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This study was conducted to determine causes of patient satisfaction and dissatisfaction with services provided within clinics at an Army medical treatment facility. A telephonic survey was used to measure the attitudes of patients towards specific areas of satisfaction or dissatisfaction. The questions on the first questionnaire were fielded as part of a longitudinal study. The results indicated no significant change in the overall satisfaction level with hospital services, but indicated dramatic changes in perceptions on individual clinics. The second questionnaire focused specifically on the Internal Medicine and Gynecology Clinics. The results indicated patients were most satisfied with courtesy, caring, and humaneness in the Internal Medicine Clinic and courtesy, quality of care, and facilities in the Gynecology Clinic. *Keywords: medical services; attitudes psychology; (K-)*

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THE MEASUREMENT OF CAUSES OF
PATIENT SATISFACTION AND DISSATISFACTION
WITHIN CLINICS AT AN ARMY MEDICAL
TREATMENT FACILITY

A Graduate Research Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration

by
Captain Michael T. Anders, MSC

May 1984

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I. INTRODUCTION

GENERAL

The patient's perceptions of the health care encounter have been shown to influence the degree to which medical care is sought and the extent to which medical advice is accepted and complied with.¹ Whether these perceptions are, in actuality, valid is irrelevant because the patient's behavior is predicated upon his opinion of the quality of the encounter. Barbara Hulka has observed that consumer opinion is a factor which can either promote or inhibit the utilization of medical services.² Donabedian and others have argued that patient satisfaction not only affects compliance with medical regimens but is an important outcome in evaluating the quality of medical care.^{3,4,5} Other authors have noted the usefulness of patient perceptions in understanding why people do or do not seek care, as opposed to describing merely who does or does not seek care.^{6,7} Victor Slater has stated that consumer opinion is particularly needed in ambulatory care settings where providers have less influence over adherence to treatment regimens than they might have in a hospital environment.⁸ This observation has particular merit for the military health care setting where the great preponderance of medical care is provided on an outpatient basis.

Other authors have also cited the need for more patient input into decisions affecting the delivery of health care. Freeborn has commented on the necessity for patients, as well as providers and

administrators, to have a voice in developing strategies for the provision of high quality medical care if client satisfaction is going to be achieved.⁹ Eleanor Nelson-Wernick echoes this belief by stating that, to the extent judgments about quality of care are made exclusively by providers, the health care system has limited knowledge concerning its overall performance.¹⁰

The bottom line in all these studies is the importance of consumer feedback concerning their satisfaction with health care services and the increasing importance for health care managers to be aware of and to be able to accurately assess that feedback. The age of consumerism has not bypassed nor will it bypass the health care industry. Health care professionals must anticipate the demands of the patient population and use the data obtained through consumer opinion polls constructively to effect positive change to the health care delivery system.

The purpose of this study is to expand the knowledge of patient perceptions within the military health care system through the assessment of patient satisfaction within an Army medical treatment facility. This appraisal will take the form of a patient satisfaction questionnaire which will be designed, fielded, and tested as a measure of patient perceptions concerning the military health care environment.

CONDITIONS WHICH PROMPTED THE STUDY

The stimuli for this research effort were both extra-institutional and intra-institutional. On the larger scale,

this researcher had the desire to expand the body of knowledge concerning patient perceptions of health care within the military environment. The Army Medical Department (AMEDD) lags far behind its civilian counterparts in measuring patient satisfaction with health care services. Few published studies could be found which addressed patient satisfaction within military medical treatment facilities.^{11,12} Additionally, an annual survey conducted by Health Services Command fails to provide accurate, relevant, and timely feedback to local commanders. It seems ironic that so little time and effort have been spent assessing the needs of the most important person in the health care encounter, the patient. Since the initiation of this study, a Department of the Army pamphlet addressing interpersonal relations with patients has been published and distributed.¹³ This document provides some excellent information on human relations and encourages the utilization of patient satisfaction questionnaires to assess patient perceptions. The pamphlet provides a suggested format for a survey instrument that, while not following state of the art design, is an acknowledgment that Department of the Army realizes the importance and value of patient opinions concerning the health care delivery system.

Too often military health care administrators and providers have become too immersed in their own roles and their own perceptions of the important aspects of the health care encounter. They have assumed, just as their civilian counterparts, that their beliefs represent the opinions of the patients when, in fact, studies have

shown that patients, administrators, and providers have different perceptions of certain dimensions of health care.¹⁴

Military health care planners need to more actively seek input from beneficiaries, as well as providers, when planning and developing health care facilities and services. Increasingly tight resource constraints and a growing emphasis on quality assurance issues within the military health care system dictate that patients be included in planning efforts. This researcher hopes to shed further light on patient perceptions and expectations which will assist planners in formulating a sound and workable health care strategy, a strategy which will insure the fitness and well-being of the military's most valuable asset, the soldier.

Intra-institutional stimuli also provided impetus for the conduct of this study. The commander and staff at Kenner Army Community Hospital (KACH) are concerned with the population's perceptions of the quality of care provided by the institution. A survey conducted at this facility last year alerted the staff to some areas of beneficiary concern among hospital services.¹⁵ While this survey effort provided valuable information about overall perceptions of care within the hospital clinics, it failed to isolate specific causes of satisfaction and dissatisfaction within the departments. The desire of the commander was to identify the particular dimensions of medical care which affect patient perceptions so that a planning strategy could be developed to improve services to the constituency. Routine, periodic use of a patient satisfaction questionnaire is seen by the commander and

staff as a valuable management tool in assessing departmental performance and as a way of letting the beneficiaries know that their opinions are valued and that they can effect changes in the health delivery system.

This research project utilized the results of the previous hospital survey as a beginning point in an attempt to measure specific causes of satisfaction and dissatisfaction with services at KACH. Based upon the results of the 1983 study, the Internal Medicine and Gynecology Departments at Kenner Army Community Hospital were selected as the clinics to evaluate with a patient satisfaction questionnaire. These services were chosen because they represented extremes of satisfaction and dissatisfaction among patients. The earlier study indicated that consumers were satisfied with the treatment which they received in the Internal Medicine Clinic while they were not pleased with the medical care provided by the Gynecology Clinic staff. The researcher felt that perceptual differences among specific dimensions of health care would be more easily measured in clinics with such polarized patient opinions.

The goal of this research project was to provide the commander with a reliable survey instrument which focused on specific aspects of health care and provided accurate and timely feedback concerning patient satisfaction with care. This knowledge should lead to a greater awareness of patients' desires and resolution of problems with a corresponding increase in consumer satisfaction and an improvement in the beneficiaries' health. It was hoped that the value of a patient satisfaction questionnaire would be demonstrated in

this survey effort and that the results would encourage repeated and regular use of the survey to monitor patient perceptions and to improve services. The researcher also believes that this questionnaire has applicability outside of KACH to other Army medical treatment facilities.

LITERATURE REVIEW

Social scientists have been surveying patient satisfaction for over thirty years with early efforts by Abdellah and Levine, Gary and Cartwright and others focusing on general satisfaction levels with medical care.^{16,17} It is only within the past ten years that research in the area of patient satisfaction has exploded. The intensified emphasis on cost containment, the increasingly competitive health care arena, and the growing awareness of a smarter and more discernable consumer all have contributed to the proliferation of patient satisfaction surveys in an attempt to measure what consumers want from their health care experiences. Hospitals are utilizing marketing techniques in the hope of finding a more effective approach to solving the problems of declining census, attracting physicians and resources, and building strong community commitment to their institutions.¹⁸

This swelling demand for patient feedback has led to the development of patient satisfaction questionnaires in every conceivable health care environment. In addition to hospitals, surveys have been conducted in family practice clinics, health maintenance

organizations, nursing homes, and many other health care facilities in an effort to measure patient satisfaction levels.^{19,20,21,22} In their preoccupation with consumer opinions, these studies focused more on the levels of satisfaction expressed by respondents than on the quality of data obtained from the surveys. In a review of over one hundred studies, John Ware found only a handful that even reported reliability estimates for patient satisfaction measures.²³ He pointed out the fallacy in drawing conclusions about the usefulness of these surveys without taking into account how well satisfaction was actually measured.

These patient satisfaction questionnaires have provided the much needed impetus for new research into the development of techniques to assess the reliability and validity of survey instruments. Ware, Hulka, Zyzanski, and Aday have conducted studies on patient satisfaction using state of the art statistical techniques to measure reliability and validity.^{24,25,26,27} Different scaling techniques also have been used in studies of patient satisfaction. Most of the instruments have used single-item measures to assess patient satisfaction even though multi-item scaling techniques have been shown to yield more reliable and valid results.²⁸ Multi-item scales measure satisfaction along a continuum as opposed to the simple "yes" or "no" responses elicited by the single item measures. Several valid techniques have been used to construct satisfaction scales, including the Method of Equal-Appearing Intervals (Thurstone scale), the Method of Summated Ratings (Likert scale), and Scalogram Analysis (Guttman

scales).^{29,30,31} The majority of the state of the art survey instruments have utilized one of these scales to measure patient satisfaction. In addition to multi-item scales, the use of positively and negatively worded questions has proven valuable in measuring the reliability of survey items as well as the reliability of responses to the questionnaire.⁴³

Increasing emphasis has been placed on the measurement of specific dimensions of health care which affect patient satisfaction as opposed to the general satisfaction levels measured by earlier surveys. The use of sophisticated statistical techniques and multi-item scales have enabled social scientists to identify and measure specific factors which affect patient satisfaction.^{32,33,34} Ware discusses a taxonomy of patient satisfaction which identifies and defines the major characteristics of providers and medical care services that influence patient satisfaction.³⁵ This taxonomy serves as a basis for grouping results in terms of the dimensions of satisfaction studied and as a standard against which to judge the comprehensiveness of a particular questionnaire.

