

PATIENTS' PERCEPTIONS OF THE NURSE FUNCTIONING AS A NURSE
PRACTITIONER IN AN OUT-PATIENT SETTING

by

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DEDICATION

The author wishes to dedicate this study and the degree for which it is a partial fulfillment to her late father who would have been proud, and to her mother and family who are.

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ABSTRACT

The purpose of this study was to identify ambulatory health care functions of a nurse practitioner that would be acceptable to the patient and ways in which the nurse practitioner might be of further assistance to the consumer of health care.

Accordingly, twenty patients who had previously had a data base performed by a nurse practitioner were asked whether or not they would allow a nurse practitioner to perform thirty-four components of the nurse practitioner role.

Although each of the three hypotheses of this study could be supported only in part, the data did reveal that patients would accept a nurse practitioner performing a data base. Furthermore, acceptance of the other three portions of the nurse practitioner role was at least a majority. In addition, patients' subjective evaluation of the assistance rendered to them and the amount of knowledge possessed by the nurse practitioner strongly influenced acceptance.

In view of the findings of this study, the researcher suggests continuation of the use of nurse practitioners and perhaps further study designed to determine ways in which both the efficiency and effectiveness of nurse

practitioners can be enhanced, thereby improving the quality of care rendered to the consumer.

CHAPTER 1

INTRODUCTION

The crisis in the American health care system as reported by the "Report of the National Advisory Commission on Health Manpower" (1966) has not been alleviated. The obvious solution, more manpower in all disciplines, is somewhat unrealistic. In all probability, the demand for health services cannot be met by the current education programs, nor can these programs be expanded or replicated at a rate that will meet future needs (Fein, as cited in Lewis and Resnick, 1967).

In addition to expanding already existing programs and beginning new ones, more efficient and effective use must be made of the manpower already available within the system. Nurses prepared as nurse practitioners have, during the past decade, been assuming an increasing number of duties which were previously the prerogative of the physician, thereby expanding their traditional role while improving the quantity and quality of health care delivered to the consumer.

Patterson, Bergman, and Wedgwood (1969) stated that no innovation will be practical unless it is acceptable to the consumer. The desires of the public may differ markedly

from the concepts of the professionals they consult. The impact and effectiveness of nurse practitioners has, however, been measured favorably in terms of quality of patient care delivered and consumer satisfaction (Henriques, Virgadamo, and Kahane, 1974; Kaku, Gilbert, and Sachs, 1970).

Purpose of the Study

The purpose of the study was to measure the patients' perceptions of the nurse functioning as a nurse practitioner in an outpatient setting. More specifically, the investigator attempted to identify ambulatory health care functions of a nurse practitioner that would be acceptable to the patient.

Statement of the Problem

Consumer acceptance needs to be considered in planning and implementing alternative health care delivery systems. Accordingly, the problems studied were: (1) what ambulatory health care functions do clients in an outpatient setting find acceptable for nurse practitioner to perform and (2) how knowledgeable and helpful do clients in an outpatient setting perceive the nurse practitioner to be.

Significance of the Study

The study is significant because it considers the consumers' opinion of the nurse practitioner in the health care delivery system. One of the ways patient care can

improve is when the desires of the patients are compatible with those of the professionals caring for them and both groups seek to achieve quality care.

Hypotheses to be Tested

1. At least ninety per cent of the total responses to a researcher designed questionnaire given by patients who have had a data base performed by a nurse functioning as a nurse practitioner will be favorable.
2. At least ninety per cent of the patients who have had a data base performed by a nurse functioning as a nurse practitioner will rate that nurse's "helpfulness" as "4" or "5" on a researcher designed scale.
3. At least ninety per cent of the patients who have had a data base performed by a nurse functioning as a nurse practitioner will rate that nurse's knowledge as falling within two rating points of that of the physician on a researcher designed scale.

Theoretical Framework

The definition of role according to the interactionist theory was used as a framework for this research.

The interactionist states that role is:

more than a prescription for the expected behavior of a person occupying a given position. Role is a constellation of behaviors that emerge out of

interaction between self and other, that constitutes a meaningful unit, and is the consistent expression of the sentiments, values, and/or goals that govern or provide direction for that interaction (Turner, as cited in Eyres, 1972, p. 28).

One advantage of the interactionist concept is that it "allows for the design of one's own role performance on the basis of the assignment of some purpose or sentiment to the behavior of a relevant other" (Hadley, 1967, p. 6). The interactionist concept permits any given behavior to be perceived as a reflection of different roles, while conceding that there do exist certain patterns of behavior that are perceived of as "appropriate" for a person who occupies a specific formal or informal position within an interaction setting (Turner, as cited in Hadley, 1972, p. 6). The interactionist theory does suggest, however, that elaboration on the "usual" patterns may be a consistent expression of a given role. In such an instance, the conformity model would be incomplete since it would describe only one of many possible courses that the interaction might take (Hadley, 1967).

The individual does not learn only the rules of behavior for a given performance of a given role. When an individual is engaged in an interaction with a relevant other, he learns a measure of the role of that relevant other while learning his own (Turner, as cited in Hadley, 1967). Thus, while learning the nurse role, the nurse

functioning as a nurse practitioner will learn a measure of the patient role. Similarly, by virtue of interaction with the physician, the nurse will learn a measure of the physician role.

As with the role of a nurse, the role of a nurse practitioner embraces those dependent and independent actions that are designed to minimize the stress of illness and promote physical and emotional well-being (Johnson, 1959). Within this description, the role of the nurse is viable and dynamic and can be molded to include the functions of the nurse practitioner in an attempt to provide optimum satisfaction to the nurse and quality health care to the patient.

Definitions

For the purposes of this study the following definitions were used:

1. Data base. Initial assessment of health status including a comprehensive history, physical examination, and a limited amount of laboratory tests (for example, Papanicolaou smear, stool guaiac, dip-stick urinalysis, and perhaps a chest X-ray).
2. Nurse practitioner. A nurse who was enrolled in or had completed a course in physical assessment skills with some introduction to the concepts of differential diagnosis.

