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The Relationship Between Physician Knowledge, Physician Background, Experience with Nurse Practitioners and Role Expectations for the Nurse Practitioner

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THE RELATIONSHIP BETWEEN PHYSICIAN KNOWLEDGE, PHYSICIAN BACKGROUND, EXPERIENCE WITH NURSE PRACTITIONERS AND ROLE EXPECTATIONS FOR THE NURSE PRACTITIONER

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ABSTRACT

THE RELATIONSHIP BETWEEN PHYSICIAN KNOWLEDGE, PHYSICIAN BACKGROUND, EXPERIENCE WITH NURSE PRACTITIONERS AND ROLE EXPECTATIONS FOR THE NURSE PRACTITIONER

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This descriptive study examined the relationship between physician knowledge and role expectations as influenced by experience with nurse practitioners. The sample consisted of 111 physicians practicing in West Michigan. Data was collected using a combination of instruments--a nurse practitioner role behavior tool (Hupcey, 1994) and nurse practitioner/physician role appropriate vignettes (Davidson & Lauver, 1984). Physician knowledge of the nurse practitioner role was significantly higher ($t = -2.85$; $p = .005$) for the group of physicians who had practiced with a nurse practitioner as compared to the group of physicians who had not practiced with a nurse practitioner. Role expectations between the groups were found to differ significantly. Physicians with a higher knowledge score were more likely to rate all of the vignettes as appropriate for care by nurse practitioners.

In dedication . . .

to my husband, Jim, whose unconditional love

continually motivates and inspires me

and

to my friend, Judy, who beautifully expresses

the compassion and commitment

of a Christian nurse.

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CHAPTER 1

INTRODUCTION

The role of nurse practitioner has developed over time as the nursing profession has sought to establish a unique position in the health care delivery system for its practitioners. The need for recognition of this unique role is even more crucial now when delivering cost effective quality care is paramount within the entire health care delivery system (Sabo & Louis, 1996).

Physicians' knowledge and expectations related to the nurse practitioner role differ. Some physicians do not understand the role of nurse practitioners as primary care providers who are educated and trained to manage common acute illnesses and stable chronic conditions. Other physicians refer to nurse practitioners as "physician extenders" and may expect them to function as physician assistants. Still other physicians do not recognize what nurse practitioners view to be one of their most important roles--caring for the whole patient, including physical, social, emotional, and spiritual aspects.

A major concern associated with differing physician knowledge and role expectations is the potential that nurse practitioners will not be utilized

as collaborative care providers in primary care settings. The danger is that physicians will not recognize the nurse practitioner's unique role due to lack of knowledge and experience with nurse practitioners (Sabo & Louis, 1996). Consequently, they may miss opportunities to collaborate to increase the access to quality, affordable health care. Grumbach and Coffman (1998) stress, "Nonphysician clinicians [NPCs] have an important contribution to make, and collaboration between physicians and NPCs holds promise for improved models of care. The challenge for the health professions in the coming years will be to develop models that promote this complementary relationship. . ." (p. 826).

The purpose of this study was to examine the relationship between physician knowledge, physician background, experience with nurse practitioners, and role expectations for the nurse practitioner held by a group of primary care physicians who had practiced with a nurse practitioner as compared to a group of primary care physicians who had not practiced with a nurse practitioner. A further intention of the study was to lend additional support to the results of previous studies which have delineated a positive relationship between physician knowledge and experience with nurse practitioners.

In a study conducted by Davidson and Lauver (1984), it was shown that when nurse practitioners and physicians work in a collaborative situation, each profession is able to delineate their unique role. Based on this

study and other research which has examined physicians' experience with nurse practitioners (Mauksch & Campbell, 1988), it would seem that physicians' experience with nurse practitioners would increase their knowledge of the nurse practitioner's unique role and positively influence their role expectations.

The present study further explored an issue addressed by Bambini (1995). Bambini assessed whether physicians from her sample had prior experience with a nurse practitioner. However, she could not use this data to calculate whether knowing a nurse practitioner correlated with perception of nurse practitioner behaviors since all but one physician in the sample knew or had worked with a nurse practitioner. The relationship between physician knowledge and experience with nurse practitioners was addressed in the current study.

Davidson and Lauver (1984), utilized nine vignettes in their study. The vignettes were given to pairs of nurse practitioners and physicians who practiced together in order to assess each professions' perceived roles. This study utilized these same vignettes, but data was collected from two physician groups (physicians who had practiced with a nurse practitioner and physicians who had not practiced with a nurse practitioner). The connection between physician experience with a nurse practitioner and recognition of the appropriateness of nurse practitioner management in presented vignettes composed one of the main aspects of this study.

CHAPTER 2

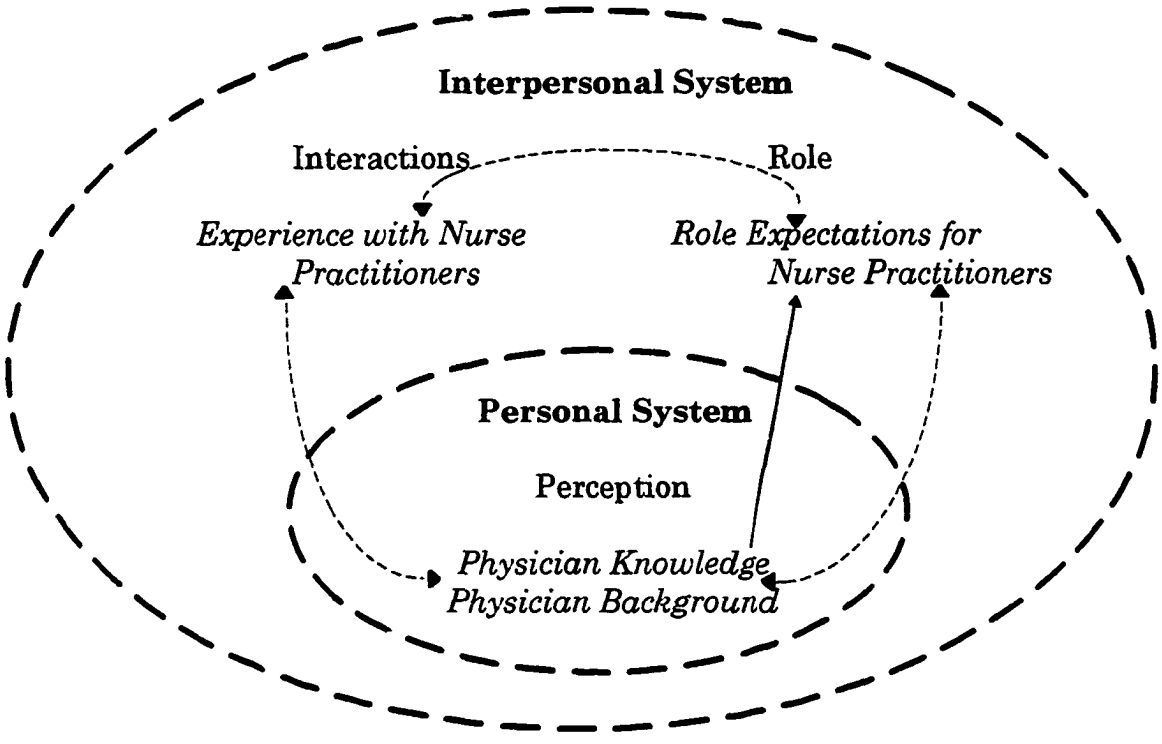
CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework

Imogene King's general systems framework as well as her theory of goal attainment (1981) provided the conceptual basis for this study. In general, King developed her framework and related theory focusing on nurse-patient relationships. However, as will be shown in the following exposition, the interactive systems approach can be readily applied to physician-nurse practitioner situations. King herself states, "A concept of interaction enters into every facet of nursing. Establishing purposeful goal-oriented interactions in nursing situations will enhance the effectiveness of care and produce satisfying outcomes for all concerned" (King, 1981, p.87-88).

