. Finally, I wish to thank my sister Denise for demonstrating to me what strength and courage really mean.
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CHAPTER I

RESEARCH PROBLEM

Introduction

A common goal of health-care administrators and nurse managers is to prevent the exodus of nurses from the health-care industry. The nursing shortage is indicated by a 9% vacancy rate for hospital registered nurses ("Newswatch," 1993). In Modern Healthcare (1987), it was reported that within the next six years the demand for nurses will outweigh the supply by 1.2 million positions. There exists a rising fear among the medical professions that the nursing shortage may become chronic ("Newswatch," 1993). In an attempt to avert increasing vacancy rates, most researchers agree that all possible causes of the shortage should be investigated (Bream & Schapiro, 1989; Mowry & Korpman, 1987; Stroud, 1992). This study investigated the relationship between two variables that could possibly affect the nursing shortage. The relationship under investigation was that between the biological sex of the nurse-physician interactants and interpersonal communication satisfaction experienced by the nurse.

This chapter presents the statement of the problem followed by the definition of terms and a discussion of the
study's significance. Finally, an explanation of the scope of the study is provided.

Previous research supports a direct correlation between employee turnover and job satisfaction, thus, researchers investigate those variables related to nurses' job satisfaction (Butler & Parsons, 1989; Larson, Lee, Brown & Shorr, 1984; Mantel, 1990; Stroud, 1990; Williams, 1990). Specifically, Pincus (1986) found that communication satisfaction heavily influences nurses' job satisfaction.

There existed, however, a weakness in the health-care studies that related communication satisfaction to overall job satisfaction. The majority of these studies neglected to address how interpersonal communication satisfaction affected organizational communication satisfaction. In a study concerning nurses' job satisfaction, Slavitt, Stamps, Piedmont, and Haase (1978) discovered that nurse-physician interaction is a separate factor in nurses' job satisfaction. Originally, nurse-physician interactions were categorized within the overall job interactions. Recent researchers, such as Butler and Parson (1989), Stroud (1992), and Williams (1990) have recognized this weakness and have started focusing on nurse-physician interactions as a separate factor in nurses' satisfaction with organizational communication and job satisfaction.
Statement of the Problem

This study was concerned with interpersonal communication satisfaction experienced by nurses while interacting with physicians. In order for researchers to develop a link between nurse-physician interactions and organizational communication satisfaction more research concerning the interpersonal aspects of the nurse-physician relationship should be conducted. One particular interpersonal aspect is that of interpersonal communication satisfaction. Hecht (1984a) and Wheeless, Wheeless, and Riffle (1989) have established interpersonal communication satisfaction as a significant variable when studying dyadic relationships.

Purposes of the Study

This study's purpose was to examine to what extent the biological sex of the nurse-physician interactants affects the interpersonal communication satisfaction experienced by nurses. Specific questions raised by this study are:

1. Does communication satisfaction differ significantly across various combinations of sex of nurse and sex of physician?

2. Do same-sex nurse-physician interactions, as compared to mixed-sex interactions, lead to increased interpersonal communication satisfaction experienced by the nurse?
3. Do nurses of a particular sex experience more interpersonal communication satisfaction while interacting with physicians than the other sex?

**Definition of Terms**

**Biological Sex.** For the purpose of this study, the biological make up of a person refers to the condition of being male or female.

**Interpersonal Communication Satisfaction.** Interpersonal communication satisfaction is the affective reaction a person associates with communication as measured by the following factors on a modified Com-Sat Inventory: (1) descriptions of self, (2) descriptions of other, and (3) descriptions of jointly demonstrated communication behaviors (Hecht, Sereno, & Spitzberg, 1984).

**Physician.** A physician is a person who has graduated from an accredited medical school, who is licensed by the State of Texas to practice medicine, and who is registered with the Texas State Board of Medical Examiners as a practitioner (Texas State Board of Medical Examiners, 1992).

**Registered Nurse.** A registered nurse is any person licensed by the State of Texas to practice the profession of nursing after successfully completing either a two year, three year, or four year accredited nursing program (Board of Nurse Examiners for the State of Texas, 1990).
Significance of the Study

This study is significant to the communication discipline, to the study of interpersonal communication satisfaction, to health communication research, and to health-care professionals and consumers. The study has contributed to the discipline's credibility by showing the social relevance of health communication research. Kreps (1989) wrote:

By examining the role of human communication in complex and challenging health care situations and facilitating effective use of communication strategies by participants in these settings, health communication inquiry can make a major contribution to the public's welfare and increase communication's disciplinary credibility. (p. 12)

By examining one key component to the delivery of quality patient care, this study has demonstrated the social relevance of communication knowledge. That key component is the nurse-physician relationship.

The communication discipline also benefits from this study's focus on interpersonal communication satisfaction. First, communication researchers have identified the need to assess the outcomes of communicative encounters (Hecht, 1978a). Only by having a thorough understanding of communication results can an integrative explanation of communication behavior be achieved (Hecht, 1978b). The
measurement of interpersonal communication satisfaction, which allows researchers to operationalize the results of communicative behavior, enables researchers to achieve this integrative explanation of communication behavior. Second, the study of interpersonal communication satisfaction enhances researchers' understanding of the communicative process by serving "as a determinant of other immediate and future communication behaviors" (Hecht, 1978b, p. 366). The communication satisfaction a person experiences during an interaction often determines the next step in his/her communicative process.

Interpersonal communication satisfaction is the second area to benefit from this study. Until the work of Hecht (1978a), few scholars had examined, theoretically or empirically, interpersonal communication satisfaction. As requested by Hecht (1978b) in his development of the construct, this study proposed the following: (1) to further examine the only existing measure of interpersonal communication satisfaction, (2) to work with the construct in a setting other than the social context, and (3) to examine the effect of biological sex on interpersonal communication satisfaction.

The significance of this study to health communication inquiry is illustrated in two ways. First, Thompson (1984) wrote, "Most research on communication in the health professions does not take a communicative perspective" (p.
She continued by saying that this lack of focus and theory is present in the majority of health communication research published. This study attempted to resolve that problem by focusing on the construct of interpersonal communication satisfaction and the developmental Health Communication Model (HCM) designed by Northouse and Northouse (1985).

The authors of the HCM labeled it as developmental because they view the field of health communication as "unfolding in its initial stages of development" and the model is "only the first step toward the construction of a refined model of health communication" (p. 21). Therefore, by studying the HCM and interpersonal communication satisfaction, this study is contributing focus and theory to the health communication field.

Secondly, as the health communication field continues to develop, researchers should focus on the application of current health communication research. Kreps (1989) stated that "the primary goal for health communication is not to break out in print, but to generate health communication knowledge for directing health care policy, practice, and intervention" (p. 14). This study has generated knowledge concerning health-care practice and those responsible for intervention and is applicable to the everyday interactions of nurses and physicians.
The benefits of this study have proven to be significant to those most involved in health-care intervention, the health-care professionals and clients. Hecht (1978c) asserted that "communication satisfaction has direct and straightforward applications to the improvement of communication skills" (p. 47). Any improvement in the communication between physicians and nurses can only lead to more fulfilling interactions, and, thus, more satisfying nurse-physician relations. Hecht et al. (1984) noted that "the degree of satisfaction experienced after interpersonal interactions is a significant emotional response; it affects relational development, maintenance, and disintegration" (p. 376). Researchers should be concerned with all three of these aspects in the nurse-physician relationship.

The public welfare also benefits from this study. Mauksch (1981) wrote that "because nurses and physicians constitute the principal provider dyad of patient care delivery, it is reasonable to assume the quality of their relationship is one determinant of the quality of patient care they deliver" (p. 35). Kreps (1988) argued that effective communication between the nurse-physician dyad can promote the delivery of high quality health-care, while ineffective communication between this dyad can seriously deter the quality of health-care delivery. Finally, Wheeless, et al., (1989) claimed that "it is important to examine significant communication variables within health-
care systems and among health-care providers" (p. 190). Interpersonal communication satisfaction is a significant communication variable, and nurses are health-care providers.