Some research efforts have concentrated on one or two dimensions which purport to influence patient satisfaction with the health care encounter while others have measured several factors.^{36,37,38,39,40,41} Ware, Snyder, and Chu conducted extensive literature reviews and identified twenty factors affecting patient satisfaction with health care.⁴² Through the use of factor analytic techniques, they were further able to reduce the number of factors which influence patient satisfaction to five

dimensions: (1) quality of care; (2) accessibility/convenience; (3) finances; (4) physical environment; and (5) availability. The reliability and validity of these factors have been confirmed and future research efforts should, therefore, be designed to encompass most, if not all, of these factors.

The review of the literature also revealed an interesting correlation between patient satisfaction and health and illness behavior. Satisfied patients have been found to utilize more services than less satisfied consumers. Additionally, patients are thought to choose services which increase their satisfaction.^{44,45,46} These findings motivate civilian hospitals to satisfy patients' needs in the belief that satisfied consumers will frequent their facilities more often. Ironically, too great an increase in patient satisfaction could be detrimental to the military health care system as the greater use of services caused by the improved levels of satisfaction might overwhelm the already undermanned medical treatment facilities.

Sociodemographic factors also have been shown to correlate with patient satisfaction. Studies have been conducted which indicate that age, education, family size, income, race, and other variables affect patients' perceptions of health care. Results of these research efforts have shown that satisfaction varies with the dimension of health care being measured. For example, higher income persons tend to be more satisfied with accessibility/convenience but less pleased with continuity of care.⁵² Unfortunately, some studies provide contradictory results concerning the effects of

socioeconomic and demographic factors on patient satisfaction. This area should be researched more thoroughly as the ability to measure satisfaction differences among populations could provide valuable information for health care planners.

Questionnaire design has been given much more thought and emphasis in recent years. In addition to multi-item scaling techniques and polar-paired questions, much effort has gone into the formulation of individual questions and the format of questionnaires. According to Ware, reliability is a function of two measures: (1) the extent to which items are homogeneous and (2) the length of the survey.⁵³ Morrison has identified three elements as essential to a good survey instrument: (1) brevity; (2) simplicity; and (3) attractiveness.⁵⁴ The American Psychological Association has published an entire text on the caveats to the design of a reliable and valid questionnaire.⁵⁵ The ideal questionnaire would be attractive and simple and would contain the minimum number of questions necessary to assure its validity and reliability.

This researcher attempted to apply principles learned from a review of the multitude of studies conducted in the area of patient satisfaction. Validated dimensions of health care were utilized in this study along with a multi-dimensional scale and positively and negatively worded survey questions in an effort to produce a survey instrument which would reliably measure patient satisfaction with health care.

STATEMENT OF THE PROBLEM

The problem was to construct, field and evaluate a patient satisfaction questionnaire which would measure specific causes of patient satisfaction and dissatisfaction with services provided within clinics at an Army medical treatment facility.

DEFINITIONS

For an explanation of the terminology used in this study, refer to Appendix A.

OBJECTIVES

The objectives of this research project were:

1. To identify the target population from which to draw the sample.
2. To ascertain the appropriate sample size which would allow statistical inferences to be made.
3. To test the reliability of the results of the previous patient satisfaction questionnaire conducted at Kenner Army Community Hospital (KACH).
4. To design a survey instrument which accurately measures specific causes of consumer satisfaction and dissatisfaction with the Internal Medicine and Gynecology Clinics at KACH.
5. To field the patient satisfaction questionnaire.
6. To analyze and interpret the results of the survey.
7. To make recommendations contingent upon the results of the study.

CRITERIA

The patient satisfaction questionnaire fielded for this research project consisted of two batteries of questions. The first set of questions, hereafter called the battery I questionnaire, mirrored the queries from the 1983 study and polled overall consumer satisfaction with hospital clinics. The second, and more important, group of questions, referred to as the battery II questionnaire, measured specific factors which affect patient satisfaction and dissatisfaction within designated clinics.

Comparison of the results of the battery I questionnaire concerning overall satisfaction with the findings of the 1983 survey served as a reliability measure of the questions used in both studies. A one-way analysis of variance (ANOVA), described by Iversen and Norpoth, was used to compare the overall mean responses to the two survey instruments.⁵⁶ In this test, the composite mean for the eighteen clinics from the 1983 study was compared with the composite mean for the same clinics evaluated by the battery I questionnaire of this project. The level of significance for this test was established at alpha equals .05. The null hypothesis stated that no significant difference existed between the composite mean for the eighteen clinics surveyed during both years. Acceptance of the null hypothesis would indicate that there had been no significant change in the overall mean response since the administration of the survey in 1983.

Responses indicating satisfaction with an individual clinic were analyzed by a two-tailed Z-test to determine if a significant change in patient perception concerning a particular clinic had occurred in the interim between the administration of the two questionnaires.⁵⁷ The mean response attained on the two surveys for each of the eighteen clinics was contrasted by the Z-test. The null hypothesis stated that there was no significant difference between the mean response for a particular clinic surveyed during both years. A significant level of alpha equals .05 was also established for this test. Acceptance of this null hypothesis would mean that patient satisfaction with a specific clinic had not changed since the last survey.

The battery II questions measured specific causes of satisfaction and dissatisfaction with the Internal Medicine and Gynecology Clinics at KACH. These particular dimensions of medical care, which have been isolated and validated through extensive statistical analyses, were presented and discussed in the literature review section. The emphasis in this study was to measure the reliability of the questionnaire in soliciting responses to the proven causes of patient satisfaction and dissatisfaction. Polarized questions were employed in the questionnaire design to measure the specific dimensions which affect patient perceptions of medical care. A positive response to one question was expected to elicit a negative response to the corresponding polar question. The correlation for parallel measures, as described by Carmines and Zeller, was used to test the reliability of the paired questions.⁵⁸ The square root of this

correlation measured the strength of the relationship between the polar questions, with a score of one equaling a perfect association. A reliability estimate of .5 was established as the minimum acceptable criterion for each pair of responses in the battery II questionnaire. This criterion is considered significantly high as reliability coefficients of .4 and .5 have been widely cited in the literature as acceptable for social science research which relies upon subjective human opinions and behaviors from which to draw its conclusions rather than upon concrete, scientific data.^{59,60,61}

In addition to measuring the reliability of the polar-paired questions, the mean satisfaction level for each cause of patient satisfaction and dissatisfaction was calculated. The mean response to the positively worded polar-paired question was perceived by the researcher to represent the level of patient satisfaction with a particular dimension of health care. A two-tailed Z-test, as described by Isaac and Michael, was used to contrast patient satisfaction between the Internal Medicine and Gynecology Clinics.⁶² With the level of significance set at alpha equals .05, this technique tested the null hypothesis that no significant difference existed between the two clinics in patient perceptions concerning specific dimensions of care. This test was conducted for the nine factors of health care evaluated in this study.

LIMITATIONS

The following factors restricted the researcher in the conduct of this study:

1. The population estimates for the Kenner Army Community Hospital catchment area used in this study were from Fiscal Year 1983. While these estimates are the most recent available, the numbers and stratification of beneficiaries may have changed slightly since the publication of these statistics.
2. Nonavailability of Air Force, Navy and Marine personnel rosters restricted the telephonic survey to Army personnel and their family members.
3. Survey participants were identified through the Defense Eligibility Enrollment Reporting System (DEERS). Information from the Office of Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS) indicates that only about seventy percent of the family members of retirees are presently enrolled in the DEERS system.⁶³ As a result, some eligible beneficiaries probably were artificially excluded from participation in the survey.
4. The interviewers did not have access to toll-free telephone extensions for the conduct of the survey. Because of this limitation, only beneficiaries listed in the local telephone directory were included in the study.
5. The time frame for completion of this study precluded re-fielding of this questionnaire at a later date as a longitudinal measure of reliability of the survey instrument.

ASSUMPTIONS

The following assumptions were made for the conduct of this research study and were predicated upon the use of a telephonic survey for the administration of the survey.

1. The active duty population is homogeneous and changes in personnel do not significantly affect the stratification or the perceptions concerning the quality of medical services. The grade structure of active duty soldiers remains relatively constant as transferred soldiers are replaced by those of comparable rank and military occupational specialty (MOS). Because of the similar demographics and military experience of personnel of the same grade and MOS, it is assumed that their opinions concerning medical care will also be similar. Inherent in this assumption is constancy

in the types and numbers of military units stationed at Fort Lee. No significant changes in unit composition or type have occurred between the fielding of the 1983 study and the completion of this research effort.

2. Opinions of Army active duty personnel, their family members, and Army retirees and their family members reflect the feelings of their Air Force, Navy and Marine counterparts who are eligible for care at KACH.
3. The population within a fifteen mile radius of Fort Lee is representative of the total population served.

RESEARCH METHODOLOGY

The steps to accomplish the research objectives were as follows:

1. Identification of the population size and distribution were determined from the fiscal year 1983 outpatient catchment area population estimates computed by Department of the Army Resources, Management, Programming, Evaluation and Systems Division. A copy of the document provided by this agency is included at Appendix B.
2. Telephone sampling for this study was restricted to an approximate fifteen mile radius of KACH as defined by the geographic area encompassed in the local telephone directory listings.
3. Stratification was used to control the representativeness of the sample, that is, to insure the similarity between the sample and the population in the proportion of cases falling into each of the different strata. Stratified random sampling was accomplished by chance selection from the stratified population. Active duty and retired personnel and their dependents were each classified into four categories: (1) field grade officers and above; (2) company grade and warrant officers; (3) noncommissioned officers in grades E-6 and above; and (4) enlisted personnel in grades E-5 and below. Printouts by grade and social security account number were obtained from the ALPHA roster for active duty soldiers and from the Retirees Affairs Branch, Army Community Services for retirees. The sample of family members for this survey was drawn by cross-referencing these rosters with the data files in the DEERS computer.
4. Sampling without replacement was used in the fielding of this questionnaire. Sample size (n) was determined by the formula

$$n = \frac{NZ^2pq}{d^2}$$

utilizing a ninety-five percent confidence interval where $q=1-p$, $p=.5$ and $d=.05$.⁶⁴ Based upon the total population estimate of 23,701 for the KACH catchment area, a sample size of 378 was calculated. This figure represented the number of battery II questionnaire responses required for the study. It was estimated that the sample size would have to be increased by approximately twenty percent to account for those survey participants who had not visited either the Gynecology or Internal Medicine Clinic and would not respond to the questions which addressed specific causes of satisfaction and dissatisfaction with health care.