Several of King's (1981) basic assumptions within her framework will be mentioned in this discussion. Her personal and interpersonal systems are described, along with central concepts in each system, in order to draw linkages between King's framework and major study variables. A brief description of the theory of goal attainment will further emphasize the importance of physician-nurse practitioner communication in meeting the goal of cost effective quality health care. The reader may wish to refer to

Figure 1, below, which depicts the linkages between King's framework and study variables.



— — — **Depicts the openness between the personal and interpersonal systems**

<----------> *Symbolizes the reciprocal effect of two concepts*

————> *Shows the one-way relationship between two concepts*

Figure 1. Relationship between King's (1981) framework concepts and study variables.

Certain basic assumptions outlined by King (1981) relate to the application of her framework to this research. King believes that, "Individuals are social beings" (King, 1981, p. 143) as evidenced by their observable interactions with other individuals in the environment. She further holds that, "Individuals are perceiving beings" (p. 143) and that perceptions of persons involved in an interaction influence the interaction process. The concepts of perception and interaction will be further defined in the discussion of King's personal and interpersonal systems.

King's personal system is comprised of individuals. One of the six concepts in this system is perception. King defines perception as "each human being's representation of reality," (King, 1981, p. 20) and also states that it is a "process of organizing, interpreting, and transforming information" (p. 24). In addition, King says that perceptions are related to past experiences, including educational background. In further describing the relationship between perceptions and knowledge, she concludes, "What one knows influences perception, and perception in turn enhances cognitive learning" (p. 23).

Following from King's (1981) conceptualization of perception are two study variables: physician knowledge of the nurse practitioner role and physician background. In applying King's theory to these concepts, it could be concluded that physician background (age, gender, number of years in practice, specialty area, geographical areas previously practiced, current

practice site) will tend to influence physician knowledge (accumulated information related to behaviors comprising the nurse practitioner role as perceived by the physician.)

Examination of the concepts of interactions and role moves the discussion of King's framework and related study variables into the interpersonal system. Within the interpersonal system, King discusses the interactions of two or more individuals (from dyads to small or large groups). Interactions are the "acts of two or more persons in mutual presence" (King, 1981, p. 85) that reveal perceptions and expectations through verbal and nonverbal communication. King also says that interactions are a "function of individuals living in groups" (p. 62) through which relationships are established.

Role is a second major concept which is part of King's interpersonal system. According to King, "role is a set of behaviors expected when occupying a position. . . ." (King, 1981, p. 93). She goes on to say that, "role is a relationship with one or more individuals interacting in specific situations for a purpose" (p. 93). In a section entitled, "Characteristics of Role," King notes the complexity of the concept because of its relationship to perception. (A person acting in a role may perceive that role differently from the person observing the behaviors.)

King's (1981) concepts of interactions and role relate to the variables, experience with nurse practitioners and physician role expectations for nurse

practitioners, respectively. Experience with nurse practitioners is defined as the number of years the physician has practiced with nurse practitioner(s), while role expectations for nurse practitioners are described as type of patient care responsibilities a physician anticipates a nurse practitioner will assume in a collaborative situation. A direct interaction between a physician and nurse practitioner who practice together should, according to King's framework, reveal perceptions and expectations of the physician and nurse practitioner. Through interactions involving verbal and nonverbal communication, the physician would begin to delineate his or her role expectations for the nurse practitioner. The nurse practitioner could then react to the physician's expectations and provide feedback to the physician in regard to the congruency of the role expectations. When there is no direct interaction between the physician and nurse practitioner, the cyclical relationship between perception, interactions, and role is broken (as shown by the solid arrow in Figure 1 from physician knowledge to role expectations), and there is less likelihood that the perceptions of the role will be congruent.

In addition to allowing for the clarification of role expectations, interactions provide an arena for communicating information about goals (King, 1981). King's theory of goal attainment focuses on the process of human interactions which result in transactions. Transactions are defined within the context of interactions as "goal-directed human behaviors" (King,

1981, p. 82). Based on the theory, lack of interactions between physicians and nurse practitioners has the potential to not only promote incongruent role expectations but also to cultivate failure to delineate or achieve the mutual goal of cost effective, quality care.

Literature Review

Physician knowledge.

Although the nurse practitioner role was originally developed by a nurse educator and a physician (Silver, Ford, & Stearly, 1967), studies have shown that physicians are often lacking in knowledge when it comes to defining the role. In a qualitative grounded theory study involving five emergency room physicians (Cairo, 1996), four out of the five physicians were unable to define advanced practice nursing. The physicians in this study were able to list some of the specific tasks a nurse practitioner could do, such as treat minor problems, order lab tests, and complete histories and physicals. However, "most of the respondents were unsure of the total scope of practice" (p. 414).

Bambini (1995) found in her study involving 46 randomly selected physicians from one county in West Michigan, that nurse practitioners and physicians differed significantly ($p < .001$) in their perceptions of the nurse practitioner role. The convenience sample of 34 nurse practitioners consistently agreed that all of the 38 items included on the questionnaire were part of their role, while physicians tended to disagree.

Johnson and Freeborn (1986) asked 124 physicians working in Kaiser Permanente's Portland area corporation whether or not nurse practitioners should be allowed to prescribe medication within physician-determined boundaries, refer patients directly to specialists, and make decisions about when to consult their supervisors. Approximately 75% of the physicians said that nurse practitioners should be allowed to prescribe; just over 40% said they should be able to refer patients, and about 69% said nurse practitioners should be allowed to decide when to consult with their supervisors.

Betancourt, Valmocina, and Grossman (1996) developed a tool containing 10 nurse practitioner roles and functions. Their sample consisted of 52 physicians part of a county medical association in a large metropolitan area. Of the 10 role functions, physicians ranked " 'giving advice on diet and nutrition' and 'working in a variety of settings' " (p. 14) the highest, meaning they thought nurse practitioners were able to perform the task. The physicians ranked prescribing medications the lowest. It is important to note that the authors did not supply information related to reliability and validity of their instrument within the publication of their results.

In a study related to the need for nurse practitioners and the willingness to hire them (Sabo & Louis, 1996), it was found that although 50.2% of the physicians in the sample (n = 210) desired to hire a nurse practitioner, 17.9% said they needed more information. The percentage of the physicians requesting more information did decrease slightly from a survey

conducted by the authors five years prior to the data collection for their 1996 publication. It is interesting to note that 29.5% of the nurse administrators in the sample also stated they needed additional information before hiring a nurse practitioner.

Physician background. Several of the reviewed studies address the impact of physician background on receptivity to the nurse practitioner role. Fottler, Gibson, and Pinchoff (1978) conducted a study to measure physician attitudes toward the nurse practitioner. Seven hundred thirty-five physicians in the Western New York area completed questionnaires which evaluated their willingness to hire nurse practitioners and characterized demographic variables. Results showed that "recent medical graduates . . . tended to be more positive about nurse practitioners" (p. 308), although "recent" was not defined in the publication of results. These researchers also found that pediatricians, general surgeons, and internists were more receptive to nurse practitioners as compared to physicians in general practice or other specialties. The authors caution that non-response bias may have effected data related to the physicians' receptivity of nurse practitioners.

The results of Johnson and Freeborn's study (1986) conducted in the Portland area are somewhat similar to the Fottler et al. study (1978), concerning physician specialty area. One hundred percent of the internists were in favor of utilizing nurse practitioners in their department, while nurse practitioners were least favored by obstetricians/gynecologists.

Internists and pediatricians were more likely than obstetricians/gynecologists to report that nurse practitioners increased the quality of care provided to patients in their departments. Of importance to note is that the Johnson and Freeborn (1986) study did not include family practice physicians or surgeons.

Physician experience. Nearly all of the reviewed studies commented on physician experience with nurse practitioners and its effect on their knowledge and/or attitudes. Authors of one study even hypothesized that their high physician response rate (71.6%) may be related to the positive attitudes of the physicians in their sample (N = 58), all of whom were practicing with nurse practitioners (Bezjak, 1987). Friedson, in a book on the sociology of medicine, draws an interesting conclusion about the value of experiences, "The clinician develops an experiential approach to learning whereby he [she] only acts on the basis of what he himself [she herself] experiences" (as cited in Fottler et al., 1978, p. 309).