Scope of the Study

In light of the emerging focus on health-care employees' communication skills (Honeycutt & Worobey, 1987), this study focused on the interpersonal communication satisfaction experienced by nurses when interacting with physicians about patient care. The effects of the biological sex of nurses and physicians on the nurses' interpersonal communication satisfaction were examined. The interpersonal communication satisfaction experienced by the physicians was not addressed. This study's lack of focus on physicians' interpersonal communication satisfaction does not equate with a lack of importance. The health communication field has produced numerous articles that focus on physician communication skills (Anderson & Sharpe, 1991; Beisecker, 1990; Bensing, 1991; Meeuwesen, Schaap, & Staak, 1991; Schneider & Tucker, 1992; Street & Wiemann, 1988; Thompson & Pledger, 1993). The resulting focus on nurses' perspectives is a result of this researcher's concern for the nursing field and the shortage it now faces.

Participants consisted of nurses with an education equivalent to a diploma degree or higher. Individuals with a LVN nursing certificate were not included in this study because the status and specific duties associated with their
positions influence their interactions with physicians. The sampling frame consisted of nurses who are employed by hospitals that practice primary-care nursing (PCN). PCN hospitals were chosen over hospitals that practice team-work nursing (TWN) for two reasons: (1) PCN hospitals focus more on a collegial relationship between the physician and nurse, and (2) PCN hospitals encourage the development of open dialogue between the physician and nurse about patient care (Devereux, 1981). The sample included male and female nurses.

**Summary**

This chapter examined the statement of the problem, the definition of terms, the significance of the study, and the scope of the study. The following chapter presents a review of literature pertinent to the Health Communication Model, the construct of interpersonal communication satisfaction, sex differences in interpersonal communication satisfaction, and the nurse-physician relationship. Chapter Two also reports research hypotheses that are derived from the literature.
CHAPTER II

REVIEW OF LITERATURE

Introduction

In the preceding chapter the problem, significance, and scope of the study were addressed. This chapter surveys the literature that is reflective of the many areas from which this study is drawn. Attention in this review is focused on the outcome of interpersonal communication satisfaction and whether a relationship exists between that outcome and the biological sex of the nurse and physician. Criteria for the selection of pertinent literature were the identification of factors that: (1) explained the concept of interpersonal communication satisfaction, (2) explained the relationship between sex and interpersonal communication satisfaction, and (3) discussed the nurse-physician relationship and how the biological sex of the interactants affects that relationship.

The organization of this review begins by discussing systems theory and the elements of the Health Communication Model (HCM) which provide a theoretical structure for the study. Next, the conceptualization of interpersonal communication satisfaction is addressed, followed by a discussion of how biological sex affects interpersonal communication satisfaction. Finally, the issue of sex is
discussed in relation to the nurse-physician relationship. After the variables of the study are reviewed, emergent hypotheses are identified.

**Systems Theory**

Systems theory provides a theoretical structure for organizing knowledge about human communication, and because it is applicable to the study of organizations, it also provided a theoretical structure for this study. When explaining the world view of systems theory, Monge (1977) wrote that "systems consists of interlinked sets of components hierarchically organized into structural wholes which interact through time and space, are self-regulating, yet capable of structural change" (p. 20). According to a systems point of view, there is a complex interaction among the parts that make up a system. Essentially, the whole is viewed as more than the sum of its parts.

When explaining how systems theory relates to organizations, Seiler, Baudhuin, and Schuelke (1982) wrote: The systems approach to the study of the organization was initiated from the premise that an organization is a system, composed of a series of definite components all of which are interrelated and must be dependent upon one another for the organization to function effectively and to achieve its goals of optimal efficiency. (p. 17)

Systems theory applies to all types of organizations. Northouse and Northouse (1985) recognized the advantages of
applying systems theory to organizations when developing the Health Communication Model.

The Health Communication Model

In *Health Communication* (1985), Northouse and Northouse presented what they called a developmental model of health communication. In this model health communication is defined as transactions between participants in health-care about health-related issues. The authors' primary focus is on health communication that transpires within the different types of relationships in health-care settings. See Figure 1. The model is based on a broad systems view of communication and focuses on the way interactions in health-

![Figure 1. Health Communication Model](image)

care settings are affected by three major factors of the health communication process. The three major factors included in the HCM are as follows: (1) participants, (2) transactions, and (3) contexts. The following discussion further defines these three factors.

**Participants.** The primary participants in health communication consist of health professionals, clients, and significant others. According to Northouse & Northouse (1985), those engaged in health communication are operating from one of these three participant's perspectives. This study operates solely from the health professionals' perspectives. Given the assumptions of systems theory, it is plausible to assert that any improvement made in the health professional components of the organization should lead to an overall improvement in the interaction among all the parts of the system.

The HCM includes not only the role of the health professional, but the specific characteristics, beliefs, values, and perceptions of each health professional that affect how s/he interacts with other professionals and clients. Also included in this category is the age, sex, socio-cultural background, and past experiences of the health professional. This study investigated how the sex of those involved in nursing and medicine affects the interaction between the physician and nurse. The clients and significant others included in the HCM are not examined in this study.
Transactions. The second major element in the HCM is comprised of transactions. Northouse and Northouse (1985) explained that "transactions refer to the health-related interactions that occur between participants in the health communication process" (p. 25). The model represents transactions through four kinds of relationships: (1) professional-professional, (2) professional-client, (3) client-significant other, and (4) professional-significant other. The HCM demonstrates that the four types of relationships are capable of influencing one another. Thus, improvement in the professional-professional relationship may lead to improvement in the professional-client relationship. Improvement in the professional-client relationship may then lead to improvement in the professional-significant other relationship. An underlying intent of this study was to examine what improvements could be made in the professional-professional transaction.

Contexts. Health-care contexts form the third major element of the health communication process. Northouse and Northouse (1985) wrote that "contexts consist of the settings in which health communication takes place and the systemic properties of these settings" (p. 25). Health-care contexts have a strong influence on the interaction that occurs between all health-care participants. There are two levels of health-care contexts. The first level refers to the actual health-care setting, such as a clinic, hospital, or
nursing home. The second level refers to the number of participants within a specific health-care setting, such as one-to-one interactions, triads, or small groups. In this study the health-care setting was the hospital and only one-to-one interactions were studied.

Discussion of the HCM. Although the HCM has several strong points, one key weakness needs to be pointed out. The theory is in the developmental stages and is more of a descriptive theory than explanatory theory. The HCM examines the phenomenon of relational interactions in the health-care setting and identifies three major factors that affect those interactions. While the reasoning as to why the particular elements of the HCM were chosen and how they affect one another was provided by Northouse and Northouse (1985), the model needs more support for its explanation of why the four types of relationships are capable of influencing each other. This study was an attempt to provide that support by investigating the effects of biological sex on the interaction of a nurse and physician. Thus, this study attempted to further develop one aspect of the HCM.

Communication Satisfaction

Theoretical Perspective. Hecht (1978c) developed the discrimination fulfillment approach to communication satisfaction in an attempt to overcome the numerous shortcomings of prevailing conceptualizations of satisfaction. The prevailing conceptualizations of
satisfaction failed to address outcomes of communication behaviors such as emotional, persuasive, and behavioral outcomes. Hecht's (1978c) conceptualization of communication satisfaction incorporated aspects from the expectation fulfillment position, as well as, aspects from Skinnerian behaviorism (Hecht, 1978c). The discriminative fulfillment approach implies that "communication satisfaction is an internal, secondary reinforcer arising from the generalization of environmental reinforcement of behaviors manifested in response to the presence of a discriminative stimulus" (Hecht, 1978c, p. 59). In this study the discriminative stimulus is the biological sex of the physician, including the nurse's expectations of the physician's sex-defined communicator style.

Included in this approach is the idea that persons, based upon their past learnings and history of reinforcement, develop discriminations by which they judge their world, and, thus, judge what is satisfactory or unsatisfactory. Satisfaction labels a person's reaction to encountering the world s/he has been conditioned to expect (Hecht, 1978c). When a person's expectations of a successful and fulfilling conversation are met, satisfaction is the outcome. According to the discrimination fulfillment approach, dissatisfaction or displeasure can also be measured.
Interpersonal Communication Satisfaction Operationalized.
The discriminative fulfillment position is concerned with the outcomes derived from behavior. The investigation and measurement of these outcomes contributes to knowledge concerning "communication expectations and responses to the communication we send and receive" (Hecht, 1978b, p. 350). In response to a need to measure such outcomes and causes of outcomes, Hecht (1978a) developed and refined the only existing measure of interpersonal communication satisfaction: The Communication Satisfaction Inventory (Com-Sat Inventory). According to the Com-Sat Inventory, interpersonal communication satisfaction is a unidimensional construct. The inventory is designed to measure satisfaction or dissatisfaction from a social situation according to three levels of relationships: (1) friends, (2) acquaintances, and (3) strangers. The inventory can also be utilized to measure two types of conversations: (1) an immediate/actual conversation, or (2) a recalled conversation. A detailed discussion of the Com-Sat Inventory is provided in Chapter Three.