5. The design of the patient satisfaction questionnaire was based upon a review of other survey instruments with questionnaire items patterned after validated questions.^{65, 66, 67} The questionnaire contained twenty-five items and was divided into three areas of interest. The first five questions provided demographic and background information to enhance the knowledge of the patient population. The next question mirrored to the survey instrument used in the 1983 study and was called the battery I questionnaire. This item elicited responses concerning general satisfaction with eighteen departments within the hospital. The remaining questions, identified as the battery II questionnaire, measured specific causes of patient satisfaction and dissatisfaction within the Internal Medicine and Gynecology Clinics. A copy of the patient telephonic survey used in the pilot study is at Appendix C. A copy of the earlier survey instrument is attached at Appendix D.

The battery I and battery II questionnaires incorporated a nine-point Likert scale to measure patient satisfaction along a continuum. A multi-item measure, such as the Likert scale, was identified in the literature review as a valid and preferred methodology for use in opinion surveys. This measurement scale was consistent with the previous study which allowed for the direct comparison of results.

The battery II questions, limited in scope to the Gynecology and Internal Medicine Clinics, were designed to measure proven causes of patient satisfaction and dissatisfaction with medical care. These causes, as mentioned earlier in this chapter, have been tested and validated as factors which affect patient satisfaction with the health care encounter. Within each of these major categories are subfactors around which the individual survey questions were designed. Two questionnaire items, constructed as polar-paired responses, were composed for each subfactor as an internal reliability measure of the questions. The major dimensions and their subfactors are listed here, followed by the numbers which correspond to the questionnaire items which address each subfactor.

| <u>MAJOR DIMENSION</u> | <u>SUBFACTOR</u> | <u>QUESTIONNAIRE ITEM</u> |
|---------------------------------|------------------------------------|-------------------------------|
| 1. Access to Care | a. Availability of Appointments | 6,15 |
| | b. Waiting Time | 7,10 |
| 2. Availability of Resources | a. Doctors | 10,18 |
| | b. Facilities | 8,20 |
| 3. Physician/Staff Conduct | a. Quality of Care | 9,17 |
| | b. Humaneness | 13,19 |
| | c. Caring | 14,21 |
| | d. Courtesy | 11,24 |

The number of questions per subfactor was intentionally limited to two items to keep the survey brief. Two additional questions were asked to assess patient perceptions of the Internal Medicine and Gynecology Clinics in comparison with similar clinics at other military hospitals. These items are numbers 12 and 22 on the questionnaire.

6. A telephonic survey was the selected methodology for the administration of this questionnaire. A high response rate was desired and telephonic questionnaires have been shown to elicit higher response rates than some other survey techniques.⁶⁸ This technique also had worked very effectively in the previous survey effort at KACH. Red Cross and Army Community Service volunteers were solicited to administer the survey instrument. Instruction was provided by the researcher to insure consistency of the interview technique among the volunteers and to minimize interviewer bias. A copy of the interviewer's instructions is at Appendix E. Volunteers placed telephone calls during both daytime and evening hours in their efforts to contact all participants.
7. A telephone pilot test was conducted to evaluate the questionnaire and to uncover any possible interviewer prejudice. A second pilot survey was performed within the Internal Medicine and Gynecology Clinics using a self-administered questionnaire. This pilot test was to serve as a reliability measure for the telephonic pilot survey. The questions on this survey were identical to the telephonic one with only the instructions modified for self-administration. This clinic questionnaire is attached at

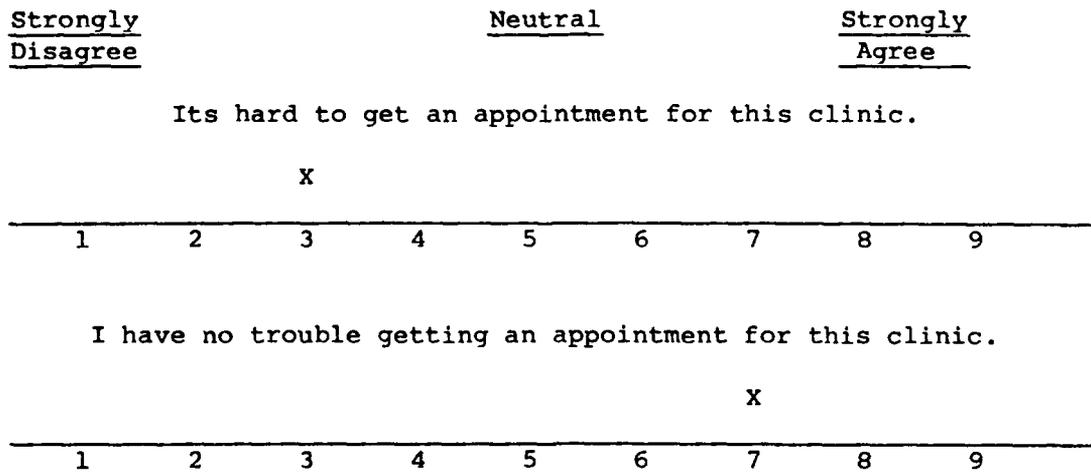
Appendix F. Clinic receptionists received instructions on how to distribute and collect the questionnaires and how to respond to questions. Modifications were made to the survey based upon the results of the two pilot tests.

8. The parent survey was administered and the results encoded, analyzed, and interpreted. Responses to the first five questions of the survey were used to develop a demographic profile of the respondents. Analyses of the battery I questions were accomplished through the use of two statistical techniques. First, a one-way analysis of variance was performed to test the null hypothesis that there was no significant difference between the composite mean responses for the eighteen clinics surveyed during the 1983 study and the present one. Secondly, a two-tailed Z-test was used to determine if a significant change in patient perceptions concerning specific clinics had transpired between the administration of the two questionnaires. The null hypothesis for this test stated that there was no significant difference between the mean response for a particular clinic surveyed during both studies. A significance level of .05 was established for both tests.

The dimensions of medical care selected for the battery II questions were chosen, as mentioned earlier, because of their known validity. The thrust of the analysis for this research effort was to test the reliability of this survey instrument in measuring these proven factors. The polar-paired questions were designed to measure the internal reliability of the questionnaire items. This paired question technique is illustrated in figure 1 with perfectly correlated responses to the polar items.

FIGURE 1

POLAR-PAIRED QUESTION TECHNIQUE



The correlation for parallel measures was used to test the reliability of the battery II questions. The square root of this association of the polar-paired questions was established as the reliability estimate with a minimum acceptable criterion of .5. The mean responses to the positively weighted battery II questions represented a measurement of patient satisfaction with the specific dimensions which affect perceptions of medical care. A two-tailed Z-test was performed to detect any differences in these perceptions between the Internal Medicine and Gynecology Clinics. The level of significance was established at the .05 level. Any significant difference in patient perceptions between clinics would indicate that patients are more or less satisfied with a particular dimension of health care within a specific clinic.

Computer support for this project was provided by the Army Logistics Management Center (ALMC), Fort Lee, Virginia through the B6810 Burroughs Mainframe Computer. The survey data were analyzed by use of BMPD statistical software.⁶⁹ A representative from ALMC assisted the researcher in the entry of data into the computer and in the analysis and interpretation of results.

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II. DISCUSSION

GENERAL APPROACH

The discussion of this research effort will be divided into two principal sections: (1) the pilot patient satisfaction questionnaire and (2) the parent patient satisfaction questionnaire. Examination of the pilot surveys will include a review of the administration of the questionnaire along with an analysis and interpretation of the results of the surveys. Modifications to the questionnaire and the method of administration dictated by the results of the pilot studies also will be elaborated on. The parent patient satisfaction questionnaire will then be discussed following the same outline as the examination of the pilot studies.

THE PILOT PATIENT SATISFACTION QUESTIONNAIRE

The pilot patient satisfaction questionnaire was fielded both telephonically and within the Internal Medicine and Gynecology Clinics. Administration of the survey in the clinics was designed to serve as a reliability check of the telephonic questionnaire and to explore the feasibility of using the clinic environment to conduct future survey efforts. The instructions for both surveys were worded to eliminate duplicate polling of the same beneficiary in the clinic and by telephone.

FIELDING THE PILOT SURVEYS

The Pilot Telephonic Questionnaire

The first step in the conduct of the pilot telephonic questionnaire was the determination of the sample size and stratification. While most texts on social science research recommend the conduct of a pilot test, the researcher could find no consensus on an appropriate sample size for a pilot study.^{1,2} A sample size equal to twenty percent of the total of the parent study was determined to be adequate by this writer. This percentage equated to a sample size of 76 based upon the figure of 378 required for the larger survey. A sample of one hundred beneficiaries was selected in order to allow a margin of approximately twenty-five percent for unusable questionnaires (i.e., improperly completed forms, inconsistent responses), refusals to participate in the study, and uncontactable survey participants. This percentage is consistent with the results of the 1983 study conducted at Kenner Army Community Hospital.³

Seven Red Cross and Army Community Services interviewers were used during the conduct of the pilot telephonic survey. The volunteers were each given a list of approximately fifteen names divided into the desired stratification groupings. They were cautioned to interview only the persons named on the list and not any other family members so that the proper stratification of the respondents would be maintained. The interviewers were counseled to attempt to

contact a person a minimum of three times and to call at different times during the day and evening. If they were unable to complete any interview, they annotated the reason next to the person's name on their list of contacts.