As noted in chapter one, Bambini (1995) evaluated whether or not the physicians in her sample had worked with a nurse practitioner. In fact, all but one physician in the sample (n = 46) knew or had worked with a nurse practitioner, and 88% of the physicians interested in hiring a nurse practitioner had worked with one at some point. Like Bambini, Betancourt et al. (1996) assessed whether or not physicians had worked with a nurse practitioner but did not analyze the statistics to show whether experience

with the nurse practitioner effected the physicians' knowledge or perception of the role.

Sabo and Louis (1996) found that 45.3% of the physicians in their sample who had experience with nurse practitioners desired to hire one as compared to the 5.8% of physicians who did not have experience with nurse practitioners yet still desired to hire one. Along this same line of thought, Johnson and Freeborn (1986) noted that not only were 100% of the internists in favor of utilizing nurse practitioners in their department but all of the internists had also worked with nurse practitioners.

Mauksch and Campbell (1988) relay anecdotal evidence supporting the positive correlation between physicians' experiences with nurse practitioners and their attitudes toward joint practice. They have this to say in their study findings:

> . . . familiarity breeds acceptance and appreciation. Physicians who had direct contact with nurse practitioners in academic or private joint practice proved to be aware of the benefits associated with joint practice. Most of them readily acknowledged respect for the areas of competence of nurse practitioners and for their special contributions to the clinic (p. 166).

Cairo (1996) refers to Mauksch and Campbell's (1988) findings in her own qualitative study. The one physician in her sample who had worked with nurse practitioners in the emergency department "conveyed the most active

endorsement of the role" (p. 416). According to the editors of the American Journal of Nursing (1995), a project of the American Medical Association's Council on Medical Service was to survey physicians who work with nurse practitioners. In a report to the House of Delegates, the council reported that all the physicians surveyed recognized the nurse practitioners judgment skills, their acceptance by patients, and their contributions to the practice. These findings were reported by the American Journal of Nursing but could not be confirmed due to the unavailability of the original survey results.

Kinney, Hawkins, and Hudmon (1997) caution that physicians who have worked with a nurse practitioner may report more favorable attitudes since often the physicians are involved in the hiring process. They contend that success (or failure) of the nurse practitioner may be a direct reflection on the physician; therefore, physicians may supply biased responses on surveys regarding their attitudes.

Connelly and Connelly (1979) utilized a group of 40 residents and interns who had "very little prior work experience with NPs" (p. 74). Results showed that although the subjects in general had a positive attitude toward the nurse practitioner role, 34 physicians referred less than 30% of their chronic-stable patients to the nurse practitioner. The authors suggest that increased socialization of physicians and nurse practitioners through joint classroom and clinical activities may help to alleviate the discrepancies between attitudes and utilization of nurse practitioners by physicians. In

considering the study results and the authors' suggestion, it is important to keep in perspective the increased numbers of nurse practitioners who have joined the work force within the last five years (Cooper, Laud, & Dietrich, 1998).

Role expectations. Since the inception of the nurse practitioner role in 1965 (Silver et al., 1967), the nursing profession has been faced with the challenge of documenting the unique qualities of care provided by nurse practitioners. Some of the reviewed studies do indeed document these distinct practice characteristics. Interestingly, one of the studies suggests that physicians and nurse practitioners in joint practice begin to adopt behaviors similar to that of their copractitioner.

Billingsley (1986) advocates the use of process studies or in other words, "descriptive studies which look at exactly what the clinician does with the client" (p. 53). After critiquing two such studies, Billingsley concludes that nurse practitioners blend curative and caring behaviors into a role different from that of physicians.

Brown and Grimes (1993) provide further evidence of the nurse practitioner's distinct role in their meta-analysis of 38 studies, 76% of which were conducted in the 1970's. Four of the studies incorporated data on the health promotion activities of providers. Brown and Grimes (1993) concluded that nurse practitioners are involved in more health promotion activities, including patient education, as compared to physicians. Combining the

results of four experimental studies included in the meta-analysis, nurse practitioner scores for quality of care measures were significantly higher than those of physicians ($p = .01$).

When Kinney et al. (1997) asked 129 oncology nurse practitioners how their role differs from that of a physician assistant, the most frequent reply was that nurse practitioners provide more comprehensive, holistic and independent care. In further describing the comprehensive care provided by nurse practitioners, the responders cited examples of nurse practitioners identifying psychosocial issues and providing health counseling.

Mauksch and Campbell (1988) conducted a process study which involved videotaping patient encounters with physicians and nurse practitioners in joint practice. At the time of their report to the National League for Nursing's Eighteenth Biennial Convention, they had videotaped 400 patient encounters involving 160 providers in 60 different sites across the country. In the background discussion of the study, the authors stress that in reviewing the study findings, ". . . it is essential to look at both professions as distinct systems and distinct practice approaches. . . . To view the nurse practitioner as a physician substitute hinders exploration of the nursing presence in joint practice" (Mauksch & Campbell, 1988, p. 158). Study findings showed that nurse practitioners did have higher mean scores than physicians in terms of psychosocial concern exhibited in patient interactions. However, this difference in scores between physicians and nurse

practitioners was significant only on well-care visits. The authors conclude that one of the most significant dimensions of the study was the "accumulated cues . . . that in some ways physicians and nurse practitioners in joint practice seem to absorb some of each other's style and behaviors . . . ." (p. 170).

In addition to documenting the role of nurse practitioners, the reviewed literature defines physician role expectations for nurse practitioners. These role expectations are often established in the studies in terms of ability to provide holistic care, emphasis on curing versus caring, and degrees of nurse practitioner autonomy.

Two of the five physicians in Cairo's study (1996) did recognize the ability of nurse practitioners to look beyond an organ system and assess the whole patient in addition to providing psychosocial support. However, one physician said that nurse practitioners should only be used in the emergency room as a last resort, " 'when there are no alternatives in terms of better qualified personnel' " (p. 415). Hanson, Hodnicki and Boyle (1994) completed a secondary analysis of written physician nominations of nurse practitioners originally submitted for a nurse practitioner of the year award. Content analysis of the nominations (N = 191) revealed four categories of nurse practitioner contributions to a collaborative practice, one of which was holistic caring, defined as interpersonal sensitivity and holistic perspective.

The three other categories of contributions were clinical expertise, patient-centered activism, and leadership.

Davidson and Lauver's (1984) 15 physician-nurse practitioner pairs agreed that the curing-focused vignettes would be more appropriately part of the physicians' role. Nurse practitioners in the study selected vignettes involving caring behaviors as most appropriate to their role. Dyads in this study were employed by a variety of settings including primary care offices and health maintenance organizations in three different states (North Carolina, Tennessee, and New York). Ten of the physicians were internists; two were pediatricians, and one was in family practice. Two of the physicians had only completed internships.

Physician expectations differ in terms of autonomy. Fifty three percent of the physicians in Bambini's (1995) study concluded that nurse practitioners should work under direct supervision only, but 72.7% of nurse practitioners felt collaborative practice would be the best situation. According to Hanson et al. (1994) physicians submitting nurse practitioner nominations "valued nurse practitioners who functioned autonomously but at the same time sought appropriate consultation" (p. 473).

Summary and implications. A review of the literature that incorporates major variables for this study has led to several conclusions and identified omissions as well. Discrepancies in terms of the specific behaviors performed by nurse practitioners and those behaviors that physicians

acknowledge to be part of the role continue to exist. Although not conclusive, some evidence pertaining to physician background suggests that internists may be more receptive to the nurse practitioner role. Receptivity does not however indicate the physicians' knowledge of the role. Previous studies have outlined a positive relationship between physician experience with nurse practitioners and their ability to recognize nurse practitioners' contribution to collaborative care. However, none of the reviewed studies that assessed physician experience with nurse practitioners involved a two group comparative analysis as was employed in this study. It is hoped that the results of studies such as this would assist physicians and nurse practitioners seeking to form collaborative relationships.