Sex Differences in Communication Behavior
The relationship between biological sex and differences in communication behaviors has a long, complex, and inconsistent history. Martin & Craig (1983) stated that "we have as yet no unified theoretical perspective with which to approach the problem" (p. 16). Research has indicated sex
differences in management styles (Baird & Bradley, 1979; McCallister & Gaymon, 1989), nonverbal behavior (Hall, 1985; Isenhart, 1980; Nguyen, Hesli, & Nguyen, 1975), leadership roles (Ansari, 1989; Crosby, 1988), language usage (Smythe & Schlueter, 1989), and small group behavior (Baird, 1976).

Although the literature has, to some degree, demonstrated that males and females often differ in their communication behaviors, research has not been able to show whether these differences lead to the same ends, or whether either sex-defined communication "style precludes certain outcomes" (Hecht, 1984a, p. 733). A goal of communication research is not only to determine differences in male and female behavior, but to determine whether the outcomes obtained by these two styles of behavior differ as well. This study was concerned with the emotional outcome of communication satisfaction. Hecht (1984a) asserted that "since satisfaction is a salient outcome of effective behavior, it is important to determine whether males or females experience greater satisfaction with their communication" (p. 734).

In addition to male and female differences in communication behaviors, the sex composition of the dyad has also been investigated. Once again, however, the research concerning the effects of the dyad's sex composition is not consistent (Mulac, Wiemann, Widenmann, & Gibson, 1988). Mulac et al. (1988) found "gender-linked differences in
language use, partner influences on that use, and differences in the resultant attributional effects" (p. 333). In results reported by Martin and Craig (1983) it was suggested that within same-sex dyads, especially among women, "a more relaxed pattern of talk" was utilized (p. 16).

**Sex Differences and Interpersonal Communication Satisfaction**

Although the number of areas in which the Com-Sat Inventory has been utilized has increased throughout the years (Daniels & Logan, 1983; Downs, 1990; Hecht, 1984b, Hecht, Ribeau, & Alberts, 1989; Wheeless, Wheeless, & Howard, 1984b), few studies have addressed the issues of interpersonal communication satisfaction and biological sex (Hecht, 1984a; Lamude, Daniels, & Graham, 1988). Due to the fact that only two studies have been conducted concerning the direct relation between sex of individual, sex composition of the dyad, and interpersonal communication satisfaction, an in-depth analysis of the two studies is presented.

Hecht (1984a) conducted a study that examined sex differences in the emotional outcome of communication satisfaction. The study, referred to as Study One in this project, was designed to test the following hypothesis: Communication satisfaction differs across various combinations of sex of self and other. Respondents included 252 student volunteers. Communication satisfaction was measured by the Com-Sat Inventory and the biological sex of the rater (self) and the person with whom s/he had conversed.
(other) was recorded on two male/female checklists. The study utilized two treatments in its collection of data. The first treatment was the immediate rating of satisfaction and the second treatment utilized the recalled rating of satisfaction. The participants in Study One reported on social conversations. A social conversation is defined as "one in which the respondents took part in ... for the enjoyment of the conversation" (Hecht, 1984a, p. 735). The conversations tested in Study One did not include gaining information for later use, job functions, or classroom-related interactions.

In order to determine if sex of self or other influenced total communication satisfaction a 2 X 2 X 2 (sex of self, sex of other, treatment) analysis of variance was calculated. Results indicated that sex of rater and sex of other did not have significant independent effects on communication satisfaction. The sex of self and sex of other interaction, however, was significant at the .05 level. The reported findings held across both immediate and recalled treatments. The results pertaining to the interaction effect suggested a tendency for mixed-sex dyads to be more satisfying. Hecht (1984a) did note, however, that the significant interaction accounted for little variance and that it required further examination.

In the second study concerning the influence of sex on interpersonal communication satisfaction the authors were
concerned with the superior-subordinate relationship (Lamude et al., 1988). The authors of Study Two hypothesized that the biological sex of the superior and subordinate would affect communication rules coorientation and communication satisfaction. Specifically, the authors predicted that satisfaction would be lower for both parties in female superior/male subordinate relationships than in other conditions. The sample consisted of 94 superior-subordinate pairs from over 20 different organizations. Employed students at a university were recruited and then participation by their superiors was solicited.

In order to measure communication satisfaction in an organizational setting the Com-Sat Inventory was modified to assess conversations with a supervisor. The modified Com-Sat Inventory assessed general communication satisfaction with one's superior or subordinate. Lamude et al. (1988) explained that "the hypothesis was tested with multivariate analysis of variance on the interaction effect, followed by interpretation of significant univariate interactions" (p. 128). A post hoc analysis concerning subordinates' communication satisfaction indicated higher satisfaction in same-sex relationships than in mixed-sex relationships. Similar results were reported for the superiors' communication satisfaction. The post hoc analyses also revealed a significant difference in the ordered pairs of group means between the male superior/female subordinate and
male superior/male subordinate. Satisfaction was lower for the supervisor in the male superior/female subordinate than in male superior/male subordinate.

There are several possible reasons for the inconsistencies found in the results of Study One and Study Two. First, although both samples dealt with college students, the relationships between the pairs of participants differed significantly. In Study One, participants were randomly paired strangers for the immediate treatment, and for the recalled treatments the relationship between the participants was unknown. On the other hand, participants in Study Two knew each other at a co-worker level and were part of an established relationship. The differences in these studies' results indicate that the type of relationship that is reported on will affect what the participants expect from that conversation (Hecht, 1984b).

The second explanation centers around the type of conversations that were analyzed. Hecht's (1984a) study focused on social conversations, as defined previously. In contrast, Study Two dealt with work-related conversations. Once again, the differences in the results of these studies indicate that the type of conversation being analyzed will affect how the participants measure their satisfaction with that conversation. The instruments used to measure satisfaction in both studies were studying the same concept of interpersonal satisfaction, but from two different
approaches-- social versus professional. Thus, it was not surprising to find two different sets of results.

Although Study One and Study Two reported different types of interaction effects, they both support the following hypothesis:

$H_1$. Communication satisfaction will differ significantly across various combinations of sex of nurse and sex of physician dyads.

**Nurse-Physician Relationships**

The nurse-physician relationship provides an excellent arena in which to study interpersonal communication satisfaction and the effects of biological sex on satisfaction. Although Stein (1967) claimed that "the relationship between the doctor and nurse is a very special one," researchers continue to note that this special relationship is one in desperate need of strengthening (Bream & Schapiro, 1989; Freidman, 1990; Stein, 1967; Stroud, 1992; Wagner & Norhold, 1991).

In a study conducted by the editors of *Nursing 91*, 56% of respondents reported they were dissatisfied with their professional relationships with doctors (Wagner & Norhold, 1991). Researchers, in an attempt to understand the conflicts that exist between physicians and nurses, have examined a variety of aspects of the health-care dyad. Several of the variables examined include role ambiguity and insufficient interdisciplinary understanding (Bates, 1970;

A fourth variable that has been reviewed in the literature, although not studied scientifically, consists of sex differences between the nursing and medical professions. According to the Bureau of Labor Statistics (1989), 94.7% of registered staff nurses in the U.S. are female. In contrast, females comprise only 16.4% of U.S. physicians (AMA, 1990). As evidenced by these statistics, the vast majority of nurse-physician relationships are comprised of mixed-sex dyads. Lamude et al. (1988) reported that superior-subordinate relationships of the same-sex have a tendency to be more satisfying than mixed-sex superior/subordinate relationships. Thus, taking those results into consideration, sex differences between the nursing and medical professions could be a partial explanation for the existing conflict among the two professions.