3. Nurse practitioner role. The nurse practitioner functioning as a primary care agent who makes initial and continuing assessments of a person's health status in collaboration with or with the advice and guidance of a physician ("The Nurse as a Primary Care Agent," 1971). In this capacity she performs a data base and/or explains or clarifies pertinent facts in order to eliminate patients' misunderstandings, and suggests further laboratory testing and changes in treatment where necessary. While a data base would generally be an initial assessment of a patient, the last three components of the nurse practitioner role might conceivably be performed either initially or during a patient's subsequent visit.

Limitations

1. The study was conducted in one ambulatory medicine clinic of one university medical center in the Southwest.
2. Data were collected by one researcher.
3. The sample consisted of patients who had had a data base done by a nurse practitioner other than the researcher and who were present in the clinic and consented to participate at the time the research was being conducted.

4. The sample consisted of twenty adult patients.
5. While the nurse practitioners had been trained to perform a data base, they had not been specifically trained to perform the explanation, laboratory testing, and treatment portions of the nurse practitioner role.

Assumptions

1. Patients who have had a data base done by a nurse practitioner have formed opinions relative to the performance of the nurse practitioner.
2. Patients would allow a physician to perform the history, the examination, the explanation, the laboratory testing, and the treatment elements.
3. Differences attributable to varying levels of knowledge and skill among individual nurse practitioners were not significant.

CHAPTER 2

REVIEW OF LITERATURE

Nurses function as nurse practitioners in a variety of settings. Literature from the settings of pediatric, medical, and family practice are being included.

Nurse Practitioners in Pediatrics

In a time and motion study Bergman (1966) concluded that much of a pediatrician's valuable and costly training is wasted on problems which do not require much talent. Studies done at that time indicated that, although many patients were initially somewhat skeptical, they soon came to prefer having both the nurse and the physician care for them (Ford, Seacat, and Silver, 1966). In addition, many families accepted a pediatric assistant for well-child supervision (Skinner, 1966).

This acceptance was not contingent on the inability to pay for medical care. Patterson (1969) proposed that all socioeconomic groups would accept the concept of pediatric assistants if the idea were properly presented to them.

Schiff, Fraser, and Walters (1969) found the pediatric nurse practitioner to be an economically sound means of partially relieving the manpower shortage and of improving medical care to both children and their parents.

In turn, parents and children were favorably impressed with the performance of the nurse practitioner. Approximately ninety-five per cent of all parents considered the association of pediatrician and pediatric nurse practitioner not only an inevitable trend but a desirable one (Day, Egli, and Silver, 1970).

A later study again attested to the quality of care rendered by the pediatric nurse practitioner and to her favorable reception by parents (Charney and Kitzman, 1971).

Acceptance was greater in a study by Lees and Anderson (1971) when the nurse practitioner functioned in a role other than a diagnostic or counseling one.

Nurse Practitioners in Medical and Family Practice

As was true with the pediatric nurse practitioner, the medical or family nurse practitioner was generally accepted as a source of primary care. Kirk et al. (1971) stated that their health care system could be made more effective by the addition of a nurse practitioner functioning in an expanded role. Lewis and Resnick (1967), in a longitudinal study, found that there was a marked shift in the preference of patients for nurses as givers of some aspects of primary care. By contrast, Kubala and Clever (1974) found that some patients who had initially accepted a nurse practitioner as a giver of primary care later displayed concern.

In the area of medical and family practice, the quality of nurse practitioners' performance has been studied. After comparing sixteen thousand independent variables from one thousand persons who had had a physical examination done by both a nurse practitioner and a physician, Kaku et al. (1970) determined that there were no significant differences between the performances of those physicians and nurse practitioners studied.

Schulman and Wood (1972) reported on a study in which a nurse practitioner cared for 110 patients for six months. In this study the physician's permission was needed to change drug dosages, order laboratory tests, and make referrals. Although the physician reviewed all charts at six week intervals and was available for consultation, no patient was seen by a physician unless specifically requested to do so by either the patient or the nurse practitioner. At the conclusion of the study, patients' clinical courses had followed the expected pattern and the patients themselves were pleased with their care.

In a study of upper middle class people, lower middle class people, and the working community, Conant et al. (1971) found that all groups would accept a nurse practitioner performing a history. There was a lower degree of acceptance, however, when the nurse practitioner functioned in a counseling role. The researchers also noted a socioeconomic difference in that the upper middle class

community more readily accepted the nurse practitioners with whom they came in contact.

In 1969 Lewis et al. concluded that there was a statistically significant increase in the number of clinic and hospital patients who were able to return to work after having been cared for by nurse practitioners, when compared to a control group cared for by physicians. In addition, although there was a decreased frequency of symptoms manifested by the patients cared for by the nurse practitioners, the frequency of symptoms manifested by the control group was unchanged.

"The Burlington Randomized Trial of the Nurse Practitioner" (Sackett et al., 1974) reported on 1598 families receiving clinical services from two family physicians in a middle class suburb. These families were randomly allocated, in a ratio of 2 to 1, to a conventional group in which they continued to receive their primary care from a family physician working with a conventional nurse, or to a nurse practitioner group. Patients in the latter group received their first contact, primarily clinical services, from one of two nurses who had successfully completed an educational program that stressed clinical judgment in the evaluation and management of conditions arising in primary care. Accordingly, the nurse practitioner either totally managed each patient's office visits by providing reassurance or specific therapy, or requested consultation from the

associated physician. By the final two months of the year long experiment, the nurse practitioners were able to manage sixty-seven per cent of the patient visits without assistance. The outcomes (physical function, emotional function, social function, and mortality) of the patients in nurse practitioner group were comparable to those of patients receiving conventional care.

Taller and Feldman (1974) studied patients who had had a physical examination performed by a nurse practitioner. After eighteen months they reported that the nurse practitioners were collecting accurate histories, performing accurate and proper physical examination, and making correct referrals for further evaluation and care. The researchers further reported that the nurse practitioners made no significant errors and that consumer satisfaction was high.