Research Questions and Corresponding Hypotheses

For this study, there were three research questions, each with a corresponding hypothesis. The first question was: What differences were there in physician knowledge (accumulated information related to behaviors comprising the nurse practitioner role as perceived by the physician) based on whether or not the physicians had practiced with a nurse practitioner? It was hypothesized that physicians who had not practiced with a nurse practitioner would possess less knowledge about the behaviors comprising the role than physicians who had practiced with a nurse practitioner. Question number two was: What differences were there between the physician groups in terms of role expectations (type of patient care

responsibilities a physician anticipates a nurse practitioner will assume in a collaborative situation)? The hypothesis for this question was that physicians who had practiced with a nurse practitioner would be more likely to delineate patient care situations congruent with the nurse practitioner role as compared to physicians who had not practiced with a nurse practitioner. The third research question was: What was the relationship between physician knowledge and role expectations? In this case, it was hypothesized that a physician who was more knowledgeable about the behaviors comprising the nurse practitioner role would likely have more congruent role expectations as well.

CHAPTER 3

METHODS

Design

A descriptive two group comparative design was used to examine the relationship between physician knowledge, physician background, experience with nurse practitioners, and role expectations for the nurse practitioner. Advantages of using a descriptive design for this study were that descriptive studies characterize the reality of situations and are able to simultaneously reveal relationships between many variables. In analyzing the findings of a descriptive study, it is important to remember that although relationships between variables can be described, the intention is not to delineate causal relationships.

Self-selection is an additional limitation of descriptive designs which also posed a potential threat to the internal validity of the study. It was anticipated that there would be a certain amount of inherent self selection determining whether or not a physician had previously practiced with a nurse practitioner. Factors other than self-selection which may have influenced a physician's role expectations include the underlying attitude toward nurse practitioners of the medical school and residency program

where the physician was educated and trained and the perceived quality of the physician's experience with nurse practitioners. Although these particular attitudes and perceptions were not measured directly, it is assumed that they were reflected in the physicians' knowledge of the nurse practitioner role.

Sample

Originally, a random sample of family practice, internal medicine, pediatric, and obstetric-gynecology physicians was to be chosen from a State Board of Medicine list of physicians licensed to practice in three West Michigan counties. However, the State Board of Medicine was unable to supply a list of physicians with their corresponding specialty areas. Subsequently, physician membership directories were obtained for the Calhoun, Kalamazoo, and Ottawa county medical societies in Western Michigan. The convenience sample consisted of all physicians listed for family practice, internal medicine, pediatrics, and obstetrics-gynecology. Questionnaires were mailed to 318 physicians.

Instruments

Data for the study were collected through a mailed questionnaire consisting of three components-- physician background/experience with nurse practitioners, nurse practitioner role behavior tool, and nurse practitioner/physician role appropriate vignettes. (For sample cover letter and questionnaire, refer to Appendix D). The physician

background/experience with nurse practitioners section addressed demographic questions and the number of years a physician had practiced with a nurse practitioner.

Measurement of physician knowledge. The nurse practitioner role behavior tool which was used to measure physician knowledge was originally developed by Hupcey (1994) as part of a questionnaire to be completed by two groups of nurse practitioners (master's and nonmaster's prepared). The tool contained 30 role behaviors which were "identified as being representative . . . of a master's prepared nurse practitioner" (Hupcey, 1994, p. 352). Bambini (1995) adapted the tool for use in her master's thesis project. Bambini's revised version of the tool was used for this study. The revised tool contains 38 items with the stem question of, "This behavior is appropriate for a nurse practitioner" (Bambini, 1995, p. 36). Each behavior is rated on a four-point, forced-choice, agreement scale, with one being "strongly disagree" and four being "strongly agree". A total score, indicating physician knowledge of the nurse practitioner role was obtained by adding the results of all 38 items. The possible scores for physician knowledge ranged from 38 to 152.

Content validity was established for the original role behavior tool by a panel of 10 master's prepared nurse practitioners utilizing expert agreement. Bambini (1995) tested reliability of the revised tool using the test-retest method for five subjects, and no significant differences were found from one time to the next (p-values from .32 to 1.0). Cronbach's alpha was used to

measure internal consistency in Bambini's study and was equal to .97. When Cronbach's alpha was calculated for the current study, it was again found to be .97.

Measurement of role expectations. Originally, 20 vignettes which encompassed "a broad range of primary-care problems, including physical, psychosocial, and educational health concerns" were developed by Davidson and Lauver (1984, p. 5). Nine of the vignettes were utilized by Davidson and Lauver, and the same nine were used in the present study to measure role expectations for nurse practitioners.

Three vignettes were in each of the following categories (as determined by an expert panel prior to the Davidson and Lauver (1984) study): those appropriate for nurse practitioner management (numbers three, six, and nine on the questionnaire) for physician management (numbers two, four, and eight) or for management by either a nurse practitioner or physician (numbers one, five, and seven). The vignettes were presented on the questionnaire in random order. In Davidson and Lauver's study (1984) each vignette was accompanied by two stem questions and two scales which ranged from highly inappropriate to highly appropriate. The stem questions were: "A. I feel that for me to spend time with this patient is" and "B. I feel that for my copractitioner to spend time with this patient is" (Davidson & Lauver, 1984, p. 5). For the present study only one stem accompanies each

vignette. The stem question was modified slightly from its original form to this: "I believe that for a nurse practitioner to spend time with this client is."

Subjects were asked to rate each vignette using an eight-point scale, ranging from highly inappropriate to highly appropriate. Each physician was given three role expectation scores, one for each of the three types of vignettes. In calculating scores, eight was considered a high role expectation score, and one was considered a low score for the nurse practitioner appropriate vignettes (NP vignettes) and the vignettes appropriate for either a nurse practitioner or physician (NP/MD vignettes). For the vignettes which were appropriate for physician management (MD vignettes), the scoring was reversed (eight was ranked as highly inappropriate and one was ranked highly appropriate). Reverse scoring was used so that a higher score would indicate greater agreement with the expert panel for the NP vignettes as well as the MD vignettes. Possible role expectation scores could range from 3 to 24.

Limited information regarding validity and reliability of the vignettes was available from Davidson and Lauver (1984). Prior to the original study, the vignettes were "evaluated" by ten "expert" nurse practitioners and ten "expert" physicians who classified the vignettes into the three categories mentioned above. Davidson and Lauver did not mention how reliability was measured. Prior to data collection for the present study, reliability was assessed using the test/retest method on four subjects, allowing two weeks

time to pass between test one and two. The correlation between test one and test two was found to be high (r = .92). Cronbach's alpha was computed to determine the internal consistency of each of the three types of vignettes (see Table 1). The internal consistency for the NP/MD vignettes would generally be considered low; however, a lower Cronbach alpha value might be expected given that patients in these vignettes were deemed appropriate for nurse practitioner or physician management.

Table 1

Cronbach's Alpha for the Three Types of Vignettes Measuring Role Expectations

Type of Vignette	α
NP Vignettes	.64
MD Vignettes	.70
NP/MD Vignettes	.45

Procedure

Permission to use the nurse practitioner role behavior tool as adapted by Bambini (1995) was obtained from Hupcey (1994) (see Appendix A). Lauver was contacted and granted permission to utilize the nurse practitioner/physician role appropriate vignettes as published in Davidson and Lauver's 1984 article (see Appendix B).

Necessary documents were submitted to the Grand Valley State University Human Research Review Committee to obtain permission to conduct the study. The research received exempt status (see Appendix C) as risks to the subjects were minimal. Risk for exposure of identity was reduced by instructing subjects to refrain from writing their name anywhere on the questionnaire that was returned to the researcher. In addition, no numbering system was established for correlating the returned questionnaires with the name or address the material was originally sent to.