There are two reasons as to why the second hypothesis of this study concerning sex composition of the nurse-physician dyad and interpersonal communication satisfaction is directed by the results reported by Lamude et al. (1988). First, the relationship between the nurse and physician is very similar
to the superior/subordinate relationship found in Study Two. For the purpose of this study, Jablin's (1979) definition of superior-subordinate communication is utilized. According to Jablin,

The definition of superior-subordinate communication is limited to those exchanges of information and influence between organizational members, at least one of whom has formal (as defined by official organizational sources) authority to direct and evaluate the activities of other organization members. (p. 1202)

Whereas an exchange of information occurs between the doctor and nurse, the two organizational members exchange influences, and the physician has some formal authority to direct certain nurse activities, neither of the professionals have formal authority to evaluate the other (Levin & Berne, 1972). Despite this realization, an assumed informal (i.e., not prescribed by organizational directives) superior-subordinate relationship exists between the physician and nurse. The second reason hypothesis two is directed by Study Two is because the Com-Sat Inventory to be used in the proposed study is adjusted according to the modified instrument used by Lamude et al. (1988).

Therefore, based on literature reviewed concerning the nurse-physician relationship and the influence of biological sex on communication satisfaction, the following hypothesis is offered:
H2. Same-sex interactions, when compared to mixed-sex interactions, will result in significantly higher interpersonal communication satisfaction experienced by the nurses.

Conflict Among Nurses

Discussed earlier in this review was the notion that the communication discipline cannot only be concerned with differences in female-male behaviors, but it must also be concerned with differences in the outcomes of those behaviors. This study was concerned with the outcome of communication satisfaction and whether female or male nurses experience higher levels of satisfaction when interacting with physicians.

The battle of the sexes in the nursing field is a relatively new battle. Ott (1989) reported that "male nurses enjoy advantages from being one of the few among female colleagues" (p. 41). This study proposed that one of those advantages is a higher level of communication satisfaction while interacting with physicians. According to results reported by Ott (1989), 59% of the male nurses surveyed reported that "physicians behave differently toward male and female nurses. They take male nurses more seriously and give them more responsibility. Male nurses say they are more often seen as equals by physicians" (p. 51). In the survey conducted by Nursing 91 a male nurse wrote, "I wonder: Do doctors treat me better than they treat female nurses? The
answer: yes" (p. 63). Another nurse wrote, "A large majority of doctors still treat nurses as handmaidens. I think the biggest problem is gender. Doctors treat male nurses much differently than female nurses -- they automatically give them more respect and talk to them like peers" (pp. 63-64).

In addition, the results reported by Lamude et al. (1988) apply to the question of which sex experiences greater satisfaction. Based on current statistics a male nurse is most likely to interact with a male physician. Thus, male nurses benefit from a same-sex interaction.

Given this information, the following hypothesis is offered:

$H_i$. Male nurses will experience higher levels of interpersonal communication satisfaction when interacting with physicians than will female nurses.

Summary

This chapter has provided a literature base for interpersonal communication satisfaction, sex differences in communication behaviors and interpersonal communication satisfaction, and the nurse-physician relationship. Three research hypotheses were developed from the research. The following chapter provides a thorough description of how this researcher conducted the study. Specifically, the methodology includes a discussion of the independent and
dependent variables, participants, instrumentation, procedure, and analysis of data.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this study is to examine to what extent the biological sex of the nurse-physician interactants affects the interpersonal communication satisfaction experienced by the nurse. Thus, the nurse's biological sex is identified as the independent variable. The amount of interpersonal communication satisfaction experienced by the nurse when interacting with a female physician is recognized as one dependent variable. The amount of interpersonal communication satisfaction experienced by the nurse when interacting with a male physician is recognized as the second dependent variable. This chapter's focus is on the participants, instrumentation, and procedure that was utilized during this study. Reliability of the instruments and analysis of data are also discussed.

Participants

Participants included 153 nurses from seven hospitals that varied in size, were located in a variety of cities and were either public or private. This range of hospitals was chosen to ensure a diverse sample of nurses. Nurses on general floor duty and from all work shifts were studied.
Instrumentation

Interpersonal communication satisfaction. Hecht's (1978a) Com-Sat Inventory was modified in order to obtain a measure of nurses' general communication satisfaction with physicians. The modified version referred specifically to conversations the nurses have had with male and female physicians instead of the "other person" as stated on the original Com-Sat Inventory. The Com-Sat Inventory is a 16 item seven-point Likert type scale (Strongly Agree to Strongly Disagree) which reflects a respondent's perceptions of a conversation. The items include descriptions of self, other, and jointly demonstrated communication behaviors (Hecht et al., 1984). Examples of the communication behaviors included on the inventory are involvement, self disclosure, intentions, control of conversation, and self presentation (Hecht, 1984b). An overall score of satisfaction was obtained by summing the points across the 16 items. Hecht (1984a) explained that "depending on the item, 7 could be assigned to strongly agree or to strongly disagree...In every case the higher the satisfaction, the higher the assigned score" (p. 736).

Overall, the original Com-Sat Inventory resulted in split-half reliabilities ranging between .90 and .97. Validity coefficients, determined by correlating the general measure with a nonverbal measuring technique and the Faces Scale, ranged from .66 to .86 (Hecht, 1978b). A modified 14
item version of the Com-Sat Inventory that assessed overall communication satisfaction with superiors and subordinates obtained a test-retest reliability of .94 (Wheeless, et al., 1984b).

Although the original Com-Sat Inventory was designed to assess one conversation, Wheeless, Wheeless, and Baus (1984a) reworded the items to reflect general overall conversations. The modified version, as explained by Wheeless et al. (1984a) was "factor analyzed with an eigen-value = 1.0 cut-off criterion. A one factor solution was obtained with all but three items loading at .55 or above on the unrotated factor" (p. 223). An internal reliability of .94 was obtained.

The nurses were provided with two copies of the modified inventories. The first inventory directed the nurses to reference, in general, work-related conversations that they have with male doctors (see Appendix A). The second inventory directed the nurses to reference, in general, work-related conversations that they have with female doctors (see Appendix B).

Demographics. On a separate page, nurses indicated their sex, race, age, years of education and nursing experience (see Appendix C).

Procedure

A chosen hospital employee administered the questionnaires. Nurses completed the questionnaires while at the hospital and in an area where physicians were not
present. The nurses returned the completed questionnaires to the distributor's mailbox. The time needed to complete the questionnaires ranged from ten to fifteen minutes. All participants were guaranteed confidentiality and anonymity.

**Analysis of Data**

Prior to the analysis of the data, it was necessary to determine whether the participants from the seven hospital samples could be treated as a unified sample. A univariate analysis of variance was conducted on the female satisfaction items and the male satisfaction items to determine the homogeneity of variance of the sample (Camden & Kennedy, 1986).

In order to test the hypotheses presented in Chapter Two, a Multivariate Analysis of Variance - Repeated Measure Design (MANOVA) was computed. The nurse's interpersonal communication satisfaction score with female physicians was computed by summing the first Com-Sat Inventory, and served as one dependent measure. The second dependent measure was computed by summing the nurse's score on the second Com-Sat Inventory when interacting with male physicians. The .05 level of significance was required for all statistical tests.

**Rationale**

There are several reasons as to why the methodology, as described above, is the most appropriate for this study. First, the diversity of the hospitals was important in finding a representative sample of male nurses and in
generalizing the findings across a variety of hospital systems. Second, Hecht (1978b) noted that "satisfaction measures must be matched with conditions or context of measurement" (p. 352). The method chosen for this study has taken into account and adjusted for the differences in the original satisfaction measurement and the type of relationship this study examined. Finally, the Com-Sat Inventory is believed to be the most appropriate tool for measuring interpersonal communication satisfaction. In fact, Hecht (1978a) pointed out that the Com-Sat Inventory is "the only measure constructed for use in interpersonal settings and exhibits much higher reliability than a measure of organizational communication satisfaction" (p. 262).

Summary

The purpose of this chapter was to address the method by which the researcher conducted this study. This chapter described the participants, instrumentation, procedure, reliability, and treatment of the data. A rationale of the method was then provided. Chapter Four reports the results of the study.
CHAPTER IV

RESULTS

Introduction

The method by which the researcher conducted the study was discussed in the preceding chapter. A description of the participants, instrumentation, procedure, reliability, and treatment of the data was then provided. This chapter will present the results of the procedures and analyses. The pertinent findings concerning the multivariate analyses and tests of the three specific hypotheses will also be reported.