After a three year study, Henriques et al. (1974) were unaware of any significant errors of omission in more than 30,000 patients who had had a physical examination performed by nurse practitioners. The researchers further proposed that nurse practitioners continue to perform physical examinations and request a supervising physician's assistance only when necessary to evaluate abnormal findings, suggest additional studies and referrals, and to answer questions unable to be answered by the nurse practitioners.

The level of performance by nurse practitioners in the studies reported was high. Their acceptance by patients was favorable for the most part.

CHAPTER 3

METHODOLOGY

This chapter includes a description of permissions obtained to conduct the study, the sample and population tested, development of the tool used, the collection of data, and the analysis of collected data.

Permission for Research

Prior to commencement of the study, permission was obtained from The University of Arizona Committee for Research on Human Subjects; Louis Kettel, M.D., Associate Dean College of Medicine; and the thesis committee of the College of Nursing of The University of Arizona.

Population and Sample

The population consisted of all adult patients who, within the past nine months, had had a data base done by a nurse practitioner, other than the researcher, in the Ambulatory Medicine Clinic of The University of Arizona Medical Center. The sample consisted of twenty patients who were present in the clinic at the time the data were collected, and who voluntarily consented to participate after the purpose of the study had been explained to them. Patients were assured that their participation was voluntary

and they had the right either to refuse to participate or to omit the answer to any question they found objectionable. They were assured that all responses would be held in strict confidence and used only for the purpose of the study as explained to them. They were also assured that their participation in the study, their refusal to participate, or any answers they might choose to give would be unknown to the clinic staff and in no way affect their care in the clinic or their status as a consumer of health care. One patient exercised her option to refuse to participate and was not included in the study, nor was a second patient who stated that she felt too ill to participate.

Research Tool

The study was descriptive in nature and data were collected by means of a researcher developed questionnaire administered to patients who met the criteria of the sample. The questionnaire (Appendix A) consisted of the specific components of a data base in addition to specific components of those additional functions which, together with the data base, comprise the nurse practitioner's role. Patients were asked whether or not they would allow a nurse practitioner functioning under the guidance and supervision of a physician to perform those functions which comprise the nurse practitioner role.

Data Collection

The researcher, wearing street clothes and a name pin, approached each patient meeting the sample criteria in the examining room prior to the patient's scheduled appointment time. The researcher introduced herself as a graduate student at the College of Nursing and explained the purpose of the study.

Those patients consenting to participate were given the questionnaire and cover letter and were asked to read both. The researcher then left the room and returned in ten minutes to pick up the completed questionnaire.

At no time was any attempt made either to retain the identity of the patient or the identity of the nurse practitioner who had completed the initial data base.

Data collection was begun June 11, 1974, and was ended June 19, 1974.

Analysis of the Data

The total number of questions answered on all questionnaires was summed. The total number of "yes" responses was computed as a percentage of the total number of questions answered. The mean ratings on the scales of "knowledge" and "helpfulness" were computed and then subjected to a Pearson Correlation with the five categories comprising the nurse practitioner role and with each other. A level of significance of .05 was acceptable.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Data of this study are presented and analyzed in this chapter. More specifically a description of the nurse practitioners, characteristics of the patient sample, data related to the hypotheses, and a summary of the major findings will be presented.

Description of the Nurse Practitioners

No attempt was made to identify the individual nurse practitioners seen by the patient sample. It should be noted, however, that the nurse practitioner group consisted of graduate students in nursing who were studying physical assessment, nurses from the Veterans' Administration Hospital of Tucson, Arizona who were enrolled in a nurse practitioner course, and faculty who taught both groups.

Characteristics of the Patient Sample

The patient sample consisted of eleven males and nine females ranging in age from twenty-one to eighty; however, fifteen (75 per cent) of the sample were at least forty-five years of age.

Of the persons in the sample, fifteen (75 per cent) were first generation Americans and one other person (5 per

cent) was a second generation American. Of these, ten persons (87 per cent) were born in the west or midwest regions.

Fifteen persons of the sample (75 per cent) were currently married with a mean income of \$10,000 for a mean family size of 2.45 people.

Education ranged from grammar school preparation to graduate degrees; however, at least seventeen persons (85 per cent) had attended high school.

Findings Related to the Hypotheses

The findings related to the hypotheses will be organized into categories (1) findings related to role, (2) findings related to helpfulness, and (3) findings related to knowledge.

Findings Related to Role

The persons in the sample were asked whether or not they would allow a nurse practitioner to perform thirty-four components of a nurse practitioner role. The components of the nurse practitioner role as presented to the persons in the sample consisted of five distinct sections entitled:

(1) history, questions one through four; (2) physical examination, questions five through eighteen; (3) laboratory testing, questions nineteen through twenty-two; (4) explanation, questions twenty-three through twenty-six and question thirty-two; and (5) treatment, questions twenty-seven

through thirty-one and questions thirty-three through thirty-four (Appendix B).

The responses of yes or no were thought to be opposite values on a continuum and were arbitrarily given the values of "one" and "two" respectively.

An 84 per cent total for all sections does not support the hypothesis but favorable response does fall within six percentage points of the value hypothesized. The hypothesis was supported for the history (96 per cent) and examination (93 per cent).

Acceptance of a nurse practitioner performing a history and physical examination was almost unequivocal. It is assumed that these functions are of a data collection nature and require a moderate degree of decision making. Where decision making was necessary, areas where training of the nurse practitioners was less comprehensive, patient acceptance was, by comparison, less as in explanation, laboratory testing, and treatment. However, the relative frequencies of 85 per cent (explanation), 75 per cent (laboratory testing), and 67 per cent (treatment) represent at least a majority for each category.

Responses to this portion of the questionnaire are summarized in Table 1.

Table 1. Acceptance of a Nurse Practitioner Performing in Five Components of the Nurse Practitioner Role (N = 20)

Category	Absolute Frequency	Relative Frequency	Mean	Standard Deviation
History	77	96%	1.075	.148
Examination	123	93%	1.114	.110
Explanation	85	85%	1.175	.313
Laboratory Testing	60	75%	1.250	.287
Treatment	79	67%	1.264	.321

Yes = 1; no = 2.