A cover letter, questionnaire, self-addressed stamped envelope for returning the questionnaire, and a self-addressed stamped postcard with the physicians return address was sent to 318 physicians. Subjects were instructed to return the postcard separately from the completed questionnaire. The postcard provided a box to check that the physician had returned a completed survey and a place to indicate if he or she wished to receive results of the study. Reminders were sent to all physicians who had not returned their postcard within two weeks.

CHAPTER 4

RESULTS

The Statistical Package for the Social Sciences (SPSS) was used to conduct the analysis of the data. Physician background was characterized using descriptive statistics including frequency distributions and percentages, as well as means and standard deviations where appropriate. Comparisons of the two groups of physicians (those who had practiced with a nurse practitioner and those who had not) in terms of physician knowledge and role expectations were made using t-tests. Pearson's correlation was used to explore the relationship between physician knowledge and role expectations. Additional relationships between variables of interest were analyzed using ANCOVA. For each of the statistical tests, significance was assumed at the .05 level ($p < .05$).

Sample Characteristics

A total of 318 surveys were sent to physicians practicing in three West Michigan counties. One-hundred sixteen surveys were returned, equating to a return rate of 36.5%. Of the 116 surveys returned, five were eliminated (four physicians had retired, and one of the surveys was blank). Thus, the useable response rate was 34.9%.

Physician background. Ages of the respondents ranged from 29 to 77 years with a mean age of 47.95 (SD = 10.52). Physicians in the sample had practiced for an average of 20.68 years (SD = 10.62), including residency/fellowship time. Sixty-eight (61.3%) of the physicians had only practiced in the state of Michigan. Table 2 reveals that the sample consisted of a majority of male physicians employed in private offices/physician corporations. The table also shows that the physicians were quite evenly distributed across the four specialty areas, with a slightly greater number of family practice physicians as compared to the other specialties.

Table 2

Physician Background by Gender, Specialty, and Place of Employment (N = 111)

Demographic Variable	n	%
Gender (n = 111)		
Male	88	79.3
Female	23	20.7
Specialty (n = 111)		
Family Practice	33	29.7
Internal Medicine	28	25.2
Obstetrics/Gynecology	23	20.7
Pediatrics	27	24.3
Place of Employment (n = 109)		
Private Office/Corporation	83	74.8
HMO/Managed Care	1	0.9
Hospital	22	19.8
Other (e.g. University, Pharmaceutical)	3	2.7

Experience with nurse practitioners. Eighty-three (74.8%) of the physician subjects had worked with a nurse practitioner in the care of patients. Of those physicians who had worked with a nurse practitioner, the majority reported that the experience with nurse practitioners had been part of their post-residency practice (see Table 3). The number of years that physicians had worked with a nurse practitioner during post-residency practice ranged from 0.25 to 30, with the mean number of years being 4.35 (SD = 5.56).

Table 3

Physician Experience with Nurse Practitioners

	n	%
Worked with NP in care of patients (N = 110)		
No	27	24.3
Yes	83	74.8
Worked with NP during medical school (n = 84)		
No	73	86.9
Yes	11	13.1
Worked with NP during residency (n = 84)		
No	60	71.4
Yes	24	28.6
Worked with NP during post-residency practice (n = 84)		
No	5	6.0
Yes	79	94.0

Data Analysis

Physician knowledge of the nurse practitioner role. The first research question was: What differences were there in physician knowledge of the nurse practitioner role based on whether or not the physicians had practiced with a nurse practitioner? The corresponding hypothesis was that physicians who had not practiced with a nurse practitioner would possess less knowledge about the behaviors comprising the role than physicians who had practiced with a nurse practitioner.

With regard to the nurse practitioner role behavior tool measuring physician knowledge, it was found that 13 subjects were missing answers for one or two of the 38 items (5% or less of the total number of items). In order to arrive at a total physician knowledge score for these 13 subjects, the statistical means for the items were used as a replacement answer for the missing values. The possible range for physician knowledge scores was from 38 to 152. The mean total score for the group of physicians who had not worked with a nurse practitioner was lower compared to the mean knowledge score for physicians who had worked with a nurse practitioner (see Table 4).

Table 4

Physician Knowledge Scores for Total Sample and By Experience

	M	SD	Range
Total Sample (N = 103)	117.95	19.53	54 - 152
Worked with NP			
No (n = 24)	108.29	24.09	54 - 152
Yes (n = 78)	120.90	17.15	79 - 151

Results of an independent t-test comparing physician knowledge scores of the group of physicians who had worked with a nurse practitioner ($n = 78$) to the scores of the group that had not worked with a nurse practitioner ($n = 24$) revealed a statistically significant difference between the groups ($t = -2.85$; $df = 100$; $p = .005$).

Since the group of physicians who had worked with a nurse practitioner was much larger than the group that had not worked with a nurse practitioner, a random sample of 35 cases was chosen out of the larger group. The physician knowledge scores of these 35 cases were then compared to the scores of 24 physicians who had not worked with a nurse practitioner. The scores between the two groups were again significantly different ($t = -3.11$; $df = 56$; $p = .003$). As might be expected, knowledge of the nurse practitioner role was significantly higher in the group that had actually worked with a nurse practitioner. Hypothesis number one was supported by the data.

Mann-Whitney U tests were run on each of the 38 items comprising the nurse practitioner role behavior tool to compare the answers of the two groups of physicians. The two groups differed significantly on 12 of the behaviors (see Table 5). The mean ranks for each of the behaviors were higher for the group that had worked with a nurse practitioner, indicating that the physicians who had worked with nurse practitioners believed the behaviors were appropriate for a nurse practitioner.

Table 5

Individual Behaviors Scored Significantly Different by the Two Physician Groups

Behavior	p
Perform complete physical exam	.003
Order diagnostic tests	.001
Analyze data collected to determine client's health status	.000
Formulate problem list based on data	.006
Develop and implement plan of care	.001
Prescribe +/or regulate medications according to protocol	.000
Evaluate the effectiveness of plan of care	.012
Modify plan of care as indicated	.001
Prescribe narcotic medications	.024
Make rounds and write orders on inpatients	.015
Independently refer to specialists	.006
Participate in community education	.033

Role expectations. Research question number two was: What differences were there between the physician groups in terms of role expectations? It was hypothesized that physicians who had practiced with a nurse practitioner would be more likely to delineate patient care situations congruent with the nurse practitioner role as compared to physicians who had not practiced with a nurse practitioner.

As previously stated in Chapter 3, the role expectation instrument contained three types of vignettes-- those appropriate for nurse practitioner management (NP vignettes), for physician management (MD vignettes), or for management by either a nurse practitioner or a physician (NP/MD vignettes). Each subject was given a score for each of the three types of

vignettes. Possible scores could range from 3 to 24. Reverse scoring was used for the MD vignettes so that a higher score would consistently indicate more agreement with the expert panel (Davidson & Lauver, 1984) in terms of provider management, regardless of whether NP vignettes or MD vignettes were being considered.

Independent t-tests were done to compare the role expectations of the two groups of physicians. The mean score for each of the three types of vignettes (NP vignettes, MD vignettes, or NP/MD vignettes) was calculated for each group and then compared. Scores for the two groups differed significantly for the MD vignettes (see Table 6).

Table 6

Role Expectations by Type of Vignette and Physician Experience with Nurse Practitioners (N = 111)

	M	SD	t	df	p
NP Vignettes					
Worked with NP			1.16	101	.251
No (n = 25)	20.88	3.31			
Yes (n = 78)	19.97	3.44			
MD Vignettes					
Worked with NP			2.26	101	.026
No (n = 26)	13.77	6.01			
Yes (n = 77)	11.13	4.84			
NP/MD Vignettes					
Worked with NP			-1.21	32.93	.234 *
No (n = 25)	17.68	4.53			
Yes (n = 79)	18.87	3.39			

Note. * Values for unequal variances were used.