Description of Sample

Study participants included 153 nurses from the staffs at seven hospitals. The hospitals were located in two large cities and three medium size cities with populations over 50,000. Of the 153 nurses surveyed, 126 (82.4%) were female and 27 (17.6%) were male. Ethnically, 124 (81%) were Caucasian, 11 (7.2%) were African American, 9 (5.9%) were Asian American, 8 (5.2%) marked other, and 1 (0.7%) failed to respond. Ages of the nurses ranged from 22 to 69 with an average of 38. Five nurses did not record their age. Years of formal nursing education ranged from one year to six years with a average of 3.5 years. Three respondents did not record their level of education. Finally, the categories for
"years of practicing nurse experience" ranged from five and under to 26 years or more. The category of six thru 15 years of experience was recognized as the average. Of the 520 surveys distributed, 153 completed surveys were returned for a response rate of 30.5%. Six surveys returned by male nurses were incomplete and not included in the total N.

Reliability

**Homogeneity of Variance.** Prior to the data analysis, it was necessary to determine whether the participants from the seven different hospital could be treated as a unified sample. In order to determine the homogeneity of the different samples a univariate analysis of variance was conducted on the female satisfaction (FS) and male satisfaction (MS) variables with hospitals as the grouping variable. According to the Bartlett-Box statistic, neither the FS, \( F[1,17012]=2.24, p=.135 \); or the MS, \( F[1,17012]=2.12, p=.146 \), variables were significant. Thus, the seven sub-samples were treated as one unified sample.

**Post Hoc Analysis.** Internal reliability of the questionnaire was determined by the use of Cronbach's coefficient alpha. Reliability for the overall satisfaction inventory was .90. Intraclass reliability test scores resulted in .89 for the 16 items measuring satisfaction with female physicians (FS), and .87 for the 16 items measuring satisfaction with male physicians (MS). The sample size
resulted in power of .80 assuming a small to medium effect size (.33) at the .05 alpha level (Leavitt, 1991).

**Multivariate Analysis of Variance**

The data were analyzed using a Multivariate Analysis of Variance - Repeated Measures Design (MANOVA). The independent variable was the sex of the nurse. The dependent variables were identified as the communication satisfaction experienced with female physicians (FS) and the communication satisfaction experienced with male physicians (MS). The between-subjects effect for sex of the nurse indicated no significant differences between the male and female nurses' overall satisfaction at the .05 level of significance (F[1,151]=.02, p=.89). The within-subjects main effect resulted in a significant difference between male nurse satisfaction with male and female physicians and female nurse satisfaction with male and female physicians (F[1,151]=10.20, p=.002). The interaction effect between sex of nurse and sex of physician was not significant (F[1,151]=.13, p=.72). See Table 4.1 for cell means and standard deviations.

An additional two-tailed T-Test analysis confirmed the results that the nurses experience significantly greater levels of interpersonal communication satisfaction when communicating with female physicians than when communicating with male physicians. Table 4.2 presents the results of the T-Test analysis.
Table 4.1

Cell Means on Satisfaction with Male Physicians and Female Physicians

<table>
<thead>
<tr>
<th>Sex of Nurse</th>
<th>Sex of Physician</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Nurse</td>
<td>Female Physician</td>
<td>79.47</td>
<td>15.91</td>
</tr>
<tr>
<td></td>
<td>Male Physician</td>
<td>73.0</td>
<td>14.29</td>
</tr>
<tr>
<td>Male Nurse</td>
<td>Female Physician</td>
<td>78.44</td>
<td>12.49</td>
</tr>
<tr>
<td></td>
<td>Male Physician</td>
<td>73.29</td>
<td>17.69</td>
</tr>
</tbody>
</table>

Note. The higher the score, the higher the satisfaction.

Table 4.2

Overall Mean Differences for Satisfaction with Female and Male Physicians

<table>
<thead>
<tr>
<th>Sex of Physician</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>79.29</td>
<td>15.33</td>
</tr>
<tr>
<td>Male</td>
<td>73.06</td>
<td>14.88</td>
</tr>
</tbody>
</table>

p (two-tailed) < .001
Tests of Hypotheses

Hypothesis One. Hypothesis One predicted that communication satisfaction would differ significantly across various combinations of sex of nurse and sex of physician dyads. Hypothesis One received partial support. Female nurses talking to female physicians had the highest mean ($\bar{X}=79.5$; SD=15.9), followed by male nurses talking to female physicians ($\bar{X}=78.4$; SD=12.5), male nurses conversing with male physicians ($\bar{X}=73.3$; SD=17.7), and female nurses talking with male doctors ($\bar{X}=73.0$; SD=14.3). The communication satisfaction experienced by female nurses differed significantly between communication interactions with female and male physicians. No significant differences in levels of communication satisfaction were found between male nurses communicating with male and female physicians. The small sample size of male nurses resulted in a lack of power which probably contributed to the insignificant results. In an effort to account for the lack of power, the male nurse satisfaction scores were weighted three times. The weighted male scores resulted in significant differences between communication satisfaction experienced by male nurses when communicating with male and female physicians. See Table 4.3.

Hypothesis Two. The second hypothesis predicted that same-sex interactions, when compared to mixed-sex interactions, would result in significantly higher interpersonal
Table 4.3

Mean differences for Various Combinations of Sex of Nurse and Sex of Physician

<table>
<thead>
<tr>
<th>Sex of Nurse and</th>
<th>Sex of Physician</th>
<th>( \bar{X} )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Nurse</td>
<td>Female Physician</td>
<td>79.47</td>
<td>15.91</td>
</tr>
<tr>
<td></td>
<td>Male Physician</td>
<td>73.0</td>
<td>14.29</td>
</tr>
<tr>
<td>( p &lt; .001^* )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Nurse</td>
<td>Female Physician</td>
<td>78.44</td>
<td>12.49</td>
</tr>
<tr>
<td></td>
<td>Male Physician</td>
<td>73.29</td>
<td>17.69</td>
</tr>
<tr>
<td>( p = .172^* )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Weighted Male Nurse Scores)

<table>
<thead>
<tr>
<th>Sex of Nurse and</th>
<th>Sex of Physician</th>
<th>( \bar{X} )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Nurse</td>
<td>Female Physician</td>
<td>78.44</td>
<td>12.33</td>
</tr>
<tr>
<td></td>
<td>Male Physician</td>
<td>73.29</td>
<td>17.47</td>
</tr>
<tr>
<td>( p &lt; .02^* )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Male scores were weighted three times.

* \( p \) is two-tailed.
communication satisfaction experienced by the nurses. According to the means produced by the multivariate analysis of variance, hypothesis two is only partially supported. Testing of this hypothesis without weighted male scores resulted in same-sex dyads being significantly more satisfying than mixed-sex dyads. Caution must be taken when interpreting these results because the large number of female nurses in the sample are accounting for the large variance between same-sex and mixed-sex dyads. As expected, with weighted male scores, the null hypothesis was not rejected. See Table 4.4 for distribution of means between same-sex and mixed-sex dyads. Additional T-Test analyses indicated significantly higher interpersonal communication satisfaction experienced by female nurses when interacting in a same-sex dyad ($\bar{X}=79.47; p<.001$). With weighted male scores, the T-Test results indicated significantly higher interpersonal communication satisfaction experienced by male nurses when interacting in mixed-sex dyads ($\bar{X}=78.44; p<.02$).

**Hypothesis Three.** Hypothesis three predicted that male nurses would experience higher levels of interpersonal communication satisfaction when interacting with physicians than would female nurses. This hypothesis was not supported at the multivariate level ($F[1,151]=.02, p=.89$).
Table 4.4
Mean Differences Between Same-Sex (SS) Dyads and Mixed-Sex (MX) Dyads

<table>
<thead>
<tr>
<th>Dyad Type</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>78.81</td>
<td>16.10</td>
</tr>
<tr>
<td>MX</td>
<td>74.26</td>
<td>14.07</td>
</tr>
</tbody>
</table>

\( p = .002 \)

(Weighted Male Nurse Scores)

<table>
<thead>
<tr>
<th>Dyad Type</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>77.34</td>
<td>16.62</td>
</tr>
<tr>
<td>MX</td>
<td>75.37</td>
<td>13.74</td>
</tr>
</tbody>
</table>

\( p = .127 \)

*Note. Male scores were weighted three times.

*\( p \) is two-tailed.