Findings Related to Helpfulness

The twenty persons comprising the patient sample were also asked to evaluate how helpful the nurse practitioner whom they had seen had been to them. They were given a continuum in which the endpoint value of "one" represented "not very helpful" and the endpoint value of "five" represented "very helpful." One of the persons in the sample omitted the answer to this question, therefore the analysis is on nineteen responses.

The mean value for the nineteen persons answering this question was 4.25. To be more specific, fourteen persons (74 per cent) felt that the nurse practitioner could

be rated "four" or "five" on the helpfulness scale. Although this result does not support the hypothesis, the mean value for the entire group (4.25) does fall toward the "helpful" end of the continuum. The data are presented in Table 2.

Table 2. Ratings of Helpfulness of Nurse Practitioners by Patients (N = 19)

Rating	Absolute Frequency	Relative Frequency
"1" not very helpful	1	5.26%
"2"	2	10.52%
"3"	2	10.52%
"4"	2	10.52%
"5"	12	62.12%

In subsequent open-ended questions none of the twenty persons in the sample suggested anything that the nurse practitioner could have done to have been more helpful. Seventeen (85 per cent) found nothing that they felt the physician could have done better than the nurse practitioner. Of the remaining three, two persons (10.52 per cent) expressed their absolute confidence in the physician and stated that they preferred a physician because he was the one for whose services they paid. The remaining

patient (5.26 per cent) stated that the physician found a heart murmur that the nurse practitioner did not.

The ratings of helpfulness of a nurse practitioner were subjected to a Pearson Correlation against the five components of the nurse practitioner role. On the basis of the Pearson Correlation presented in Table 3, there are very significant statistical correlations between the helpfulness of a nurse practitioner and the history ($p = .001$), examination ($p = .001$), laboratory testing ($p = .001$), and treatment ($p = .002$) portions. In the explanation portion of the nurse practitioner role, the level of significance of .055 was just beyond acceptable limits. In other words, those fourteen persons (74 per cent) who felt the nurse practitioner to be on the "helpful" end of the scale would be likely to allow a nurse practitioner to perform all components of a nurse practitioner role on them with the possible exception of explanation.

Findings Related to Knowledge

The subjects in the sample were also asked to compare, subjectively, the degree of knowledge of a nurse practitioner with regard to a physician. They were given a continuum with the endpoint values of a low of "one" and a high of "ten." The physicians' knowledge was arbitrarily given the value of "five." None of the subjects in the sample rated the nurse practitioner as having more knowledge

Table 3. Pearson Correlation Coefficients for Rating of Helpfulness Against the Components of the Nurse Practitioner Role (N = 20)

	History	Examina- tion	Labora- tory Testing	Explana- tion	Treatment
Rating of Helpfulness	.6709	.6889	.7340	.3678	.6101
	.001***	.001***	.001***	.055	.002***

***Statistically significant at .001 level.

than the physician. One of the twenty subjects omitted the answer to this portion of the questionnaire. In general, fifteen persons (79 per cent) of the sample considered the nurse practitioners' knowledge to fall within two rating points of the physician. Of these, two persons (10.5 per cent) considered the nurse practitioners' knowledge comparable to that of the physician. Although the hypothesis that 90 per cent of the total responses to this question would fall within two rating points of the physician could not be supported on the basis of these data, the mean rating for all patients ($\bar{x} = 3.4$) does fall within these limits. Responses to this question are reported in Table 4.

When the patients' ratings of the nurse practitioners' knowledge were compared to the components of the

Table 4. Rating of the Knowledge of the Nurse Practitioner
(N = 19)

Rating	Absolute Frequency	Relative Frequency
"1"	1	5.26%
"2"	3	16.8%
"3"	7	36.8%
"4"	6	31.2%
"5"	2	10.5%

nurse practitioner role using Pearson Correlation Coefficients, there was statistically significant correlation with the history ($p = .002$), laboratory testing ($p = .001$), and treatment ($p = .017$) portions. In other words, those fifteen persons (79 per cent) who considered the nurse practitioners' knowledge to fall within two rating points of the physician would be likely to allow her to perform the history ($p = .002$), the laboratory testing ($p = .001$), and the treatment ($p = .017$) portions. The results are reported in Table 5.

Findings Related to Knowledge and Helpfulness

When the variables of knowledge and helpfulness of a nurse practitioner were subjected to a Pearson Correlation, the correlation coefficient was .6848 with the level of

Table 5. Pearson Correlation Coefficients for Ratings of Knowledge with the Components of the Nurse Practitioner Role (N = 20)

	History	Examina- tion	Labora- tory Testing	Explana- tion	Treatment
Rating of Knowledge	.6085	.3009	.6526	.3261	.4764
	.002***	.099	.001***	.080	.017*

*Significant at .05 level.

***Significant at .001 level.

significance beyond .001; indicating a strong statistical relationship between the knowledge of the nurse practitioners and their helpfulness.

Fourteen members of the sample (70 per cent) indicated that they would be willing to see the nurse practitioner on a return visit. There was a statistically significant relationship between the willingness of a patient to see a nurse practitioner on a return visit and the examination ($p = .001$); and the explanation ($p = .042$) portions of the nurse practitioner role. The level of significance for the treatment portion ($p = .055$) was just beyond acceptable limits. The results are presented in Table 6.

Table 6. Pearson Correlation Coefficients for Patient Sample's Willingness to see Nurse Practitioner on a Return Visit and Five Components of Role (N = 20)

	History	Examina- tion	Labora- tory Testing	Explana- tion	Treatment
Willingness to see Nurse Practitioner on Return Visit	.2084	.6361	.2360	.3957	.3680
	.189	.001***	.158	.042*	.055

*Significant at .05 level.

***Significant at .001 level.

Demographic Data of the Patients

The variable of education was also compared statistically to the components of the nurse practitioner role. A Pearson Correlation showed that there was a statistically significant relationship between the educational preparation of the persons in the sample and their acceptance of the laboratory testing ($p = .005$); and the treatment ($p = .042$) portions. The results are presented in Table 7.