The Pilot Clinic Questionnaire

A pilot patient satisfaction questionnaire was administered for one day in the Internal Medicine and Gynecology Clinics during the same time frame as the conduct of the pilot telephonic study. A total of thirty questionnaires were distributed to each clinic for this pilot study. This survey was self-administered with each patient asked to complete a questionnaire while he or she was waiting to see a provider. Surveys were handed out until the supply was exhausted with no attempt made to select participants based upon stratification. The questionnaire results, however, provided demographic information which allowed the researcher to retrospectively determine the stratification of the sample.

Clinic receptionists were responsible for the distribution and the retrieval of the questionnaires. They were briefed on their responsibilities and their importance to the success of the survey effort. Clipboards and pencils were provided to participants to facilitate the completion of the questionnaires.

ANALYSIS OF RESULTS

Encoding Data from the Pilot Questionnaires

The researcher manually entered the responses to the questionnaires into the Burroughs computer with assistance provided by the Army Logistics Management Center (ALMC) representative. Five categories of respondents were identified during the data entry process: (1) telephonic respondents who answered the battery II questions about the Internal Medicine Clinic; (2) telephonic respondents who answered the battery II questions about the Gynecology Clinic; (3) clinic respondents who answered the battery II questions about the Internal Medicine Clinic; (4) clinic participants who responded to the battery II questions about the Gynecology Clinic; and (5) respondents who did not answer the battery II questions. Each completed questionnaire was assigned a case number and each case contained forty-seven input variables corresponding to items on the survey instrument. The descriptive data from the telephonic and clinic pilot surveys, to include the case variables and their frequencies, means, and standard deviations, are presented in Appendix G.

Responses to the Pilot Telephonic Questionnaire

In the pilot telephonic survey, seventy-four persons were contacted from the gross sample size of one hundred. Only two persons

refused to answer the questionnaire equating to a very high response rate of 97.3 percent (72/74). The completion rate for the questionnaires, that is, the number of completed questionnaires divided by the sample size, was a much lower seventy-two percent (72/100). In addition to the two refusals, several other factors contributed to the low completion rate. The principal cause was the illness of one interviewer which prevented her from contacting thirteen people on her list. Other reasons for failure to complete interviews were: (1) incorrect telephone numbers; (2) disconnected telephones; (3) no answer after three or more attempts; and (4) illnesses or deaths of persons. The volunteers reported that the questionnaire was easy to administer and was well received by the respondents.

The returned questionnaires were screened for completeness. Of the seventy-two completed surveys, sixty were utilized in the analysis. Two problems accounted for the discarding of the other twelve questionnaires. In one instance, an interviewer failed to specify whether the battery II responses applied to the Internal Medicine or the Gynecology Clinic. The other problem focused on the format of the questionnaire. The battery I items were listed too closely together which caused interviewers to occasionally circle two responses on one line and invalidate the answers.

A review of the usable questionnaires revealed that thirty-two of the sixty respondents had answered the battery I and battery II questions. The remaining twenty-eight persons had not utilized either the Gynecology or the Internal Medicine Clinics and could

offer no responses to the battery II questions. Table 1, page 33, profiles the sampling results from the pilot telephonic survey. The table reflects the consistent underrepresentation of the enlisted E-5 and below population in the pilot survey. The illness of the volunteer and the discarding of some questionnaires caused this imbalance in the stratification of the sample. Data in the table also reveal that usage of the Gynecology and Internal Medicine Clinics does not break down evenly among the stratified groups. As would be expected, the family members of active duty and retirees constituted the bulk of the users of the Gynecology Clinic while elderly beneficiaries frequented the Internal Medicine Clinic more often than younger consumers.

Responses to the Pilot Clinic Questionnaire

Of the the sixty questionnaires distributed to the Internal Medicine and the Gynecology Clinics during the pilot clinic survey, fifty-six were returned. One person in the Gynecology Clinic refused to complete the questionnaire while only twenty-seven patients were seen in the Internal Medicine Clinic on the day the questionnaire was administered. These figures equal a completion rate of 93.3 percent (56/60) and a response rate of 98.2 percent (55/56) for the pilot clinic study. Clinic personnel reported few complaints or questions from patients concerning the completion of the surveys.

TABLE 1

SAMPLE SIZE FOR PILOT TELEPHONIC QUESTIONNAIRE

| Stratification | Gross ¹ Sample | Desired ² Sample | Total ³ Surveys | # Usable ⁴ Surveys | # Responses to Battery II ⁵ Questions |
|--|------------------------------|--------------------------------|-------------------------------|----------------------------------|---|
| Active Duty | | | | | |
| Field Grade and above | 2 | 1 | 2 | 2 | 1/0 |
| Company Grade and WOs | 4 | 2 | 3 | 4 | 0/1 |
| Enlisted E-6 and above | 6 | 4 | 4 | 3 | 0/0 |
| Enlisted E-5 and below | 14 | 11 | 7 | 6 | 0/1 |
| Family Members of Active Duty | | | | | |
| Field Grade and above | 3 | 2 | 3 | 2 | 0/1 |
| Company Grade and WOs | 4 | 3 | 4 | 3 | 0/2 |
| Enlisted E-6 and above | 8 | 6 | 6 | 5 | 1/3 |
| Enlisted E-5 and below | 11 | 8 | 6 | 4 | 0/3 |
| Retirees | | | | | |
| Field Grade and above | 5 | 4 | 5 | 4 | 2/0 |
| Company Grade and WOs | 2 | 1 | 2 | 1 | 1/0 |
| Enlisted E-6 and above | 15 | 13 | 14 | 12 | 5/0 |
| Enlisted E-5 and below | 1 | 1 | 1 | 1 | 1/0 |
| Family Members of Retirees | | | | | |
| Field Grade and above | 5 | 4 | 4 | 3 | 1/1 |
| Company Grade and WOs | 2 | 1 | 1 | 1 | 0/1 |
| Enlisted E-6 and above | 17 | 14 | 10 | 9 | 3/4 |
| Enlisted E-5 and below | 1 | 1 | 0 | 0 | 0/0 |
| Total | 100 | 76 | 72 | 60 | 15/17 32 |

1 allows for 25% unusable responses.

2 20% of sample size of parent study.

3 Includes those responding to battery I and/or battery II questions.

4 Total # surveys minus discarded surveys.

5 # respondents obtained from the # of usable questionnaires. Internal Medicine respondents listed first followed by Gynecology respondents. Total block for this column lists totals by clinics above overall total for Battery II Questionnaire.

All of the returned questionnaires from the Gynecology Clinic were usable while twenty-four of the twenty-seven surveys from the Internal Medicine Clinic were acceptable. Failure to complete all the pages of the questionnaire surfaced as the cause for rejection of the three surveys from the Internal Medicine Clinic.

The lack of adequate spacing between items in the battery I questionnaire caused problems in the clinic study just as it had in the telephonic survey. In addition, some of the written responses to the demographic questions were illegible and had to be discarded. Of the fifty-three usable questionnaires in the pilot clinic study, forty-six contained completed battery II questions. Seven respondents were first-time clinic users and, as directed by the questionnaire, did not answer the battery II items.

Table 2, page 35, shows the sampling results from the pilot clinic survey. The figures in this table represent the actual stratification of the users of the Internal Medicine and Gynecology clinics on the day the survey was conducted. The highest users of the clinics for that day were family members of retirees, followed by family members of active duty, retirees, and active duty.

Demographic Profile of the Pilot Studies

The responses to the demographic questions from the pilot surveys indicated that the average respondent from the 113 participants utilized the services at Kenner Army Community Hospital 5.83 times in the past year and 17.42 times over the past three years. He or she has resided in the Fort Lee area for almost eleven years

TABLE 2

SAMPLE SIZE FOR PILOT CLINIC QUESTIONNAIRE

| Stratification | Desired ¹ Sample | Total # ² Surveys | # Usable ³ Surveys | # Responses to Battery II ⁴ Questionnaires |
|--|--------------------------------|---------------------------------|----------------------------------|--|
| Active Duty | | | | |
| Field Grade and above | | 0 | 0 | 0/0 |
| Company Grade and WOs | | 4 | 4 | 3/1 |
| Enlisted E-6 and above | | 2 | 2 | 0/0 |
| Enlisted E-5 and below | | 1 | 1 | 0/1 |
| Family Members of Active Duty | | | | |
| Field Grade and above | | 1 | 1 | 0/1 |
| Company Grade and WOs | | 2 | 2 | 0/1 |
| Enlisted E-6 and above | | 7 | 6 | 1/5 |
| Enlisted E-5 and below | | 5 | 5 | 0/5 |
| Retirees | | | | |
| Field Grade and above | | 1 | 1 | 1/0 |
| Company Grade and WOs | | 1 | 1 | 1/0 |
| Enlisted E-6 and above | | 8 | 7 | 5/1 |
| Enlisted E-5 and below | | 3 | 3 | 1/0 |
| Family Members of Retirees | | | | |
| Field Grade and above | | 0 | 0 | 0/0 |
| Company Grade and WOs | | 2 | 2 | 0/1 |
| Enlisted E-6 and above | | 19 | 18 | 7/11 |
| Enlisted E-5 and below | | 0 | 0 | 0/0 |
| | | | | 19/27 |
| Total | 60 | 56 | 53 | 46 |

1 Column blank except for Total because no attempt was made to stratify the sample.

2 Includes those responding to battery I and/or battery II questions.

3 Total # surveys minus discarded surveys.

4 # respondents obtained from the # of usable questionnaires. Internal Medicine respondents listed first followed by Gynecology respondents. Total block for this column lists totals by clinics above overall total for Battery II Questionnaire.

and lives approximately 7.4 miles from the hospital. Users of the Internal Medicine and/or Gynecology Clinics visited the services an average of twice during the past year and five times over the past three years.