Item Analysis

Individual paired T-Tests scores were calculated for the 16 items measuring overall interpersonal communication satisfaction with female and male physicians. Five of the items resulted in significant differences at the .05 level of significance and six of the items were significant at the .001 significance level. Table 4.5 presents the means and standard deviations of the items.
Table 4.5

T-Test Analysis of Questionnaire Items by Sex of Physician

<table>
<thead>
<tr>
<th>Variables</th>
<th>Female</th>
<th>Male</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians let me know I am communicating effectively.</td>
<td>4.67</td>
<td>4.38</td>
<td>2.08 *</td>
</tr>
<tr>
<td>Mean</td>
<td>1.60</td>
<td>1.72</td>
<td></td>
</tr>
<tr>
<td>Nothing is accomplished in our conversations.</td>
<td>5.70</td>
<td>5.63</td>
<td>.61 ns</td>
</tr>
<tr>
<td>Mean</td>
<td>1.37</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>Want more conversations with the physicians.</td>
<td>4.50</td>
<td>4.20</td>
<td>2.03 *</td>
</tr>
<tr>
<td>Mean</td>
<td>1.41</td>
<td>1.39</td>
<td></td>
</tr>
<tr>
<td>Physicians genuinely want to get to know me better.</td>
<td>3.86</td>
<td>3.32</td>
<td>3.5 **</td>
</tr>
<tr>
<td>Mean</td>
<td>1.53</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>I am very dissatisfied with our conversations.</td>
<td>5.46</td>
<td>5.37</td>
<td>.74 ns</td>
</tr>
<tr>
<td>Mean</td>
<td>1.49</td>
<td>1.51</td>
<td></td>
</tr>
<tr>
<td>I'm able to present myself as I want the physician to view me.</td>
<td>5.21</td>
<td>5.07</td>
<td>.99 ns</td>
</tr>
<tr>
<td>Mean</td>
<td>1.50</td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>Physicians express a lot of interest in what I say.</td>
<td>4.70</td>
<td>4.25</td>
<td>2.98 *</td>
</tr>
<tr>
<td>Mean</td>
<td>1.50</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>I do not enjoy conversations with physicians.</td>
<td>5.71</td>
<td>5.40</td>
<td>2.23 *</td>
</tr>
<tr>
<td>Mean</td>
<td>1.42</td>
<td>1.50</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Variables</th>
<th>Female</th>
<th>Male</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians provide support for what they say.</td>
<td>4.84</td>
<td>4.12</td>
<td>4.60 **</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.60</td>
<td>1.61</td>
<td></td>
</tr>
<tr>
<td>I feel like I can talk about anything with physicians.</td>
<td>4.76</td>
<td>3.88</td>
<td>5.60 **</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.72</td>
<td>1.90</td>
<td></td>
</tr>
<tr>
<td>The physicians and I both get to say what we want.</td>
<td>4.84</td>
<td>4.28</td>
<td>4.04 **</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.60</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>We can laugh easily together.</td>
<td>5.16</td>
<td>4.88</td>
<td>1.90 ns</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.53</td>
<td>1.68</td>
<td></td>
</tr>
<tr>
<td>Conversations with physicians flow smoothly.</td>
<td>5.21</td>
<td>4.69</td>
<td>4.00 **</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.38</td>
<td>1.44</td>
<td></td>
</tr>
<tr>
<td>Satisfied with the conversations I have with physicians.</td>
<td>5.05</td>
<td>4.52</td>
<td>3.89 **</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.36</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>Physicians say things that add little to the conversation.</td>
<td>5.16</td>
<td>4.76</td>
<td>2.88 *</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.46</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>Physicians and I talk about some things I am not interested in.</td>
<td>4.53</td>
<td>4.42</td>
<td>.79 ns</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.71</td>
<td>1.68</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Negative items were recoded so that the higher the mean the greater the communication satisfaction.

* Alpha was set at .05 for two-tailed test of significance.

** p<.001.

ns - not significant
Summary

This chapter presented the results of the procedures and analyses of data. The pertinent findings concerning the reliability of the study, multivariate analyses, and the tests of three specific hypotheses were reported. Chapter Five includes a discussion of the results and limitations of the study. Implications for further research in the area of physician-nurse communication are also discussed.
CHAPTER V

DISCUSSION OF RESULTS

Introduction

The purpose of this chapter is to discuss and analyze the results of the study reported in Chapter Four. The Health Communication Model (HCM) is examined with respect to the sex of the participants and the professional-professional transaction. In addition, the findings will be analyzed in relation to the study of dyadic relationships and the study of interpersonal communication satisfaction. Finally, limitations of the study are discussed as well as implications for future research.

Human Subject Approval

Before the data was collected, the research proposal was approved by the University of North Texas Institutional Review Board. Permission to study human subjects required answering 14 questions concerning the purpose and method of the study. See Appendix D for letter of approval.

Data Collection

The collection of data from hospital staffed nurses required approximately one year to complete. After determining which hospitals showed interest in participating, written proposals were forwarded to the appropriate
personnel. Five of the hospitals granted permission within ten days of being approached. The remaining two hospitals responded after two months. Each hospital representative, who was responsible for distribution of the surveys, was given three weeks to distribute and collect the completed questionnaires. Since only 18 of the returned surveys were completed by a male nurse, the researcher returned to the hospital representatives and requested additional assistance. The second data collection effort resulted in an additional nine surveys completed by male nurses. Of the 153 nurses surveyed, 17.6% (n=27) were male. Given that 5.3% of registered staff nurses in the U.S. are male, the sample exceeded the U.S. norms for male nurses (Bureau of Labor Statistics, 1989).

Interpersonal Communication Satisfaction

Sex Composition of the Dyad. The findings of this study indicate that interpersonal communication satisfaction differs significantly across various combinations of sex of nurse and sex of physician dyads. Due to the additional finding that both male and female nurses experience greater interpersonal communication satisfaction when interacting with female physicians, caution must be used when interpreting these findings. The main effect of sex of physician may be accounting for the variance more so than the composition of the dyad. Previous studies have reported that sex composition of the dyad does not affect other
communication variables such as communication competence (Dunning & Lange, 1993), language use (Simkins-Bullock & Weldman, 1991), and interaction patterns (Fisher, 1983). Thus, the findings of the MANOVA must be given priority over the significance found from the T-Test analyses.

Hypothesis Two stated that same-sex interactions when compared to mixed-sex interactions would result in significantly higher interpersonal communication satisfaction experienced by the nurses. Results demonstrated that overall, same-sex interactions did not produce significantly higher levels of communication satisfaction than did mixed-sex interactions. Same-sex interactions were significantly more satisfying for female nurses. Interpretation of these results is complex because further analyses indicated that mixed-sex interactions were more satisfying for male nurses than were same-sex interactions.

Given the fact that the literature base concerning the direct relation between sex of individual, sex composition of the dyad, and interpersonal communication satisfaction is small, few previous results are available for comparison. Indirectly, this study supports the findings reported by Hecht (1984a) which indicated a tendency for mixed-sex dyads to be more satisfying. In addition, the results reported by Lamude et al. (1988), that indicated same-sex relationships as more satisfying, are also partially supported. Literature concerning the sex composition of the dyad does not support
the conclusion that same-sex dyads, when measuring interpersonal communication satisfaction, are more satisfying for females. Nor does prior research support the conclusion that mixed-sex dyads, when measuring interpersonal communication satisfaction, are more satisfying for males.

As stated in the Review of Literature, the research concerning the relation between sex composition of the dyad and various communication variables is not consistent. Fisher (1983) stated that "...this body of research is not without its share of confusion. Some studies have reported mixed results, and other have failed to find any differences at all" (p. 226). The findings of this project do not help clarify this area of study.

**Female Managerial Style.** Since the study results are somewhat inconsistent with the research hypotheses, the results are difficult to explain in light of the study rationale. Stepping beyond the study rationale does, however, provide possible reasons for the researcher's failure to confirm the project hypotheses.

The data analyses produced additional findings that provide a possible explanation. The analyses indicated that both male and female nurses experienced a significantly greater amount of interpersonal communication satisfaction when interacting with female physicians than when interacting with male physicians. The main effect of sex of nurse was not significant. The interaction effect between sex of
physician and sex of nurse was not significant. Only the main effect of sex of physician was significant for female and male nurses at the .05 level of significance.

Neither the health communication literature nor literature concerning interpersonal communication satisfaction support the conclusion that female physicians are more effective or are more satisfying to communicate with than male physicians. Research focusing on managerial styles, however, does lend support to such a conclusion. As early as 1977, authors were investigating the managerial styles of men and women (Hennig & Jardin, 1977). Baird and Bradley (1979) found that male and female managerial styles are often different.