The means for the persons of the sample falling into the various educational backgrounds were computed. The results presented in Table 8 show that persons without

Table 7. Pearson Correlation Coefficients for Educational Preparation of the Patient Sample and the Five Components of the Nurse Practitioner Role (N = 20)

	History	Examina- tion	Labora- tory Testing	Explana- tion	Treatment
Educational Preparation of the Patient Sample	.3498	.3692	.5586	.2791	.3960
	.065	.055	.005**	.117	.042*

*Significant at .05 level.

**Significant at .01 level.

Table 8. Relationship of Educational Background of Sample to Laboratory Testing and Treatment Components of the Nurse Practitioner Role

	Grammar	J.H.S.	H.S.	Some College	Bachelors Degree	At Least Graduate School
Treatment						
Mean	1.286	1.000	1.112	1.417	1.429	1.429
Relative Frequency	5%	10%	35%	30%	15%	5%
Laboratory Testing						
Mean	1.000	1.000	1.143	1.333	1.542	1.375
Relative Frequency	5%	10%	35%	30%	15%	5%

Note: Presented as interval data where 1 = yes and 2 = no.

educational preparation at the college level or higher would be likely to allow a nurse practitioner to perform the laboratory and treatment portions of the nurse practitioner role.

The variables of occupation, income, and sex showed no significant relationship at the .05 level with the patient sample's acceptance of the nurse practitioner role as performed by a nurse practitioner.

Lastly, the data from the five component parts of the nurse practitioner role were subjected to a Pearson Correlation with each other. With the exception of the explanation and the examination portions, there was statistical significance for all other combinations. As Table 9 shows, with the exception of the explanation and the examination portions, those persons allowing a nurse practitioner to perform any one part of the nurse practitioner role would be likely to allow the nurse practitioner to perform any other portion.

Summary of Major Findings

The major findings of this study are:

1. Ninety-six per cent of patient responses for history portion and 93 per cent for examination portion of nurse practitioner role were favorable.
2. Eighty-four per cent of the total responses by the patient sample to a researcher designed questionnaire

Table 9. Pearson Correlation Coefficients--Components of Nurse Practitioner Role with Each Other (N = 20)

	History	Examina- tion	Labora- tory Testing	Explana- tion	Treatment
History	1.000 .001				
Examination	.4391 .026**	1.000 .001			
Laboratory Testing	.8113 .001***	.4532 .022*	1.000 .001		
Explanation	.6803 .001***	.3161 .087	.6310 .001***	1.000 .001	
Treatment	.7450 .001***	.4328 .028**	.6010 .001***	.7917 .001***	1.000 .001

*Significant at the .05 level.

**Significant at the .01 level.

***Significant at the .001 level.

were favorable, indicating that members of the sample would allow a nurse practitioner to perform the five components of the nurse practitioner role.

2. Patients who consider the nurse practitioner to be both knowledgeable and helpful to them would be more likely to allow a nurse practitioner to perform the components of the nurse practitioner role.
3. Patients without college preparation would be more likely to allow a nurse practitioner to order laboratory tests and prescribe treatment.
4. Age, income, and sex do not significantly affect acceptance of a nurse practitioner performing the nurse practitioner role.

CHAPTER 5

DISCUSSION OF FINDINGS

This chapter includes a discussion of pertinent findings of this study, relates some of those findings to the literature, and makes some recommendations for future study.

Findings Related to the Role of the Nurse Practitioner

The patient sample was asked whether or not they would allow a nurse practitioner to perform the five components of the nurse practitioner role. Greater than ninety per cent of the patient sample responded that they would allow a nurse practitioner to perform the data base portion of the nurse practitioner role. The overall responses were favorable for eighty-four per cent of the total components of the nurse practitioner role indicating a high degree of acceptance even though the hypothesis as stated could not be fully supported.

It should be noted, however, that the nurse practitioners consisted of students who were still studying physical assessment and differential diagnosis and faculty who taught them. In addition, while the nurse practitioners were specifically trained to perform a data base, their

training in the remaining three components of the nurse practitioner role was only incidental and therefore less comprehensive.

Findings Related to Knowledge and Helpfulness

On the basis of the subjects' evaluation of the nurse practitioners' helpfulness and knowledge, it seems that the attitudes of the persons in the sample is determined by both the subjective findings of helpfulness and knowledge. In other words, acceptance of a nurse practitioner is contingent on the assistance rendered to the patient and the knowledge base from which that assistance was derived.

Findings Related to Previous Literature

The findings of this study suggest that all patients in the sample would allow a nurse practitioner to perform a medical history. These findings concur with the study by Conant et al. (1971) who also noted that higher socioeconomic groups were more likely to accept a nurse practitioner. Although the findings of this study revealed no socioeconomic differences per se, it was revealed that patients without college preparation were more likely to accept a nurse practitioner performing the treatment and laboratory testing portions of the nurse practitioner role. These findings do not wholly concur with those of Patterson

et al. (1969) who stated that there were no significant socioeconomic differences determining patients' acceptance of nurse practitioners.

Lewis et al. (1969) noted a decreased frequency of symptoms manifested by the patients cared for by the nurse practitioner group in contrast to an unchanged frequency of symptoms manifested by the control group. The suggested explanation was that the nurse practitioners might have provided a greater degree of emotional support than did the physicians. This researcher suggests that patients might place helpfulness in a similar category as emotional support; consequently acceptance of the nurse practitioner in this study might have been partially due to the nurse practitioners' compassion and sensitivity in dealing with the psychosocial aspects of patients' problems.

This study concurs with the findings of Taller and Feldman (1974) and also reports that consumer satisfaction was high. By contrast, Kubala and Clever (1974) found that some patients who initially accepted nurse practitioners later manifested a degree of concern regarding their care.

Since no attempt was made to study the competencies of the nurse practitioner group, no statements can be made regarding the quality of their performance except in terms of patient acceptance. It should be noted, however, that none of the twenty patients participating in this study

could suggest anything that the nurse practitioner could have done to improve the quality of her performance.