Comparison of the Results of the Pilot Studies

A one-way analysis of variance test was performed on the battery I and battery II questions to determine if there was a significant difference in the responses to the telephonic and clinic questionnaires. The ANOVA on the battery I questions revealed no significant differences between the mean responses for the telephonic and clinic surveys in all but four of the eighteen clinics. It was felt that the small sample size of the pilot studies explained the deviations in the Internal Medicine, Pharmacy, and Audiology Clinics and the Inpatient Surgery responses.

The null hypothesis of equality in mean responses between the telephonic and clinic surveys was accepted for all battery II responses. This consistency in results between telephonic and self-administered questionnaires is supported by other studies which have found that if the questionnaires are similar and interviewer influence is minimal, then self-administered and interviewer-administered surveys produce comparable results.^{4,5}

Comparison of the 1983 Study with Pilot Battery I Questions

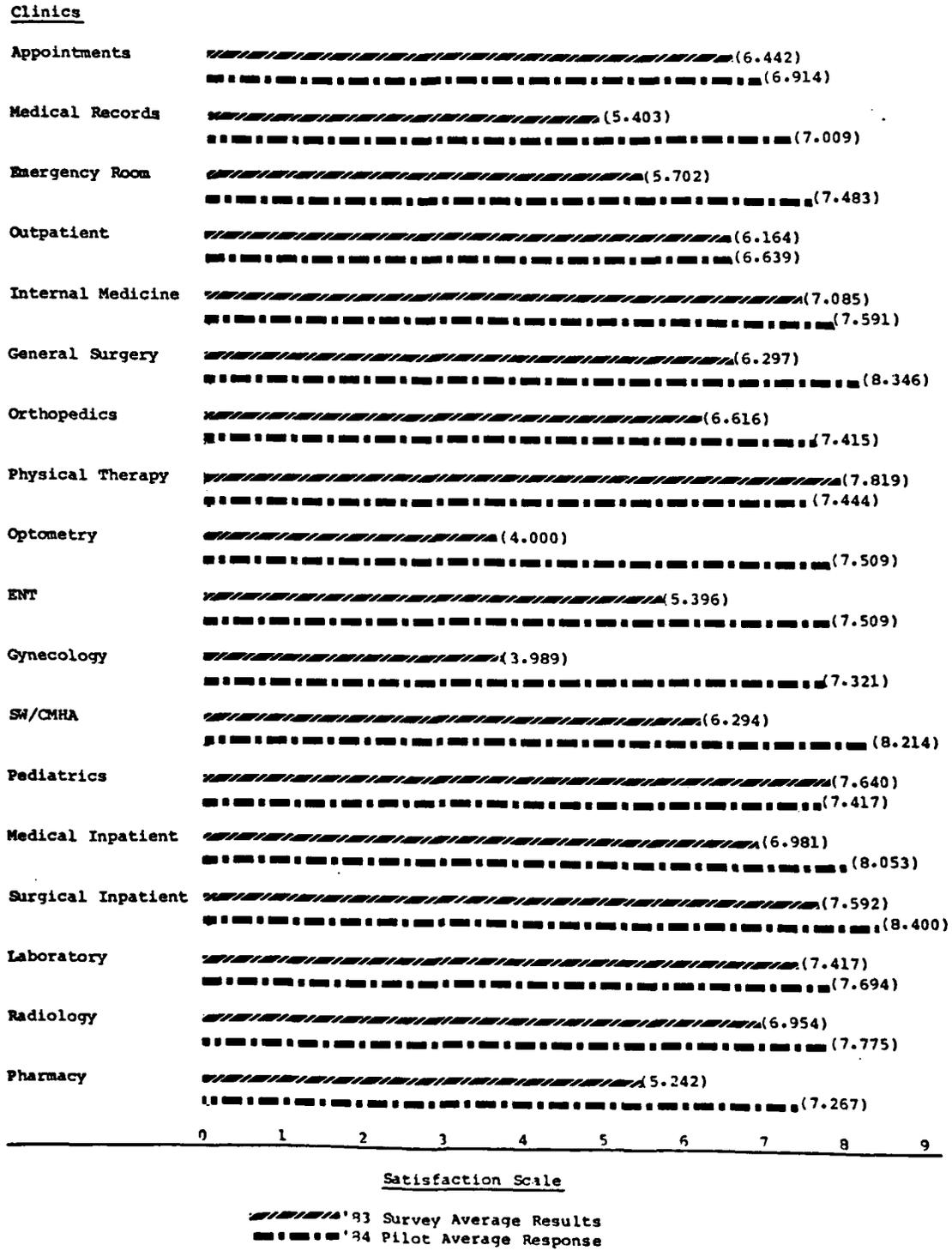
Once the comparability of the pilot surveys was confirmed, the results of the two studies were combined for the remainder of the analyses. The composite mean of the battery I questions from the pilot studies was compared with the composite mean of the 1983 survey by a one-way analysis of variance to determine if there was a significant difference between the overall mean responses for all clinics surveyed during the two studies. The null hypothesis of no significant difference was rejected at the alpha equals .05 level of significance. This finding, while not statistically significant because of the small sample size of the pilot audience, seemed to indicate a major shift in patient perception between the time of administration of the previous questionnaire and the pilot questionnaire. The mean responses for individual clinics were not analyzed but figure 2, page 38, shows the comparison by clinic of the 1983 survey with the pilot study. Responses seemed to indicate that patient satisfaction had improved in almost all clinics with dramatic results seen in several services. This apparent perceptual change will be further explored later in this chapter through comparison of the parent study with the 1983 survey results.

Reliability Testing of the Battery II Questions

The reliability of the battery II questions from the pilot studies was tested by the correlation for parallel measures with

FIGURE 2

COMPARISON OF MEAN SATISFACTION RESPONSES BETWEEN THE 1983 STUDY AND THE PILOT STUDY



the square root of the association of the polar-paired questions expressed as the reliability estimate. Table 3, page 40, shows the reliability estimates of the positive and negative responses with the results from the Internal Medicine and Gynecology Clinics combined into one composite measure. Five of the nine factors exceeded the established reliability criterion of .5 and the other four were close to meeting the standard. It was anticipated that the larger sample size of the parent study would strengthen the reliability estimate of the other factors to at least the minimum acceptable level.

Comparison of Satisfaction Measures Between Clinics

The mean responses to the positively weighted questions for the Internal Medicine Clinic and the Gynecology Clinic represent a measurement of patient satisfaction with the specific dimensions which affect perceptions of medical care. Comparison of these satisfaction measures is illustrated in Figure 3, page 41. While not statistically significant because of the small sample size, the results point to some decided differences in perceptions within and between the clinics. Among all factors, patients reported greater satisfaction with the Internal Medicine Clinic than with the Gynecology Clinic. Substantial preferences were noted in the areas of availability of appointments, caring, waiting time, humaneness, and comparison with similar clinics. The lowest satisfaction levels in both clinics appeared in the factors of waiting

TABLE 3

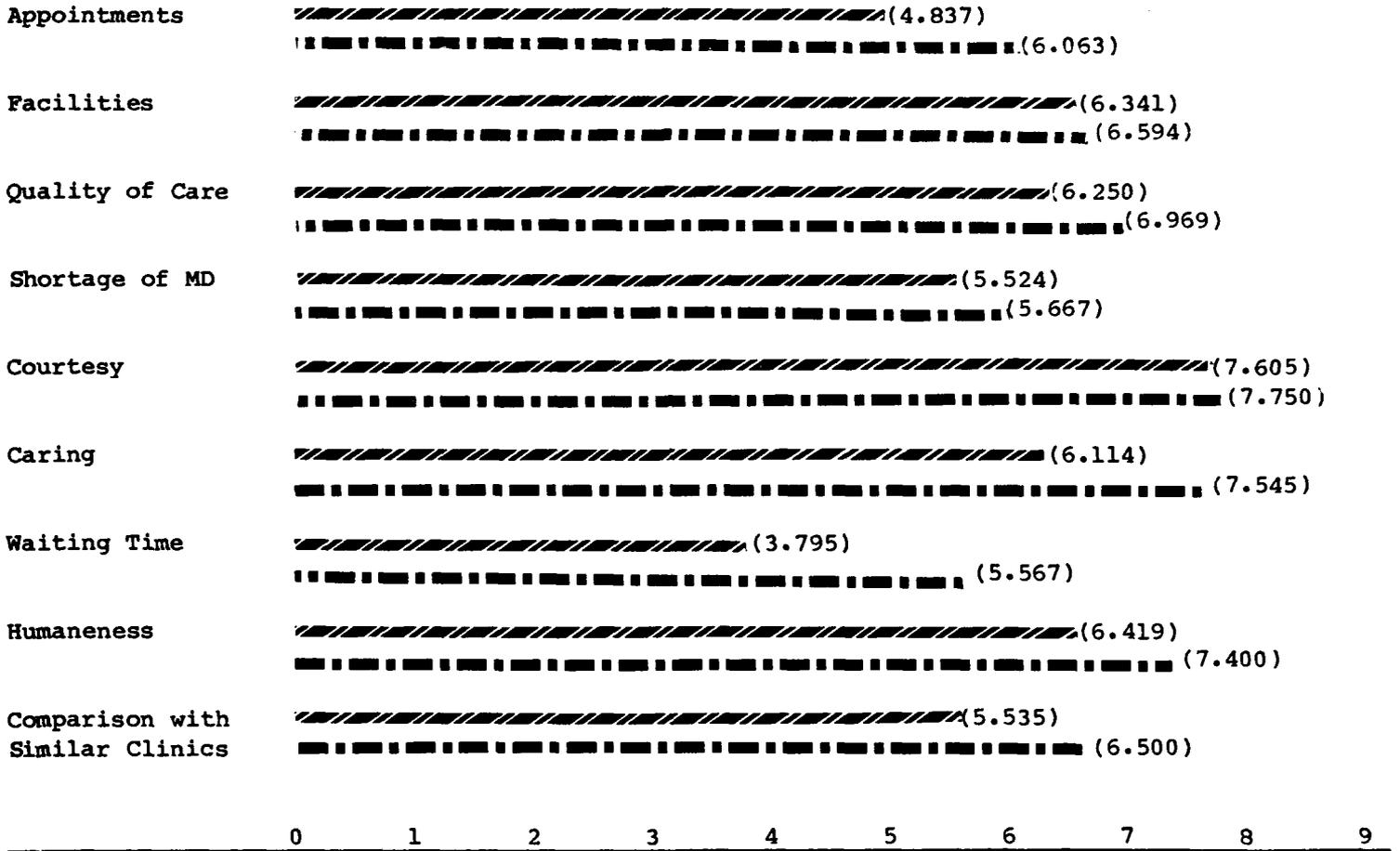
CORRELATION MATRIX FOR POLAR-PAIRED RESPONSES