Results of the t-tests using the random sample of 35 physicians who had worked with a nurse practitioner and the 27 physicians who had not worked with a nurse practitioner revealed results similar to those in Table 6. Differences in mean scores between the two groups for the NP vignettes were not statistically significant ($t = 0.45$; $df = 57$; $p = .657$) and neither were the scores for the NP/MD vignettes ($t = -1.64$; $df = 40.13$; $p = .108$ [values for unequal variances]). Differences in MD vignette mean scores for the two groups continued to be significant ($t = 2.32$; $df = 58$; $p = .024$).

Hypothesis number two was not supported as there was no significant difference in scores between the two physician groups for the NP vignettes. Actually, the lower mean score on the MD vignettes for the group of physicians who had practiced with a nurse practitioner suggests a less strong opinion that the patients should be seen by a physician. More of these physicians believed these patients could be seen by a nurse practitioner.

Relationship between physician knowledge and role expectations. Pearson's correlation was used to discern the strength of the relationship between physician knowledge and role expectations and to answer research question number three. It was hypothesized that a physician who was found to be more knowledgeable about the behaviors comprising the nurse practitioner role would likely have more congruent role expectations.

There was found to be a moderate, positive correlation between total physician knowledge and total scores for the NP vignettes ($r = .45$; $p < .001$).

This indicates that the higher the physicians scored on the knowledge portion of the questionnaire the more likely they were to rank the NP vignettes as appropriate for care by a nurse practitioner. A moderate negative, correlation existed between physician knowledge and the scores for the MD vignettes ($r = -.57$; $p < .001$). As physician knowledge scores increased, MD vignette scores decreased, indicating that the physician did not feel the MD vignette was highly inappropriate for a nurse practitioner. A strong positive relationship existed between physician knowledge and scores for the MD/NP vignettes ($r = .65$; $p < .001$). The higher the physician knowledge score, the greater the likelihood that the physician would rate the MD/NP vignettes as appropriate for care by nurse practitioners.

The study data supported hypothesis number three. In fact, the greater the physician knowledge score, the more likely the physician was to rate all the vignettes, regardless of type, as appropriate for care by nurse practitioners.

Additional findings. To assess the relationship between physician knowledge and two of the demographic variables, Pearson's correlation was utilized. A weak negative correlation existed between physician knowledge of the nurse practitioner role and years practiced as a physician ($r = -.20$; $p = .046$), meaning that physician knowledge of the nurse practitioner role was higher for physicians who had practiced a shorter amount of time. The relationship between physician knowledge and age was not significant ($r = -.17$; $p = .087$).

Determining the effect of physician specialty on role expectations was accomplished through the use of analysis of covariance (ANCOVA), with physician knowledge being the covariate. After controlling for physician knowledge, it was concluded that total scores for the NP vignettes differed significantly across the four specialties (see Table 7). The adjusted mean score for the obstetric-gynecology physicians on the NP vignettes was higher compared to the other specialties, indicating their agreement with the expert panel that the patients in these scenarios were appropriate for nurse practitioner management. Pediatricians' adjusted mean scores for the NP vignettes were the lowest. ANCOVA results for the MD vignettes and the NP/MD vignettes were not significant.

Table 7

ANCOVA For Role Expectations by Physician Specialty with Physician Knowledge as Covariate

Source of Variation	df	MS	F	p
NP Vignettes				
Within Specialties	94	9.14		
Covariate	1	228.16	24.95	.000
Between Specialties	3	26.02	2.85	.042
MD Vignettes				
Within Specialties	93	17.99		
Covariate	1	742.46	41.27	.000
Between Specialties	3	9.20	0.51	.675
NP/MD Vignettes				
Within Specialties	95	7.87		
Covariate	1	506.20	64.36	.000
Between Specialties	3	11.33	1.44	.236

Summary of Data Analysis

The data analysis supported hypotheses number one and three. Physician knowledge of the nurse practitioner role was significantly higher for the group of physicians who had practiced with a nurse practitioner. Across the entire sample, physicians with a higher knowledge score were more likely to rate all of the vignettes as appropriate for care by nurse practitioners. Although hypothesis number two was not directly supported, the data did indicate that there were differences between the two groups of physicians in terms of the types of patient care responsibilities they presume a nurse practitioner will assume in a collaborative situation. Additional findings concluded that physician knowledge was higher for physicians who had practiced a shorter amount of time and that role expectations as measured by the NP vignettes was higher for obstetric-gynecology physicians as compared to the other specialties.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Discussion

The underlying purpose of this descriptive study was to characterize the relationship between physician knowledge, physician background and experience with nurse practitioners, and role expectations for the nurse practitioner. Its unique contribution to the body of literature pertaining to major study variables stems from the emphasis placed on physician experience with nurse practitioners through the comparison of two physician groups.

Physician knowledge of the nurse practitioner role was significantly higher for the group of physicians who had practiced with a nurse practitioner as compared to those physicians who had not practiced with a nurse practitioner ($t = -2.85$; $p = .005$). This finding is consistent with the relationship between perception, past experience, and knowledge as described by King (1981). The relationship between physician knowledge and experience with nurse practitioners described in this study correlates with previous findings of increased willingness by physicians to hire nurse practitioners if they had practiced with them in the past (Sabo & Louis, 1996). Additional studies reported similar findings related to increased

ability of physicians to recognize the competence of nurse practitioners based on their prior work experience with them (American Journal of Nursing, 1995; Hanson, et al., 1994; Mauksch & Campbell, 1988).

Although the study findings did not support the second hypothesis (physicians who had practiced with a nurse practitioner would be more likely to have congruent role expectations), the two groups of physicians were found to differ in terms of role expectations. Hypothesis number two was partially based on the conclusions of Davidson and Lauver (1984) who found that when the vignettes were presented to nurse practitioners and physicians who worked together, the pairs, in general, perceived separate professional roles. Interestingly, the physicians in the present study who had worked with nurse practitioners were less likely to agree that patients in the three MD vignettes (deemed by the expert panel in Davidson and Lauver's study to focus on "curing" behaviors) needed to be seen by a physician. It is important to point out that MD vignette number eight, related to treatment of a patient with recurrent urinary tract infections, was rated by the nurse practitioners and physicians in Davidson and Lauver's study as appropriate for nurse practitioner management (see Appendix E).

Although much of the reviewed literature documents distinct caring focused behaviors exhibited by nurse practitioners (Brown & Grimes, 1993; Davidson & Lauver, 1984; Hanson, et al., 1994; Kinney et al., 1997; Mauksch & Campbell, 1988), findings of this study can perhaps be partially explained

by what Mauksch and Campbell (1988) describe as a blending of styles and behaviors when physicians and nurse practitioners practice together. The differences with respect to role expectations between the two groups continue to be consistent with King's framework (1981). Based on King's theory, physicians who had not practiced with nurse practitioners would rate the MD vignettes based on their knowledge of their own role as physicians as well as their knowledge of the nurse practitioner role apart from personal experience (refer to Figure 1 on page five and note the solid arrow from physician knowledge to role expectations).

Hypothesis number three, in a more narrow sense, predicted that physicians who had a higher knowledge score would rank the NP vignettes as highly appropriate for management by nurse practitioners. Physicians in the sample with a higher knowledge score were actually more likely to rate all three types of the vignettes as appropriate for care by nurse practitioners. Interpretation of this conclusion in light of Davidson and Lauver's (1984) findings is important (refer to Appendix E). Physicians and nurse practitioners in their sample felt that two of the three patients in the NP vignettes (numbers six [chronic alcoholism] and nine [hypertension]) would be most appropriately managed by a nurse practitioner. For the third NP vignette (number three [post myocardial infarction]), nurse practitioners felt they could care for the patient, and physicians thought they should care for the patient. For the NP/MD vignettes, the consensus was that nurse

practitioners could appropriately care for the patient in vignette number five [sore throat/possible strep] and that either profession could care for the patient in vignette number one (homosexual urges). For vignette number seven (the third NP/MD vignette [abdominal pain]), each profession felt they could most appropriately manage the patient. Differences between the predicted and actual findings for the relationship between physician knowledge and role expectations in the present study may be explained by the fact that Davidson and Lauver's (1984) sample disagreed with the expert panel on vignette numbers three, five, seven, and eight. As physicians practice with nurse practitioners, perhaps they begin to agree with the nurse practitioners in Davidson and Lauver's sample that the patients in vignette numbers three and seven can be appropriately cared for by a nurse practitioner.