Additional Comments by the
Patient Sample

Some interesting comments were volunteered by the patients in the sample group. In general the patients had favorable comments about the nurse practitioners they had seen. They commented that the nurse practitioner seemed to know what she was doing and that they were both pleased and somewhat surprised that someone took such a length of time to talk to them. They commented that during the interview portion of their visit, information was elicited that would have been otherwise forgotten. In addition since they were interviewed and examined by both the physician and the nurse practitioner, the visit was more effective than it would otherwise have been when done by one person.

A few additional comments revealed that the subjects in the sample were impressed that the physician required only five or ten additional minutes to complete the examination after the groundwork laid down by the nurse practitioner. They further commented that such a system would not only allow a physician to see more patients in a given time, but that the histories and physical examinations would be more comprehensive.

Interestingly, several of the subjects answered that they would allow a nurse practitioner to perform a

Papanicolaou test but preferred a physician for the remainder of the pelvic examination. One woman in the sample volunteered an explanation for this answer. She stated that a Papanicolaou smear was totally mechanical in nature; however, a vaginal examination required a great degree of knowledge and judgment.

In passing, it was noted by this researcher that favorable response increased as the length of time the nurse practitioners had been performing data bases increased and therefore presumably their competence in performing them increased. Whether or not by coincidence, it was noted that the few relatively less favorable responses from persons in sample occurred when data bases had been done by nurse practitioner students relatively early in their training in physical assessment.

Recommendations

On the basis of this study the researcher would recommend:

1. A similar study at a future date using a larger sample.
2. A similar study with a sample who had been seen by a nurse practitioner on at least two return visits but who had not had a data base performed by a nurse practitioner.

3. A longitudinal study of patients who had not been seen by a nurse practitioner and follow-up study after their visits to a nurse practitioner.
4. A study to determine the attitudes of the nurse practitioners toward their role.
5. Continuation of the use of nurse practitioners and perhaps expansion of both their number and scope of their role as a partial means of relieving the manpower shortage in health care and improving its quality.

CHAPTER 6

SUMMARY AND CONCLUSIONS

In order to combat the crisis in the American health care delivery system, more efficient and effective use must be made of the manpower already available within the system. Nurses functioning as nurse practitioners have been giving care of equal quality to that of the physician as attested to by several studies (Schulman and Wood, 1972; Kaku et al., 1970; Sackett et al., 1974; Taller and Feldman, 1974; Henriques et al., 1974).

In addition to consideration of "quality" of care, one must consider consumer acceptance in planning and implementing any change in health care delivery systems.

Methodology

A researcher designed questionnaire, consisting of the components of the nurse practitioner role, was administered to twenty patients who had had a data base performed by a nurse practitioner during the preceding nine months. The purpose of the questionnaire was to identify ambulatory health care functions of a nurse practitioner that would be acceptable to the patient and ways in which the nurse practitioner might be of further assistance to the consumer of health care.

Summary of Findings Related to
Hypotheses

The hypothesis stating that at least ninety per cent of the total responses of patients who had had a data base performed by a nurse practitioner would indicate acceptance of the nurse practitioner role could not be wholly supported for the explanation, laboratory testing, and treatment portions. Favorable responses did, however, constitute a majority. The hypothesis was supported for the data base portion of the nurse practitioner role. Overall the favorable response for all of the five categories of the nurse practitioner role was 84 per cent.

The hypothesis stating that at least ninety per cent of the patients in the sample would rate a nurse practitioner either "4" or "5" on a researcher designed scale of helpfulness could not be wholly supported on the basis of this study. The mean value for the patients in the sample was, however, 4.25 indicating that the patients as a group evaluated the nurse practitioners whom they had seen at the "helpful" end of the scale.

The hypothesis stating that at least ninety per cent of the patients who had had a data base performed by a nurse practitioner would rate that nurse's knowledge as falling within two rating points of that of the physician could not be wholly supported. The mean value for the sample was 3.4 and does fall within two rating points of the physician.

Additional Findings

Additional statistical analysis revealed patients who considered the nurse practitioners' knowledge to fall within two rating points of the physician, and considered the nurse practitioners' helpfulness to be at the high end of the scale, would be more likely to allow the nurse practitioners to perform the components of the nurse practitioner role.

The level of education of the patient also influenced his acceptance of a nurse practitioner. That is, patients who had not attended college would be more likely to allow a nurse practitioner to perform the laboratory testing and treatment portions of the nurse practitioner role.

The variables of sex, income, and occupation were not statistically significant in determining the patients' acceptance or rejection of a nurse practitioner performing the five components of the nurse practitioner role.

Conclusions and Recommendations

The researcher has drawn three conclusions from the data presented in this study.

1. In general there is a strong trend toward acceptance of nurse practitioners by patients. This acceptance is generally contingent on both the amount of

knowledge possessed by the nurse practitioner and the degree of assistance rendered the patient.

2. While acceptance of nurse practitioners by patients is favorable, acceptance is greater when the nurse practitioners' functions are those of a data collection nature and less great when her functions are more of a decision-making nature.
3. Those functions that the nurse practitioners were prepared to do (for example, the data base) were highly acceptable to the patient sample. Those things that the nurse practitioners were less prepared to do and did less often (for example, explanation, laboratory testing, and treatment) were somewhat less acceptable to the patient.

In view of the results of this study, the researcher recommends further study in this area.

APPENDIX A

LETTER TO PATIENTS AND QUESTIONNAIRE

Dear Patient,

I am a graduate student at the College of Nursing at The University of Arizona. I would greatly appreciate your help in the research I am conducting concerning the nurse practitioners you have seen in this clinic. In addition to helping me complete the requirements for a masters degree, it is hoped that the results of this research will be useful in improving the quality of care given to patients in this clinic.

Your participation in this study is voluntary. After reading this letter and the accompanying questionnaire you may choose to participate or you may refuse. Even if you choose to participate you may still omit the answer to any question you do not wish to answer.

Neither your participation nor your refusal to participate will be known to the clinic staff and in either case your medical care in this clinic will in no way be affected.

Please be assured that any answers you may choose to give will be held in strictest confidence and used only for the purpose of this study. For this reason, your name is not being requested.

Permission for this study to be conducted has been obtained from the Committee for Research on Human Subjects; Dr. Louis Kettel, Chief, Ambulatory Medicine, University of Arizona Medical Center; and the College of Nursing.