| | (-) Appointments | Facilities | Quality of Care | Shortage of Doctors | Courtesy | Care | Waiting Time | Humaneness | Comparison with Similar Clinics |
|---------------------------------|------------------|------------|-----------------|---------------------|----------|------|--------------|------------|---------------------------------|
| (+) | | | | | | | | | |
| Appointments | .462 | | | | | | | | |
| Facilities | | .464 | | | | | | | |
| Quality of Care | | | .503 | | | | | | |
| Shortage of Doctors | | | | .648 | | | | | |
| Courtesy | | | | | .481 | | | | |
| Caring | | | | | | .629 | | | |
| Waiting Time | | | | | | | .527 | | |
| Humaneness | | | | | | | | .688 | |
| Comparison with Similar Clinics | | | | | | | | | .486 |

FIGURE 3

COMPARISON OF SATISFACTION MEASURES BETWEEN CLINICS

Factors



Satisfaction Scale

////// Mean Gynecology Response
- - - - Mean Internal Medicine Response

time and shortage of doctors. The results will be further explored in the parent study but these preliminary findings seemed to indicate that the battery II questions were able to measure differences in patient perceptions concerning particular dimensions of health care.

LESSONS LEARNED FROM THE PILOT STUDIES

Telephonic Versus Clinic Survey

The results of the pilot studies provided valuable feedback about the methods of administration of the survey. Comparison of the pilot telephonic and clinic questionnaire results caused the researcher to reconsider the use of the telephonic survey for the parent study. Many of the original assumptions and limitations of this project were overcome by the administration of the survey in the clinics. The most important benefit of the clinic questionnaire was the ability to measure the perceptions of all clinic users and not just those whose names appeared in the local telephone directory. This expanded audience included active duty soldiers who reside in the barracks, personnel who have moved to the Fort Lee area since the publishing of the telephone directory, and those beneficiaries who live outside the radius covered by the phone directory.

Another advantage of the clinic survey which surfaced during the pilot study was the higher percentage of respondents who

answered the battery II questionnaire. Only fifty-three percent of those who completed the telephonic survey responded to the battery II questions while eighty-seven percent of the clinic participants completed these items. This differential is significant because it indicates that the telephonic audience would need to be approximately forty percent larger than the clinic sample to obtain the same number of battery II responses. Other advantages of the conduct of the survey in the clinic included ease of administration and a reduced requirement for external resources such as interviewers. These benefits will encourage more frequent use of the survey and, thereby, enhance its value as a management tool.

One limitation of the clinic survey results from the stratification of the sample. This stratification may skew the responses to the battery I questions because the clinic survey limits respondents to the users of the Internal Medicine and Gynecology Services and does not accurately reflect the demography of the overall population supported by the hospital. While this limitation may affect the comparison of the results of the battery I questions with the 1983 study, it was considered more important to obtain a high representation of clinic users in the survey in order to measure accurately the causes of satisfaction and dissatisfaction within specific clinics. Because of the overriding advantages of the clinic survey methodology, the researcher decided to administer the parent study in the Internal Medicine and Gynecology Clinics rather than telephonically.

Modifications to the Questionnaire

No major shortcomings with the questionnaire design were uncovered during the pilot studies. However, several minor modifications to the format were incorporated to improve the survey. Among the battery II questions, the word "military" replaced "Army" in questions fourteen and eighteen which address how the quality of care within a clinic compares with similar clinics at other hospitals. This change was accomplished to encourage responses to these items by all beneficiaries, Army, Navy, and Air Force alike. Other improvements to the clinic questionnaire included: (1) the assignment of a code number to each item on the questionnaire to aid in the computer entry of the data; (2) the elimination of the requirement to write out responses to certain demographic questions by bracketing responses into intervals; (3) the placement of a continuation statement at the bottom of each page of the questionnaire to reduce the likelihood of incomplete questionnaires; and (4) an increase in the spacing between battery I questions to reduce the possibility of inadvertent multiple responses to a single item. The revised questionnaire, which was fielded in the parent study, is at Appendix H.

THE PARENT PATIENT SATISFACTION QUESTIONNAIRE

FIELDING THE SURVEY

The parent patient satisfaction questionnaire was fielded in the Internal Medicine and Surgery Clinics over a period of three weeks during March and April 1984. A total of 300 questionnaires were distributed to each clinic, a figure which included a thirty percent surplus over the required sample size of 378 to allow for refusals and unusable questionnaires. Sampling without replacement was achieved by instructions which asked beneficiaries to not complete the survey if they had filled out a questionnaire or participated in a telephonic survey within the past month.

Administration of the questionnaire followed the format of the pilot study. The receptionists and other staff members were briefed anew regarding the purpose of the questionnaire and their responsibilities. Every patient was to be asked to complete a questionnaire while waiting to see a provider. Again, as in the pilot study, stratification of the respondents was determined retrospectively from the demographic data obtained from the questionnaires. It was felt that the time frame allotted for the conduct of the survey would result in a representative stratification of the beneficiaries.

ANALYSIS OF RESULTS

Encoding Data from the Questionnaire

Responses to the questionnaires were manually encoded by the researcher into the Burroughs computer. The surveys completed during this study were assigned to either of two categories: (1) Internal Medicine Clinic respondents or (2) Gynecology Clinic respondents. Each questionnaire was identified by a case number for accountability and retrievability with each case containing forty-eight input variables corresponding to items on the patient survey. If a respondent did not answer a question, then a blank space was entered for that input variable and it was not tabulated in the results. Because the survey was conducted by sampling without replacement and no significant differences existed between the pilot and parent survey questionnaires, the responses from the pilot study were included in the analysis of the parent study. The descriptive data from the survey, to include the case variables and their frequencies, means, and standard deviations, are at Appendix I.

Responses to the Questionnaire

A total of 413 questionnaires were completed in the Gynecology and Internal Medicine Clinics with 379 of the surveys containing usable responses. In the Gynecology Clinic, 279 of the 300

questionnaires were returned for a 93 percent completion rate. Ten persons refused to participate in the survey while eleven questionnaires had not been handed out by the end of the survey period. Of the 279 returned questionnaires, 268 were used in the analysis of the survey. The other eleven surveys were discarded because respondents had not completed the entire questionnaire. The receptionist indicated that several patients were called for appointments before they could finish the survey and turned in partially completed questionnaires. The Internal Medicine Clinic results were less heartening. Of the 300 questionnaires distributed in that clinic, only 126 or 41.6 percent were completed. Eleven beneficiaries declined to participate in the survey while 163 blank questionnaires remained when the survey was terminated. Of the 126 completed questionnaires, 111 were utilized in the analysis. The remaining surveys were rejected because of inconsistent responses or failure by the respondent to complete the entire questionnaire.

The low survey completion rate from the Internal Medicine Clinic was due primarily to three factors. The most critical reason was the departure on emergency leave of the nurse who was coordinating the survey effort in the clinic. In her absence, no other clinic personnel assumed the initiative to see that the questionnaires were distributed to the patients. Also contributing to this problem was the absence of the researcher from the hospital during the weeks of the conduct of the survey. Rotations at civilian institutions and attendance at conferences limited his monitoring of the survey effort. The third cause for the low number of

questionnaires was the absence of one internal medicine physician due to surgery. This loss reduced the patient visits in the clinic by approximately one-third. Notwithstanding these problems, the total sample size for the survey still exceeded the predetermined requirement. The stratification of the sample drawn for the parent survey is shown in Table 4, page 49.

The histogram in figure 4, page 50, reveals the high percentage of retirees and family members who frequented the Internal Medicine Clinic as compared with active duty personnel and their family members. In the Gynecology Clinic, the majority of patient visits came from the family members of both active duty and retirees. The representation in both services was consistent with the results of the pilot clinic studies and with a review of clinic sign-in logs conducted by the researcher.

The composition of Internal Medicine and Gynecology Clinic users by grade is illustrated in Figure 5, page 51. The grade percentages in this figure include both sponsors and their family members. The enlisted E-6 and above category easily dominated the grade structure of beneficiaries in both clinics. A high percentage of enlisted E-5 and below and family members of junior enlisted soldiers utilized the Gynecology Clinic while relatively low percentages of the officer categories visited either of the services. This beneficiary mix was expected since the number of enlisted personnel far exceeds the officer strength at Fort Lee, just as it does at most military installations.