Physician knowledge of the nurse practitioner role was higher for physicians who had practiced a shorter amount of time. This finding may be attributed to the large numbers of nurse practitioners who have joined the work force over the last five years (Cooper, et al., 1998). Perhaps the increased number of nurse practitioners in the work force accounts for overall differences in physician knowledge as measured in this study as compared to Bambini's study (1995). In Bambini's study, nurse practitioners and physicians differed significantly in their opinions as to whether or not the 38 behaviors were part of the nurse practitioner role. Bambini included a table

of the 15 behaviors with the greatest differences in agreement between physicians and nurse practitioners. It is interesting to compare her results with those obtained in the present study for the same 15 behaviors (see Appendix F). Behaviors with a greater than 15% increase in physician agreement from Bambini's study to the current study include the following: order diagnostic tests, prescribe and/or regulate medications, independently refer to specialists, and prescribe narcotics.

The apparent effect of physician specialty on role expectations in this study is an interesting finding in light of the history of the nurse practitioner role. Suprisingly, of the four specialties, pediatricians scored the NP vignettes the lowest, despite the fact that pediatric nurse practitioners were the first nurse practitioners to be trained and educated. However, the lower mean score for pediatricians on the NP vignettes may be attributed to the lack of pediatric content reflected in these vignettes (refer to vignette numbers three, six, and nine on the questionnaire).

Limitations

Although the overall return rate for this mail survey based research was 36.5%, generalization of results is limited based on a relatively small convenience sample drawn from a limited geographical area. The disproportionately large number of physicians who had practiced with a nurse practitioner may indicate response bias. However, significant results remained significant when a random sample of physicians who had practiced

with a nurse practitioner was compared to the physicians who had not practiced with a nurse practitioner.

Six of the physicians who returned surveys made similar comments regarding the phrase "spend time with," a portion of the stem preceding each of the vignette appropriateness scales. The physicians questioned the meaning of the phrase and wondered if it referred to assessment, diagnosis and treatment, or patient education. One physician pointed out that, "To 'spend time with' and independently manage the care [of the patient] are not the same." Perhaps the ambiguity of the phrase affected the ratings of the vignettes and in turn the quantification of the role expectations.

Implications

A review of this study should serve to encourage nurse practitioners. Findings of the study show that physician knowledge of the nurse practitioner role as well as their role expectations are positively influenced through interactions with nurse practitioners. In addition, there is evidence that physician knowledge of the nurse practitioner role has increased over the last five years.

If experience with nurse practitioners is indeed a key to increased physician knowledge and more congruent role expectations, it is vital that nurse practitioners concisely and continually communicate with physicians about the nurse practitioner role. Graduate education and training for nurse practitioners must clearly outline the nurse practitioner role and must equip

practitioners to accurately implement the role in practice. Connelly and Connelly's (1979) suggestion of early socialization between physicians and nurse practitioners in training continues to remain pertinent. It is imperative that both professions recognize and acclaim the distinct yet complementary contributions each can make to the care of patients.

Recommendations

This study, by its descriptive nature, represents a point in time or glimpse of the current reality related to physicians' understanding and expectations of the nurse practitioner role. As the number of nurse practitioners continues to increase and the ever evolving nature of health care delivery changes, it will be important to continue to plot the contribution of nurse practitioners to the delivery of quality patient care. Many past studies have focused on comparing the quality of care provided by nurse practitioners to that of physicians. Additional studies should be conducted to evaluate the quality of care provided by physicians and nurse practitioners in collaborative practice as compared to physicians who are not practicing with nurse practitioners. Evaluation of practice styles of physicians and nurse practitioners in joint practice is another area which deserves deeper investigation.

The ultimate goal for interactions between physicians and nurse practitioners should be to offer what perhaps neither profession can do alone--cost effective, quality care. The original developers of the nurse

practitioner role clearly had this goal in mind over 30 years ago, "It is necessary for medical and nursing leadership to come together to integrate their work in order to solve the problems of current and future needs for adequate health services and to elucidate the new roles they each have to fill" (Silver, et al., 1967, p. 759).

APPENDICES

Appendix A

Permission for Use of Instrument

Statement of Permission for Use of Instrument in Master's Thesis

Heidi L. Flamming, RN, BSN has my permission to:

1. Use the questionnaire originally developed by Hupcey (1994) for her study entitled, "Graduate education for nurse practitioners: Are advanced degrees needed for practice?" as adapted by Deborah Bambini, RNC, BSN (1995).

X YES ___ NO

2. Publish a copy of the adapted tool in the appendix of her Master's Thesis.

X YES ___ NO

Signed: Judith E Hupcey Date: 12-7-98

Judith E. Hupcey, EdD, RNC, CRNP

Appendix B

Permission for Use of Instrument

Statement of Permission for Use of Instrument in Master's Thesis

Heidi L. Flamming, RN, BSN has my permission to:

1. Use the nine vignettes originally developed by D. Lauver and R. A. Davidson (1984) for their study entitled, "Nurse practitioner and physician roles: Delineation and complementarity of practice."

✓ YES ___ NO

2. Publish a copy of the vignettes in the appendix of her Master's Thesis.

✓ YES ___ NO

Signed: [redacted] Date: 12-14-98

Diane R. Lauver, PhD, RN

Appendix C

Human Research Review Approval

GRAND VALLEY
STATE UNIVERSITY

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

January 19, 1999

Heidi Brands Flamming
637 Ottillia SE
Grand Rapids, MI 49507

Dear Heidi:

Your proposed project entitled "***The Relationship Between Physician Knowledge and Background, Experience with Nurse Practitioners and Role Expectations for the Nurse Practitioner***" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[redacted]

Paul Huizenga, Chair
Human Research Review Committee

Appendix D

Cover Letter

Heidi L. Flamming, RN, BSN
637 Ottillia, SE, Grand Rapids, MI 49507
(616) 452-6277

March 13, 1999

Dr. [Physician Name]
[Address]
[City], MI

Dear Dr. [Physician's Name]:

The number of nurse practitioner graduates is projected to increase from 1,500 in 1992 to over 7,000 in the year 2000 (JAMA, 1998, Vol. 280, pp. 788-794). What is your understanding of and expectations related to the nurse practitioner role? As part of my master's degree requirements for the Family Nurse Practitioner program at Grand Valley State University, I am conducting a study to examine the knowledge and expectations of physicians related to the nurse practitioner role. Your perspective is valuable to nurse practitioners seeking to develop collaborative relationships with physicians in order to provide cost effective, quality care to patients.

Your name was selected from the membership roll of the Calhoun, Kalamazoo, or Ottawa County Medical Society. Your participation in this study will be greatly appreciated. It will involve 10 minutes to complete the enclosed questionnaire. Return of your completed questionnaire will constitute informed consent for participation in this study.

Please do not put your name on the questionnaire so that your responses will be anonymous. A self-addressed stamped envelope has been included for your convenience. You will also find a self-addressed stamped postcard enclosed. Please return the postcard separate from your questionnaire and indicate if you would like to receive results of the study. Please return all stamped materials by March 31. Thank you in advance for your assistance in this research project.

Sincerely,

Heidi L. Flamming, RN, BSN

Physician Survey

Please respond to all applicable questions so that the research sample can be fully characterized. Do not write your name or other identification information anywhere on the survey.