Any additional comments you may wish to make or suggestions you may have will be greatly appreciated.

Thank you for your cooperation.

Sincerely,

/s/Esther Coplowitz, R.N.

Questionnaire

Dear Patient,

The following questions pertain to the duties that might be performed by a nurse functioning as a nurse practitioner under the guidance and supervision of a physician. In general a nurse practitioner is a nurse who was enrolled in or has completed a course in physical assessment skills and has had an introduction to the concepts of physical diagnosis. In this capacity, she would take a medical history and do a physical examination.

Would you allow a nurse practitioner, functioning under the guidance and supervision of a physician, to perform the duties listed below?

Please mark the proper column yes no unsure

1. Ask questions about medicine you are now taking?			
2. Ask questions about past medical problems?			
3. Ask questions about present medical problems?			
4. Ask necessary questions about some social problems you may have?			
5. To examine your eyes?			
6. To examine your nose?			
7. To examine your throat?			
8. To look at the back of your eyes with a special light called an ophthalmoscope?			
9. To listen to your lungs?			
10. To listen to your heart?			
11. To examine your abdomen?			
12. To examine your arms and legs?			
13. To test your reflexes such as knee jerk)?			
14. To examine your rectum?			
15. To examine your breasts for lumps (women only)?			
16. To perform a vaginal examination (women only)?			
17. To do a Pap test (women only)?			
18. To examine you for hernia (men only)?			
19. To decide you need a chest X-ray?			
20. To decide you need other X-rays--such as stomach X-rays?			
21. To decide you need blood tests?			
22. To decide you need urine tests?			
23. To explain the results of laboratory tests to you?			
24. To explain the meaning of the results of laboratory tests to you?			

yes no unsure

25. To explain to you what's wrong with you?			
26. To explain why and how to take your medicines?			
27. To change the dosages of some of the medicines you're now taking?			
28. To stop some of the medicines you no longer need?			
29. To decide if you need new or different medicines?			
30. To refer you to other people who could help you--such as the dietitian or a specialist?			
31. To put you on a special diet?			
32. To explain any special diet to you?			
33. To decide whether or not you should be seen by a doctor when you come to the clinic?			
34. To admit you to the hospital if you're sick enough?			

35. How helpful was the nurse practitioner to you during your visit (please circle one of the numbers)?

(not helpful) 1 2 3 4 5 (very helpful)

36. In what ways do you feel the nurse practitioner could have been more helpful to you?

37. Was there anything that the nurse practitioner did that you felt the doctor could have done much better?

38. Would you be willing to see a nurse practitioner the next time you come to clinic?

yes _____ no _____ unsure _____

39. Please try to evaluate the amount of knowledge the nurse practitioner has as compared to the physician. If a doctor's knowledge were rated as "5" on the scale below where would you rate the nurse?

1 2 3 4 5* 6 7 8 9 10 (*doctor is "5")

Please answer the following questions so that we may be better able to understand the results of this study. Again, the answers are voluntary and will be held in strictest confidence.

40. Are you male or female? male _____ female _____
41. When were you born? _____
42. Where were you born? _____
43. Where were your parents born? _____
44. What is your marital status? _____
45. What is your occupation? _____
46. What is the highest grade of school you attended? _____
47. How many people are currently living in your home? _____
How many adults? _____
How many children? _____
48. Approximately what is your family's total yearly income? _____

Thank you for your cooperation.

APPENDIX B

RAW DATA

Would you allow a nurse practitioner, functioning under the guidance and supervision of a physician to perform the duties listed below?

Duty	Absolute Frequency	Relative Frequency	Mean
Ask questions about medicine you are now taking?	20	100%	1.0
Ask questions about past medical problems?	20	100%	1.0
Ask questions about present medical problems?	18	90%	1.15
Ask necessary questions about some social problems you may have?	19	95%	1.05
To examine your eyes?	20	100%	1.0
To examine your nose?	20	100%	1.0
To examine your throat?	20	100%	1.0
To look at the back of your eyes with a special light called an ophthalmoscope?	20	100%	1.0
To listen to your lungs?	20	100%	1.0
To listen to your heart?	20	100%	1.0
To examine your abdomen?	18	90%	1.10
To examine your arms and legs?	19	95%	1.05
To test your reflexes (such as knee jerk)?	20	100%	1.0
To examine your rectum?	15	75%	1.35
To examine your breasts for lumps? (N = 9)	8	88%	*
To perform a vaginal examination? (N = 9)	6	66%	*
To do a Pap test? (N = 9)	7	77%	*
To examine you for hernia? (N = 11)	10	91%	*
To decide you need a chest X-ray?	15	75%	1.3
To decide you need other X-rays?	13	65%	1.4
To decide you need blood tests?	16	80%	1.3
To decide you need urine tests?	16	80%	1.3
To explain the results of laboratory tests?	16	80%	1.3

To explain the meaning of the results of lab tests?	16	80%	1.25
To explain what's wrong with you?	16	80%	1.25
To explain how to take your medicine?	18	80%	1.15
To explain the dosages of some medications?	12	60%	1.5
To stop some of the medications you're taking?	11	55%	1.55
To order new medications?	11	55%	1.5
To refer you to other people who might help you?	16	80%	1.25
To put you on a diet?	13	65%	1.5
To explain a special diet to you?	19	95%	1.05
To admit you to the hospital?	17	85%	1.25
To decide whether you're sick enough to see a doctor when you come to clinic?	11	55%	1.25

*Data computed by hand.