Of the 379 patients whose questionnaires were analyzed in the study, 313 answered the battery II responses. Of the 111 Internal

TABLE 4

SAMPLE SIZE FOR THE PARENT QUESTIONNAIRE

| Stratification | Total # Respondents | # Respondents | | # Responses to Battery II ¹ Questionnaires |
|--|------------------------|--------------------|--------------------|--|
| | | From I/M Clinic | From GYN Clinic | |
| Active Duty | | | | |
| Field Grade and above | 2 | 0 | 2 | 0/1 |
| Company Grade and WOs | 7 | 2 | 5 | 2/5 |
| Enlisted E-6 and above | 16 | 10 | 6 | 8/5 |
| Enlisted E-5 and below | 50 | 1 | 49 | 0/31 |
| Family Members of Active Duty | | | | |
| Field Grade and above | 18 | 1 | 17 | 0/13 |
| Company Grade and WOs | 17 | 1 | 16 | 0/10 |
| Enlisted E-6 and above | 45 | 0 | 45 | 0/43 |
| Enlisted E-5 and below | 26 | 0 | 26 | 0/14 |
| Retirees | | | | |
| Field Grade and above | 9 | 9 | 0 | 9/0 |
| Company Grade and WOs | 2 | 2 | 0 | 1/0 |
| Enlisted E-6 and above | 49 | 43 | 6 | 37/6 |
| Enlisted E-5 and below | 2 | 2 | 0 | 2/0 |
| Family Members of Retirees | | | | |
| Field Grade and above | 22 | 10 | 12 | 9/12 |
| Company Grade and WOs | 14 | 4 | 10 | 4/8 |
| Enlisted E-6 and above | 72 | 18 | 54 | 17/49 |
| Enlisted E-5 and below | 8 | 2 | 6 | 2/5 |
| | | | | 91/202 |
| Total² | 359 | 106 | 253 | 293 |

¹ Internal Medicine respondents are listed first followed by Gynecology respondents. Total block for this column lists totals by clinics above overall total for Battery II Questionnaire.

² Total blocks do not include 20 respondents who did not state their status and/or grade.

FIGURE 4

PROFILE OF INTERNAL MEDICINE AND GYNECOLOGY
CLINIC USERS BY STATUS

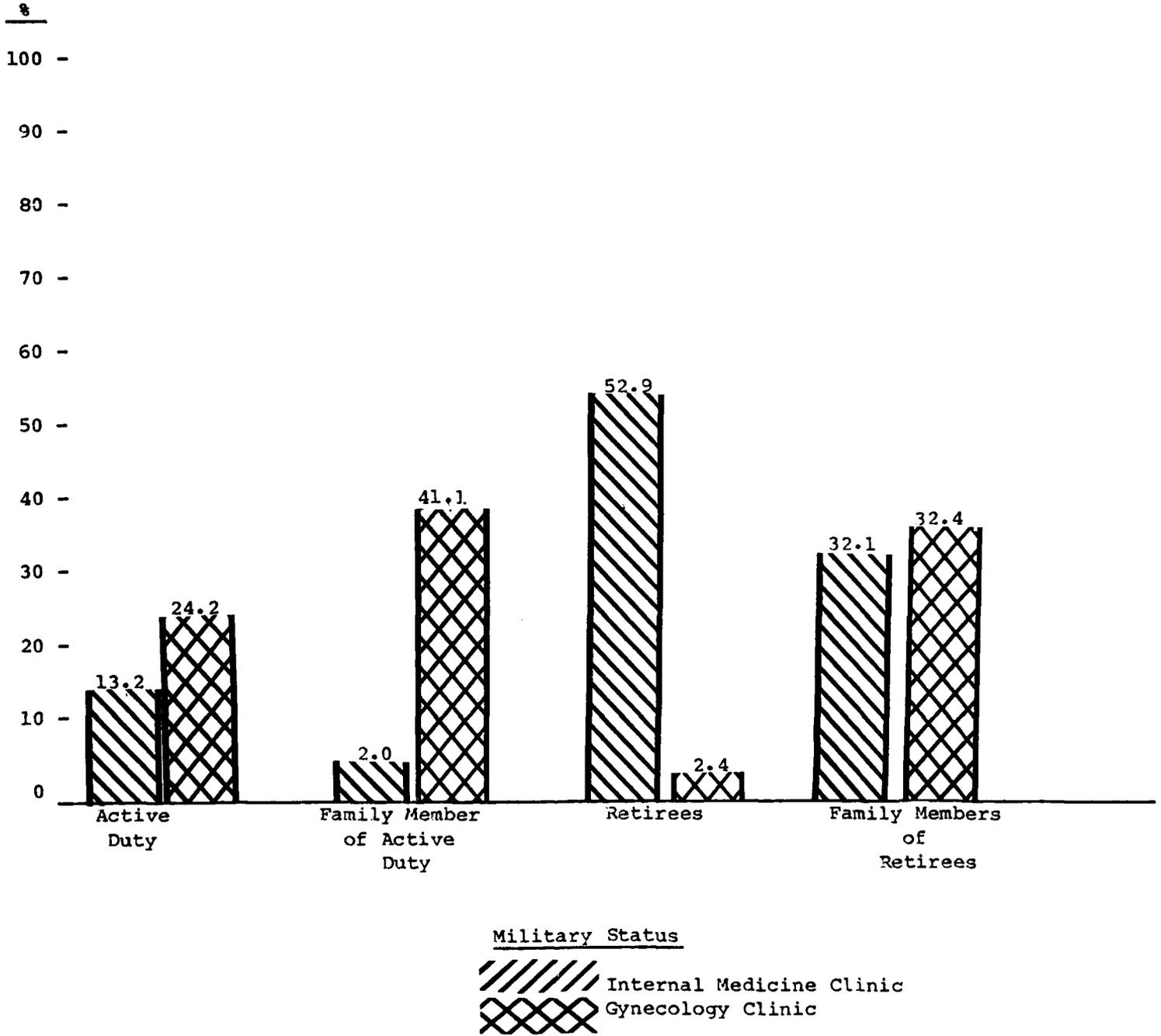
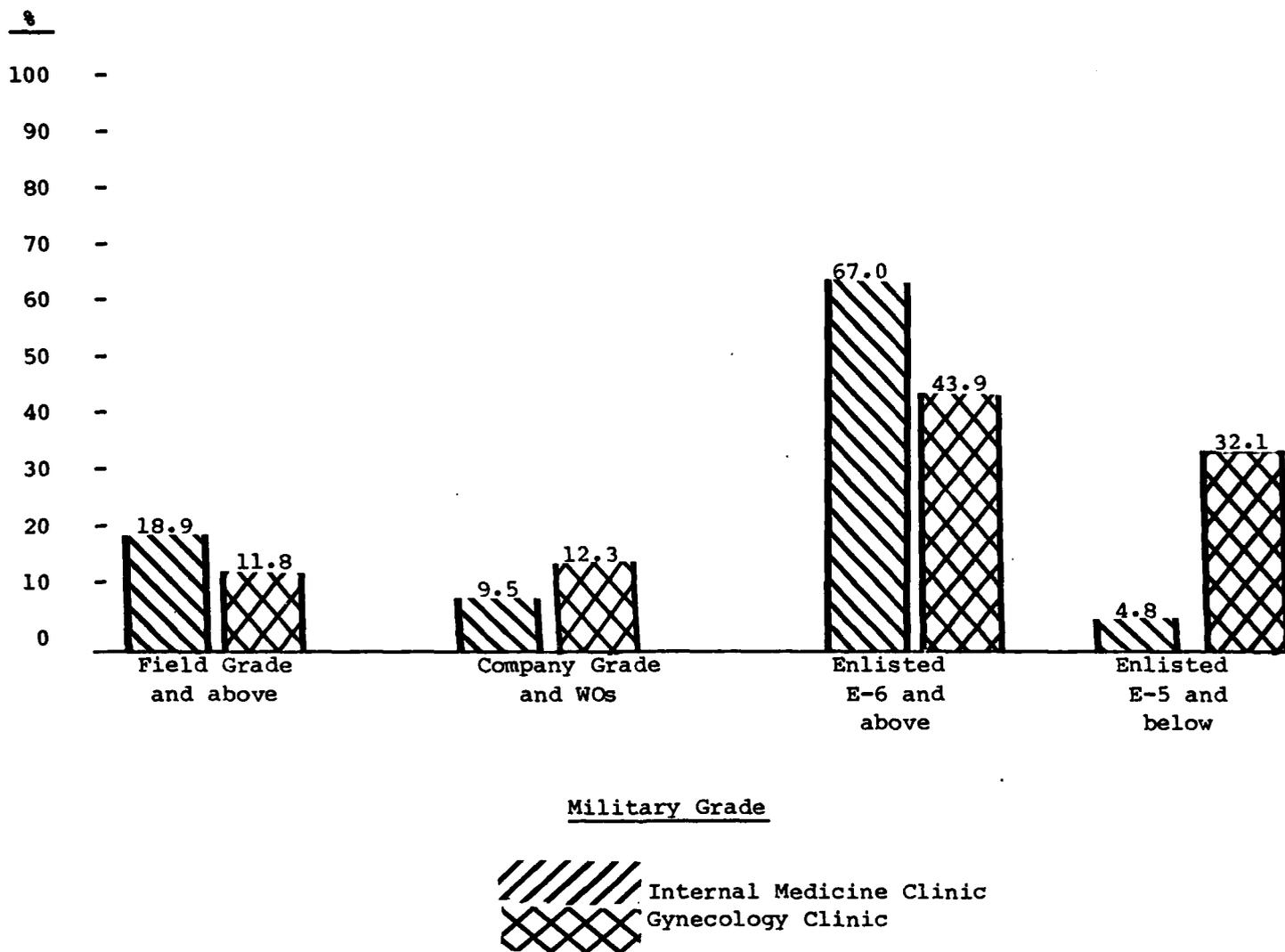


FIGURE 5

PROFILE OF INTERNAL MEDICINE AND GYNECOLOGY
CLINIC USERS BY GRADES



Medicine questionnaires, 96 contained responses to the battery II questions while 217 of the 268 Gynecology patients answered the questions addressing specific causes of satisfaction and dissatisfaction with health care. These high response rates of 86 and 81 percent respectively supported the rationale for administration of the survey in the clinic instead of telephonically. Table 5, below, shows the total number of questionnaires analyzed in this study. The figures represent the combined totals of the pilot studies and the larger parent clinic surveys.