In communication content, women were found to statistically exceed "men in giving information, stressing interpersonal relations, being receptive to ideas, and encouraging effort; in communication style, males generally exceeded females in dominance, being quick to challenge others, and directing the course of conversations while females scored higher on showing concern and being attentive to others. (p. 108)

Further, the qualities of dominance, directing the course of the conversation and being quick to challenge correlated negatively with job satisfaction for male managers. Several years later, in a study conducted to gain insight into the development of the superior/subordinate relationship,
McCallister (1984) discovered that communication incompetence was a significant factor that resulted in disliking of the superior. The most significant observation of McCallister's (1984) study was that "noticeable emerging changes appear to be in the behaviors of male bosses who are developing behaviors that in the past, were considered positive feminine traits" (p. 14). The use of the positive feminine traits by male bosses resulted in an increase in their communication competence as perceived by the employees. Brownell (1990) studied the traits of "individuals who are perceived by their subordinates as effective or ineffective listeners" (p. 401). Of the total sample (144 managers), female managers were perceived as more effective listeners than were male managers. Brownell saw these results as significant since prior research had established the link between effective managers and those who listen effectively.

The previously cited material concerning female managerial styles supports the conclusion that female physicians manage and direct nurses in a more positive manner than male physicians. According to Baird and Bradley (1979), female managers exceeded male managers in giving information, stressing interpersonal relations, being receptive to ideas, and encouraging effort. In this study, nurses reported significant differences between female and male physicians on similar variables on the Com-Sat Inventory. See Table 4.5 for the variables with significant differences.
The results of positive and effective communication behaviors are noteworthy. In an article concerning the female job candidate, Nichols (1992) wrote that "indeed, women are establishing themselves as sensitive and conciliatory bosses for whom employees will produce -- men included" (p. 40). More specific to the nursing field, Camden and Kennedy (1986) reported that "the female managerial style generated higher levels of employee morale for nurses than did the male style" (p. 558). Increased employee morale is of the utmost importance because of its strong correlation to job satisfaction and turnover.

Hecht (1984a) explained that "satisfaction is a salient outcome of effective behavior...." (p. 734). The results of this study suggest that female physicians are engaging in effective communication behavior with male and female nurses and, thus, increased interpersonal communication satisfaction is the resultant consequence. As stated in Chapter Two, a goal of communication research is not only to determine differences in male and female communication behaviors, but to determine whether the outcomes obtained by these two styles of behavior differ as well. As evidenced by the results from this study, the communication styles of male and female physicians lead to varying levels of interpersonal communication satisfaction experienced by the nurses and different outcomes.
Biological Sex of the Nurse. The third hypothesis predicted that male nurses would experience higher levels of interpersonal communication satisfaction when interacting with physicians than would female nurses. The MANOVA results provided no support for this hypothesis. The failure to support the hypothesis that same-sex dyads are more satisfying than mixed-sex dyads affects the results pertaining to hypothesis three. Originally, this project concluded that male nurses would benefit from same-sex interactions more frequently than female nurses because there are more male than female physicians. Results, however, indicate that same-sex interactions are less satisfying for male nurses. The high proportion of same-sex interactions for male nurses seems to actually have a negative influence on the male nurse when interacting with physicians.

Health Communication Model

Throughout the years, as the health-care industry has shifted to a systems perspective (Eubanks, 1991), the elements of the Health Communication Model (HCM) continue to gain support. One underlying intent of this study was to provide support for the model's explanation of why the four types of relationships represented in the model are capable of influencing each other. The finding that male and female nurses were significantly more satisfied when interacting with female physicians lends that support. Northouse and Northouse (1985) defined the participants factor of the HCM
as a health professional, client, or significant other, and his/her specific beliefs, values, age, sex, and socio-cultural background. The findings in this study contribute to the claim that the sex of the health-care professional affects his/her transactions with other participants. This investigation contributed support to at least that one element of the HCM.

Limitations of the Study

The conclusions in this study are subject to some important limitations. The first limitation focuses on the use of the self-administered questionnaire. Although the self report survey is beneficial with regard to time and offering complete confidentiality and anonymity to the participants, the Com-Sat Inventory is limited in that no supplemental information from open ended questions is available. In addition, the researcher cannot guarantee that the nurses answered the questions based solely on work-related conversations and not on social likes and dislikes of the physicians.

Second, the population of the study was considered a limitation. The sample was restricted to hospital staffed nurses in Texas. Due to differing state laws and various nursing requirements, the study results may not be generalizable to other states in the U.S. Further, because the study was restricted to hospital staffed nurses, the findings in this study may not be generalizable to other
forms of nursing such as office, clinic, or home-aid nursing.

The method of data collection was a limitation to this project. The questionnaires were distributed to the nurses and participants were given up to ten days, in some cases more than ten days, to complete. Many of the questionnaires were forgotten about or lost and not returned. Thus, a low response rate was the consequence.

Finally, as Hecht (1978c) explained, interpersonal communication satisfaction "emphasizes the way communication functions as discriminative stimuli, behaviors based on discriminations and reinforcers" (p. 62). There may be many other discriminative stimuli, beyond sex of the participants, that affect the interpersonal communication satisfaction experienced by the nurse. A comprehensive analysis and evaluation of the interpersonal communication satisfaction experienced by nurses when interacting with physicians is beyond this study.

Implications for Future Research

The results of this investigation suggest at least five directions for future research in nurse-physician relationships and interpersonal communication satisfaction. Implications for future research include the following topics: (a) using supplemental data, (b) surveying the physicians, in addition to the nurses, (c) studying research in the area of friendship development, (d) examining the effects of satisfaction or dissatisfaction on the hospital
system, and (e) improving the physicians' communication skills.

Although consideration should be given to all the limitations discussed previously, the limitation concerning lack of supplemental data requires special attention. Future research concerning the nurse-physician relationship should allow for open-ended questions if not personal interviews. A qualitative approach to this type of investigation would allow for further analysis of the causes of a participant's satisfaction, the effects of situational factors, and other matters that clearly influence interaction, yet are neglected in the typical quantitative analysis (Poole & McPhee, 1985, p. 150). Since interpersonal communication satisfaction is an internal affect, self reports will always remain necessary. A research project that combined both qualitative and quantitative methods in its design would be most beneficial. A qualitative research design may add insight into the complex relations between nurses and physicians.

Additional data concerning the social style profiles of the nurses and physicians would be beneficial (Merrill & Reid, 1981). Such information would allow for further understanding of how the physicians and nurses communicate with each other while working under stressful conditions, and whether the stress of their occupations affects the interpersonal communication satisfaction they experience while interacting.
The results indicating that female and male nurses experienced significantly greater amounts of interpersonal communication satisfaction when interacting with female physicians introduces a second area for future research. Although this study chose not to survey physicians, these findings indicate that the physicians' interpersonal communication satisfaction can no longer be ignored. Simultaneous examination of the nurses and physicians level of interpersonal communication satisfaction would help bridge the communication gap between the health-care fields. One future research question would be, "Do female physicians experience higher levels of interpersonal communication satisfaction when interacting with nurses than do male physicians?" Second, surveying physicians would allow for a understanding of what male and female physicians view as satisfying communication, and further explain why nurses experience lower levels of communication satisfaction when interacting with male physicians than with female physicians. Further, research focusing on communication rules coorientation would be useful when studying physicians and nurses (Lamude et al., 1988). Such research could focus on the perceived agreement of communication rules used by nurses and physicians. Lower levels of communication satisfaction with male physicians may be a consequence of broken communication rules.
The results concerning the relationship between sex composition of the dyad and interpersonal communication satisfaction resemble findings produced in the area of friendship development. Friendship data indicate that males and females have more rewarding and satisfying friendships with female counterparts than with male counterparts (Mosley, 1987; Reisman, 1990; Sapadin, 1988; Wright & Keple, 1981). In a study conducted by Sapadin (1988), professional men and women reported that their friendships with females were higher in overall quality, enjoyment, and nurturance than were their friendships with males. An application of Sapadin's (1988) findings to the results found in this study implies that female physicians are engaging in communicative behaviors with nurses that produce a higher quality relationship, more enjoyment and more nurturing. The similarities in results between this study and friendship studies lead to three future research questions. First, what is the correlation between interpersonal communication satisfaction and communication styles used between friends? Second, to what extent do female physicians communicate with nurses as friends, instead of as subordinates? A final question that warrants further investigation is, "To what extent do nurse-physician relationships, which are treated by the participants as friendships, result in greater communication satisfaction experienced by the nurse?"
Future research should go beyond measuring the nurses' interpersonal communication satisfaction and determine how the resultant communication behaviors of satisfaction or dissatisfaction affect the overall hospital system. As defined earlier, a system is a complex interaction among parts, parts which are dependent upon one another to function effectively. There is a need to determine how the satisfying or dissatisfying nurse-physician communication patterns affect the nurses' communication with other participants of the HCM. Interpersonal communication satisfaction is an emotional outcome that "affects relational development, maintenance, and disintegration" (Hecht et al., 1984). A lack of communication satisfaction when interacting with physicians may possibly be deterring the delivery of high quality care, and contributing to poor nurse-physician relationships. Specifically, possible communication areas affected by lack of communication satisfaction include complete understanding of assigned medical treatments, medical explanations provided to patients, and disruptive interactions with co-workers.