SELECTED BIBLIOGRAPHY

- Adamson, T. Elaine. "Critical Issues in the Use of Physician Associates and Assistants," American Journal of Public Health, 61:1765-1779, 1971.
- American Nurses' Association, Statement of New Careerists, January, 1970.
- Bergman, A. "Time-Motion Study of Practicing Pediatricians," Pediatrics, 38:254-260, 1966.
- Chappell, James A., and Patricia A. Drogos. "Evaluation of Infant Health Care by a Nurse Practitioner," Pediatrics, 49:871-877, 1972.
- Charney, Evan, and Harriet Kitzman. "The Child-Health Nurse (Pediatric Nurse-Practitioner) in Private Practice," The New England Journal of Medicine, 285:1353-1358, 1971.
- Conant, Loring, Leon Robertson, John Kosa, and Joel J. Alpert. "Anticipated Patient Acceptance of New Nursing Roles and Physicians' Assistants," American Journal of Diseases of Children, 122:202-205, 1971.
- Day, Dewis R., Rosemarie Egli, and Henry K. Silver. "Acceptance of Pediatric Nurse Practitioners," American Journal of Diseases of Children, 119:204-208, 1970.
- Eyres, Patricia. "The Role of the Nurse in Family-Centered Nursing Care," Nursing Clinics of North America, 1:27-39, 1972.
- Ford, Loretta C., and Henry K. Silver. "The Expanded Role of the Nurse in Child Care," Nursing Outlook, 43-45, 1967.
- Ford, Patricia Ann, Milvoy Seacat, and George Silver. "The Relative Roles of the Public Health Nurse and the Physician in Prenatal and Infant Supervision," American Journal of Public Health, 56:1097-1103, 1966.

- Hadley, Betty Jo. "The Dynamic Interactionist Concept of Role," The Journal of Nursing Education, 5-25, 1967.
- Henriques, Charles C., Vincent Virgadamo, and Mildred Kahane. "Performance of Adult Health Appraisal Examinations Utilizing Nurse Practitioner-Physician Teams and Paramedical Personnel," The American Journal of Public Health, 64:47-53, January, 1974.
- Hercules, Costas, and Evan Charney. "Availability and Attentiveness Are These Compatible in Pediatric Practice?," Clinical Pediatrics, 8:381-389, 1969.
- Johnson, D. "A Philosophy of Nursing," Nursing Outlook, 7:198-200, 1959.
- Kaku, Kanae, Fred I. Gilbert, and Ralph Sachs. "Comparison of Health Appraisals by Nurses and Physicians," Public Health Reports, 85:1042-1046, December, 1970.
- Kirk, Richard F., Joseph D. Alter, Helen E. Browne, and Judith Davis. "Family Nurse Practitioners in Eastern Kentucky," Medical Care, 9:160-168, 1971.
- Kubala, Stephanie, and Linda Hawes Clever. "Acceptance of the Nurse Practitioner," American Journal of Nursing, 74:451-452, March, 1974.
- Lees, R. E. M., and R. M. A. Anderson. "Patient Attitudes to the Expanded Role of the Nurse in Family Practice," Canadian Medical Association Journal, 105:1165-1168, 1971.
- Lewis, Charles E., and Barbara A. Resnick. "Nurse Clinics and Progressive Ambulatory Patient Care," The New England Journal of Medicine, 277:1236-1241, 1967.
- Lewis, Charles E., Barbara A. Resnick, Glenda Schmidt, and David Waxman. "Activities, Events and Outcomes in Ambulatory Patient Care," The New England Journal of Medicine, 280:645-649, March 20, 1969.
- Litman, T. J. "Public Perceptions of the Physicians' Assistant--A Survey of the Attitudes and Opinions of Rural Iowa and Minnesota Residents," American Journal of Public Health, 343-346, 1972.

- McCormack, Regina C., Herbert M. Allen, and Eric L. Livers. "Family Doctors' Use of Office Assistants and Opinions Regarding Nurses in Primary Care," Southern Medical Journal, 64:415-418, 1971.
- "The Nurse as a Primary Care Agent," Western Council on Higher Education for Nursing, 1971.
- Patterson, Patricia K., Abraham B. Bergman, and Ralph J. Wedgwood. "Parent Reaction to the Concept of Pediatric Assistants," Pediatrics, 44:69-75, 1969.
- Pratt, Henry. "The Doctor's View of the Changing Nurse-Physician Relationship," Journal of Medical Education, 40:767-771, 1965.
- Record, Jane Cassels, and Harold R. Cohen. "The Introduction of Midwifery in a Prepaid Group Practice," American Journal of Public Health, 354-360, 1972.
- Reed, David E., and Klaus J. Roghmann. "Acceptability of an Expanded Nurse Role to Nurses and Physicians," Medical Care, 9:372-377, 1971.
- "Report of the National Advisory Commission on Health Manpower," Washington, D. C.: U. S. Government Printing Office, 1:2, 1966.
- Sackett, David L., Walter D. Spitzer, Michael Gent, and Robin S. Roberts. "The Burlington Randomized Trial of the Nurse Practitioner: Health Outcomes of Patients," Annals of Internal Medicine, 80:137-145, February, 1974.
- Schiff, Donald, Charles H. Fraser, and Heather L. Walters. "The Pediatric Nurse Practitioner in the Office of Pediatricians in Private Practice," Pediatrics, 44: 62-68, 1969.
- Schlotfeldt, Rozella M. "The Nurse's View of the Changing Nurse-Physician Relationship," Journal of Medical Education, 40:772-777, 1965.
- Schmidt, Otto A., and Patricia Jonasson. "The Role of an Obstetric Associate in a Private Obstetric Practice," American Journal of Obstetrics and Gynecology, 115: 328-334, 1973.

- Schulman, John, and Carol Wood. "Experience of a Nurse Practitioner in a General Medical Clinic," Journal of the American Medical Association, 219:1453-1461, 1972.
- Silver, Henry K. "Use of New Types of Allied Health Professionals," American Journal of Diseases of Children, 116:486-490, 1968.
- Silver, Henry K., Loretta C. Ford, and Susan G. Stearly. "A Program to Increase Health Care for Children: The Pediatric Nurse Practitioner Program," Pediatrics, 39:756-760, 1967.
- Skinner, A. L. "Parental Acceptance of Delegated Pediatric Services," Pediatrics, 41:1003, 1966.
- Storms, Doris M. Training of the Nurse Practitioner: A Clinical and Statistical Analysis. Connecticut Health Services Research Series 4, 1973.
- Taller, Stephen Lee, and Robert Feldman. "The Training and Utilization of Nurse Practitioners in Adult Health Appraisal," Medical Care, 12:40-48, January, 1974.