1. What is your age? _____

2. What is your gender? 1. _____ Male
   2. _____ Female

3. How many years have you practiced as a physician (including residency/fellowships)?_____

4. What is your specialty area?
   1. _____ Family Practice
   2. _____ Internal Medicine
   3. _____ Internal Medicine/Pediatrics
   4. _____ Obstetrics/Gynecology
   5. _____ Pediatrics

5. Have you practiced in another state(s) besides Michigan?
   1. _____ No
   2. _____ Yes
   If yes, what state(s) and for how many years? _____
   _____

6. By whom are you employed?
   1. _____ Private Physician Office/Physician Corporation
   2. _____ HMO/Managed Care Organization
   3. _____ Hospital

7. Have you ever worked with a nurse practitioner in the care of patients?
   1. _____ No (If no, go on to the back side of this page.)
   2. _____ Yes

8. If you have worked with a nurse practitioner in the care of patients, was it during medical school?
   1. _____ No
   2. _____ Yes

9. If you have worked with a nurse practitioner in the care of patients, was it during residency?
   1. _____ No
   2. _____ Yes
   If yes, how much time did you work with a nurse practitioner during residency?
   1. _____ Less than one year
   2. _____ One to two years
   3. _____ Three to four years

10. Do you or have you worked with a nurse practitioner in post-residency practice?
    1. _____ No
    2. _____ Yes
    If yes, how many years? _____

Continue on back ➡

Indicate your agreement or disagreement about the appropriateness of each behavior for a Nurse Practitioner by **circling your selected response.**

This behavior is appropriate for a Nurse Practitioner:

Behavior	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Conduct a complete health assessment interview.	1	2	3	4
2. Perform a complete physical examination.	1	2	3	4
3. Order diagnostic tests.	1	2	3	4
4. Perform diagnostic tests.	1	2	3	4
5. Analyze the data collected to determine the client's health status.	1	2	3	4
6. Formulate a problem list based on the data.	1	2	3	4
7. Develop and implement a plan of care.	1	2	3	4
8. Prescribe +/or regulate medications according to protocol.	1	2	3	4
9. Evaluate the effectiveness of the plan of care.	1	2	3	4
10. Modify the plan of care as indicated.	1	2	3	4
11. Prescribe narcotic medications.	1	2	3	4
12. Manage complex health care problems.	1	2	3	4
13. Make rounds and write orders on inpatients.	1	2	3	4
14. Take call.	1	2	3	4
15. Collaborate with community agencies to provide care.	1	2	3	4
16. Independently refer to specialists.	1	2	3	4
17. Appear before civic and voluntary health groups.	1	2	3	4
18. Participate in community education.	1	2	3	4
19. Evaluate psychosocial factors which influence a client's health status.	1	2	3	4
20. Family/relationship counseling.	1	2	3	4

Please go on to the next page ➡

This behavior is appropriate for a Nurse Practitioner:

Behavior	Strongly Disagree	Disagree	Agree	Strongly Agree
21. Define the role/scope of nurse practitioner practice.	1	2	3	4
22. Teach +/or counsel families to assume responsibility for health maintenance.	1	2	3	4
23. Act as resource person for peers + other staff.	1	2	3	4
24. Participate in the instruction of nursing students.	1	2	3	4
25. Participate in the instruction of medical students.	1	2	3	4
26. Refine nursing practice through own clinical research.	1	2	3	4
27. Question the conclusions of research studies in view of own practice.	1	2	3	4
28. Develop strategies to maximize the role of the nurse practitioner.	1	2	3	4
29. Develop protocols for clinical practice.	1	2	3	4
30. Articulate + investigate own research questions utilizing the appropriate research tools.	1	2	3	4
31. Implement strategies to produce better health care.	1	2	3	4
32. Propose modifications of existing health care services based on population needs.	1	2	3	4
33. Create interdisciplinary groups to provide care to clients.	1	2	3	4
34. Evaluate issues and trends influencing health care delivery.	1	2	3	4
35. Supervise other nursing personnel.	1	2	3	4
36. Develop quality care audit tools to evaluate self + peers.	1	2	3	4
37. Explore knowledge relevant to nursing; incorporate it into a working philosophy.	1	2	3	4
38. Design an organizational mechanism for evaluation of standards of practice.	1	2	3	4

Note: Originally developed by Hupcey, J. (1994). Graduate education for nurse practitioners: Are advanced degrees needed for practice? Journal of Professional Nursing, 10, 350-356. Used with permission as adapted by Bambini, D. (1995). Nurse physician perceptions of the nurse practitioner role. Unpublished master's thesis, Grand Valley State University, Allendale, MI.

Continue on back ➡

Please read each patient scenario and **circle one number on the scale** in response to the statement provided.

1. A 15-year-old male is concerned because he has had homosexual urges and one homosexual encounter.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

2. An 87-year-old female has been bedridden for 2 weeks with influenza. Today she noted the acute onset of chest pain and shortness of breath.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

3. A 38-year-old male has just been discharged from the hospital following an acute myocardial infarction. There is no evidence of heart failure or angina. He smokes and is overweight. He is fearful of his heart disease. He comes to you for information.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

4. A 57-year-old male is concerned about the recent onset of chest pain. He has been in excellent health except for mild diet-controlled diabetes.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

5. A 16-year-old male presents to the clinic with a 2-day history of sore throat, high fever, and tender neck. His sister has had recurrent strep pharyngitis.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

Please go on to the final page ➡

6. A chronic alcoholic who is well known at your clinic presents with the chief complaint of "I want to stop drinking." Liver function tests including protime are within normal limits.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

7. Patient B is a 24-year-old male with a long history of abdominal pain. Numerous UGI and BE exams have been normal. He smokes heavily and probably does not take antacids as prescribed.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

8. A sexually active 20-year-old female complains of suprapubic tenderness and dysuria. She has been treated for urinary tract infections at least four times in the past.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

9. A 46-year-old female was recently hospitalized for minor surgery; while in the hospital, she was told she had high blood pressure and was begun on a diuretic. She comes to the clinic because she has no regular doctor. Her blood pressure is 140/80. She knows nothing about hypertension.

I believe that for a nurse practitioner to spend time with this patient is:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Highly Inappropriate — Highly Appropriate

Your participation is greatly appreciated! Please return your survey in the self-addressed stamped envelope by March 31, 1999. Remember to return the postcard separately from your survey.

Note: Patient scenarios developed by R.A. Davidson and D. Lauver. (1984). Nurse practitioner and physician roles: Delineation and complementarity of practice. Research in Nursing and Health, 7, 3-9. Used with permission.

Appendix E

Table E

Comparison of "Expert" Opinion and Findings in Davidson and Lauver's (1984) Study with Present Study Findings for Vignettes

Vignette Number	Expert Classification	Davidson and Lauver Study Mean Responses	Davidson and Lauver Study Conclusions	Mean Response for Present Study
1	NP/MD	5.4	NP/MD	5.78
2	MD	3.73	MD	4.11
3	NP	6.2	Disagreement *	6.50
4	MD	4.93	MD	4.73
5	NP/MD	7.06	NP	7.01
6	NP	6.8	NP	6.81
7	NP/MD	4.86	Disagreement *	5.75
8	MD	5.8	NP	6.58
9	NP	7.06	NP	6.91

Note. * Disagreement indicates that each profession thought they could most appropriately care for the patient.

Appendix F

Table F

Percent of Physicians Agreeing that Given Behaviors are Part of the Nurse Practitioner Role

Behavior	Percent Agreement	
	Bambini Study (n = 46)	Present Study (N = 111)
Order diagnostic tests *	65.2	84.7
Analyze data collected	65.2	77.4
Develop and implement plan of care	64.4	78.3
Evaluate effectiveness of plan of care	82.6	87.3
Modify plan of care as indicated	63.1	78.3
Define role/scope of NP practice	71.1	66.6
Act as resource person for peers	95.6	93.6
Participate in medical student education	63.0	67.5
Refine practice through research	80.4	83.8
Question conclusions of research	76.0	82.9
Prescribe +/or regulate mediations *	50.0	80.1
Independently refer to specialists *	19.5	45.0
Develop protocols for practice	77.8	79.3
Prescribe narcotic medications *	15.2	30.6
Manage complex health problems	15.2	23.4

Note. * Indicates behaviors with a greater than 15% increase in physician agreement from Bambini's study (1995) to the present study.

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