In addition, since female physicians were significantly more satisfying for male and female nurses to communicate with, research needs to investigate what communication reinforcers are utilized in such interactions to produce satisfying results. The Com-Sat Inventory measures the outcome of specific communication behaviors and the causes
of the outcome. Further interpretation of Table 4.5 indicates several variables that male physicians could improve upon when interacting with nurses in order to increase the level of interpersonal communication satisfaction experienced by the nurse. Such understanding could further the goal of health communication which is to generate knowledge for "directing health-care policy, practice, and intervention" (Kreps, 1989, p. 14). Specifically, the information proves useful for seminars on improving communication skills of physicians, nurses, and hospital administrators (Eubanks, 1991). Further, investigation of what reinforcers have a positive effect on nurse-physician relations would lay the groundwork for the next step of planning, developing, and implementing strategies for improving nurse-physician relations.

The time has never been better to work toward such improvements. As the Joint Commission on Accreditation of Healthcare Organizations is striving toward the Total Quality Management focus, improvements in the nurse-physician relationship should be occurring simultaneously. Collaboration between nurses and physicians is key to a hospital's quest for quality. Eubanks (1991) wrote that "helping nurses and physicians interact well within the forum of quality improvement is not a simple challenge....Both groups have a long way to go in learning the interpersonal skills demanded for successful collaboration" (p. 26).
Future research on the interpersonal communication satisfaction experienced by nurses and physicians when interacting could provide the means necessary for successful collaboration between the two professions.

Summary

The purpose of this study was to examine the extent to which the biological sex of the nurse-physician interactants affects the interpersonal communication satisfaction experienced by nurses. The statement of the problem and significance of the study were explained in Chapter One. Chapter Two surveyed the literature from which the study was drawn and Chapter Three provided a description of the research design. Results of the study were reported in Chapter Four while a discussion of the study findings was provided in Chapter Five. Chapter Five also acknowledged the limitations of the study and introduced areas of future research.
APPENDIX A

QUESTIONNAIRE REFERENCING MALE PHYSICIANS
The purpose of this questionnaire is to investigate your reactions to work-related conversations you have with male physicians. Below you will find a set of statements referencing those conversations. Please react to each statement using the following scale. The 4 or middle position on the scale represents "undecided" or "neutral," then moving out from the center, "slight" agreement or disagreement, then "moderate," then "strong" agreement or disagreement.

For example, if you strongly agree with the following statement you would circle 1.

The other person moved around a lot.

Agree 1 2 3 4 5 6 7 Disagree

1. Male physicians let me know I am communicating effectively.
   Agree 1 2 3 4 5 6 7 Disagree

2. Nothing is accomplished in our conversations.
   Agree 1 2 3 4 5 6 7 Disagree

3. I would like to have more conversations with male physicians.
   Agree 1 2 3 4 5 6 7 Disagree

4. Male physicians genuinely want to get to know me better.
   Agree 1 2 3 4 5 6 7 Disagree

5. I am very dissatisfied with our conversations.
   Agree 1 2 3 4 5 6 7 Disagree

6. During our conversations, I am able to present myself as I want the male physicians to view me.
   Agree 1 2 3 4 5 6 7 Disagree

7. Male physicians express a lot of interest in what I say.
   Agree 1 2 3 4 5 6 7 Disagree
8. I do NOT enjoy conversations with male physicians.
   Agree 1 2 3 4 5 6 7 Disagree

9. Male physicians provide support for what they say.
   Agree 1 2 3 4 5 6 7 Disagree

10. I feel like I can talk about anything with male physicians.
    Agree 1 2 3 4 5 6 7 Disagree

11. In our conversations, the physician and I both get to say what we want.
    Agree 1 2 3 4 5 6 7 Disagree

12. I feel like I can laugh easily together with male physicians.
    Agree 1 2 3 4 5 6 7 Disagree

13. Conversations with male physicians flow smoothly.
    Agree 1 2 3 4 5 6 7 Disagree

14. I am very satisfied with the conversations I have with male physicians.
    Agree 1 2 3 4 5 6 7 Disagree

15. Male physicians frequently say things that add little to the conversation.
    Agree 1 2 3 4 5 6 7 Disagree

16. Male physicians and I talk about some things I am not interested in.
    Agree 1 2 3 4 5 6 7 Disagree
APPENDIX B

QUESTIONNAIRE REFERENCING FEMALE PHYSICIANS
The purpose of this questionnaire is to investigate your reactions to work-related conversations you have with female physicians. Below you will find a set of statements referencing those conversations. Please react to each statement using the following scale. The 4 or middle position on the scale represents "undecided" or "neutral," then moving out from the center, "slight" agreement or disagreement, then "moderate," then "strong" agreement or disagreement.

For example, if you strongly agree with the following statement you would circle 1.

The other person moved around a lot.

Agree 1 2 3 4 5 6 7 Disagree

1. Female physicians let me know I am communicating effectively.
   Agree 1 2 3 4 5 6 7 Disagree

2. Nothing is accomplished in our conversations.
   Agree 1 2 3 4 5 6 7 Disagree

3. I would like to have more conversations with female physicians.
   Agree 1 2 3 4 5 6 7 Disagree

4. Female physicians genuinely want to get to know me better.
   Agree 1 2 3 4 5 6 7 Disagree

5. I am very dissatisfied with our conversations.
   Agree 1 2 3 4 5 6 7 Disagree

6. During our conversations, I am able to present myself as I want the female physicians to view me.
   Agree 1 2 3 4 5 6 7 Disagree

7. Female physicians express a lot of interest in what I say.
   Agree 1 2 3 4 5 6 7 Disagree
8. I do NOT enjoy conversations with female physicians.
   Agree 1 2 3 4 5 6 7 Disagree

9. Female physicians provide support for what they say.
   Agree 1 2 3 4 5 6 7 Disagree

10. I feel like I can talk about anything with female physicians.
    Agree 1 2 3 4 5 6 7 Disagree

11. In our conversations, the physician and I both get to say what we want.
    Agree 1 2 3 4 5 6 7 Disagree

12. I feel like I can laugh easily together with female physicians.
    Agree 1 2 3 4 5 6 7 Disagree

    Agree 1 2 3 4 5 6 7 Disagree

14. I am very satisfied with the conversations I have with female physicians.
    Agree 1 2 3 4 5 6 7 Disagree

15. Female physicians frequently say things that add little to the conversation.
    Agree 1 2 3 4 5 6 7 Disagree

16. Female physicians and I talk about some things I am not interested in.
    Agree 1 2 3 4 5 6 7 Disagree
DEMOGRAPHICS SHEET

Please indicate the appropriate response.

1. GENDER:
   Male ____  Female____

2. RACE/ETHNIC GROUP:
   Caucasian ____  Asian/Pacific Islander ____
   African American ____  American Indian/Alaskan Native ____
   Other ____

3. AGE: ____

4. YEARS OF FORMAL NURSING EDUCATION: ____

5. HOW MANY YEARS HAVE YOU BEEN A PRACTICING NURSE? ____

6. WHAT NURSING DEPARTMENT DO YOU WORK IN? ____________
APPENDIX D

INSTITUTIONAL REVIEW BOARD LETTER OF APPROVAL
April 15, 1993

Theresa Glenn  
224 Teakwood  
Lewisville, TX  75067

Dear Mrs. Glenn:

Your proposal entitled "The Relationship Between Interpersonal Communication Satisfaction and Biological Sex: The Nurse-Physician Relationship," has been approved by the IRB and is exempt from further review under 45 CFR 46.101.

If you have any questions, please contact me at (817) 565-3946.

Good luck on your project.

Sincerely,

Peter Witt, Chair  
Institutional Review Board  
PW/tl
REFERENCES