TABLE 5

TOTAL NUMBER OF QUESTIONNAIRES USED IN THE ANALYSIS

| | <u>Responses to Battery I Questions</u> | <u>Responses to Battery II Questions</u> |
|--------------------------|---|--|
| Gynecology Clinic | 314 | 261 |
| Internal Medicine Clinic | 150 | 130 |
| *No Clinic Use | <u>28</u> | <u>0</u> |
| Total | 492 | 391 |

*Pilot telephonic questionnaires which contained no responses to the battery II questions.

Demographic Profile of Survey Participants

In addition to the stratification of the sample discussed above, several other demographic questions were asked on the survey. Usage

of hospital services, longevity in the Fort Lee area, and domicile distance from Fort Lee are variables which will be profiled in this section. Figure 6, page 54, illustrates the frequency of hospital visits among survey respondents within the past three years. This histogram does not reflect those who had not used KACH services for at least three years. The results indicate that the great majority of consumers visited the hospital at least two to three times annually over the past three years. This statistic is significant because it means that the perceptions expressed in the survey belong to frequent users and are based on a relatively high experience factor with the hospital services.

A histogram displaying longevity in the Fort Lee area is presented in Figure 7, page 55. This graph highlights the fact that the majority of the survey participants have resided in the Fort Lee area for more than four years. More families are represented in the interval of "more than ten years" than in any other grouping. This stratification by years in residence is consistent with the large number of retirees and their family members in the survey sample.

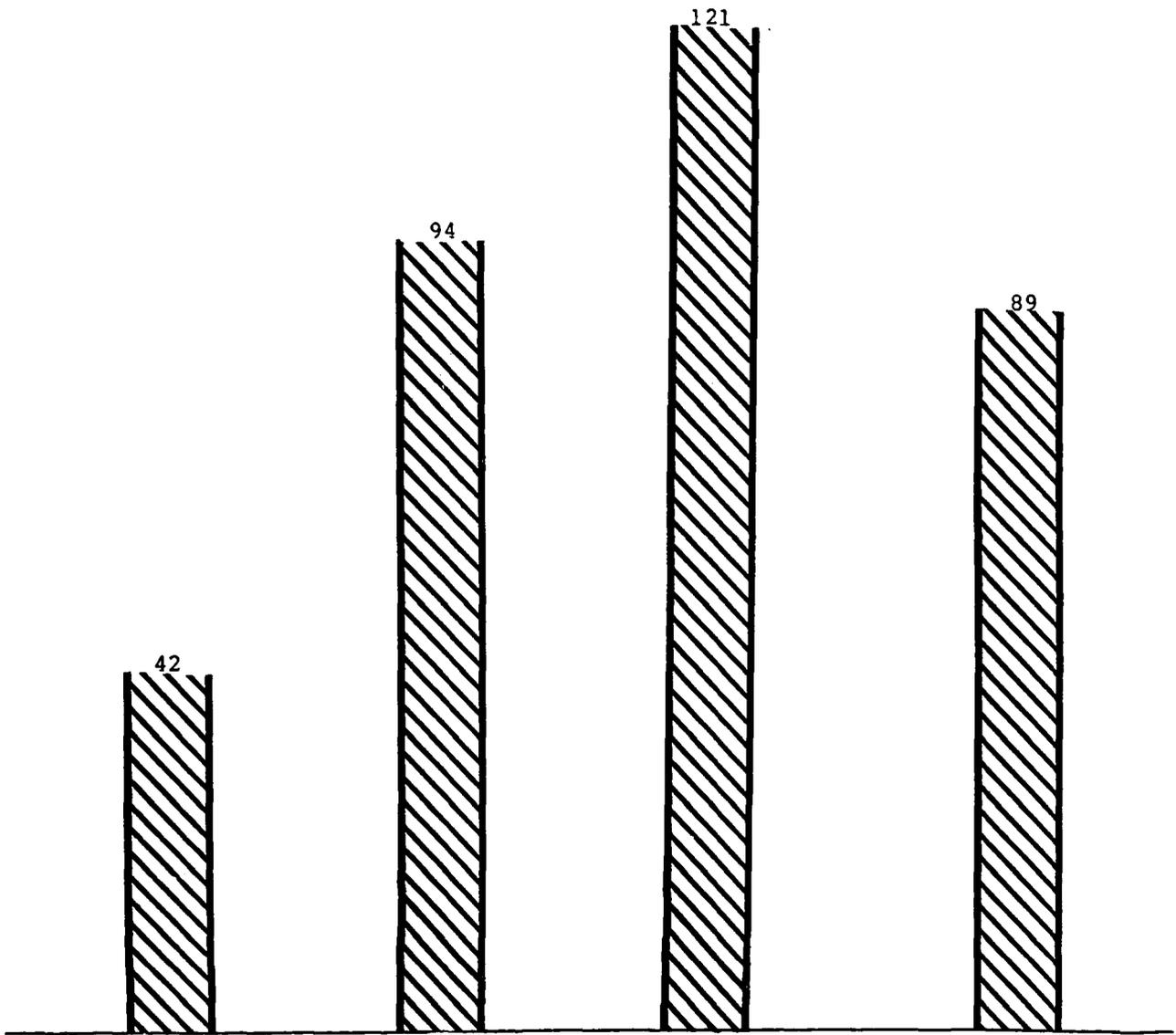
The final demographic variable to be presented in this section is domicile distance from Fort Lee. The histogram in Figure 8, page 56, illustrates the five intervals used to group responses to this demographic question. Most of the survey participants lived within ten miles of the hospital. A surprisingly high number of beneficiaries reside in excess of twenty miles from the hospital. The relatively isolated location of Fort Lee and the limited number of medical treatment facilities outside of the immediate area of

FIGURE 6

FREQUENCY OF HOSPITAL VISITS WITHIN THE PAST THREE YEARS

Individuals

130
120
110
100
90
80
70
60
50
40
30
20
10
0



At least
once a month

once every
2-3 months

once every
4-6 months

once a year

Frequency of Visits

FIGURE 7

PROFILE OF YEARS OF RESIDENCE IN THE FORT LEE AREA

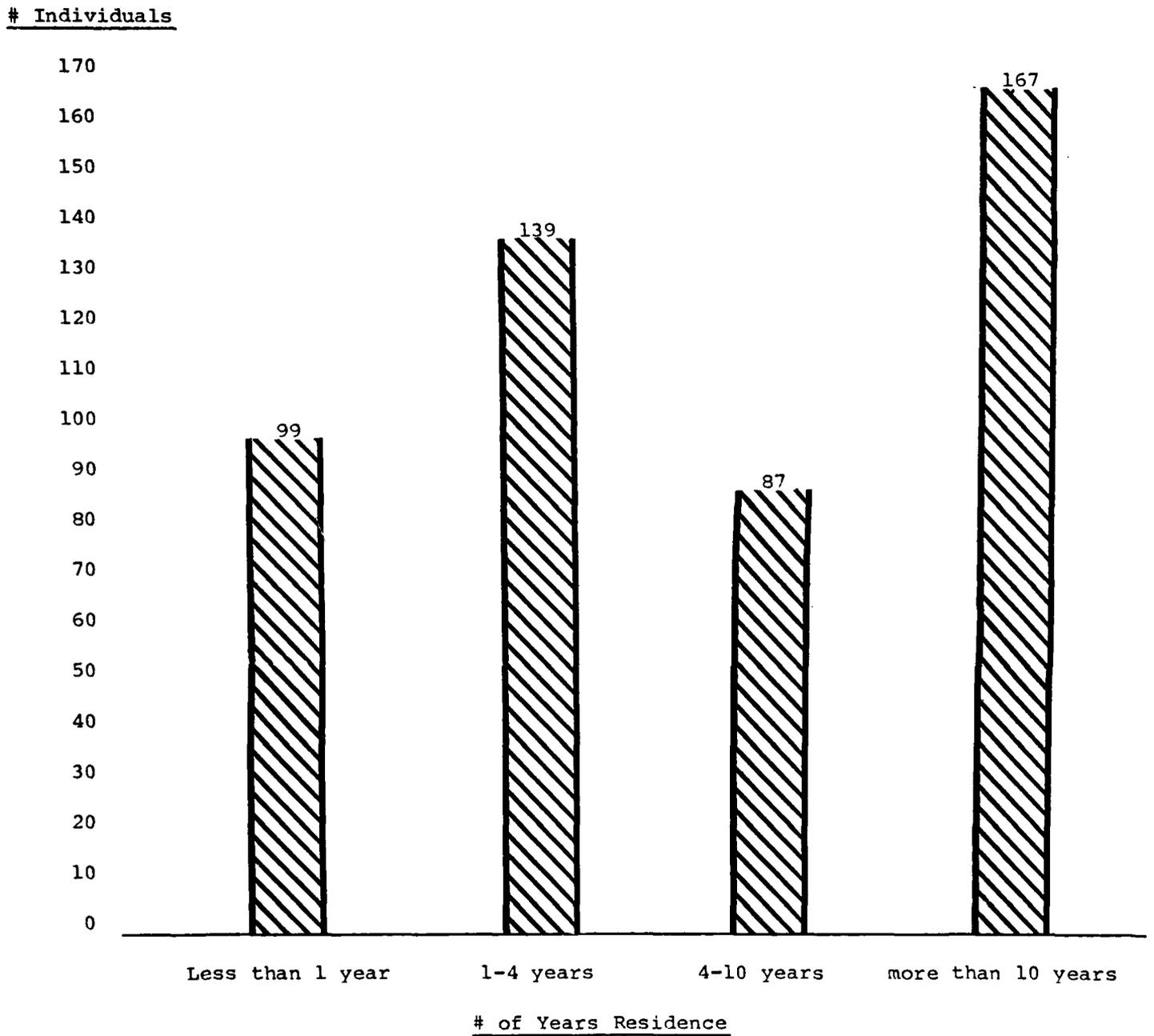
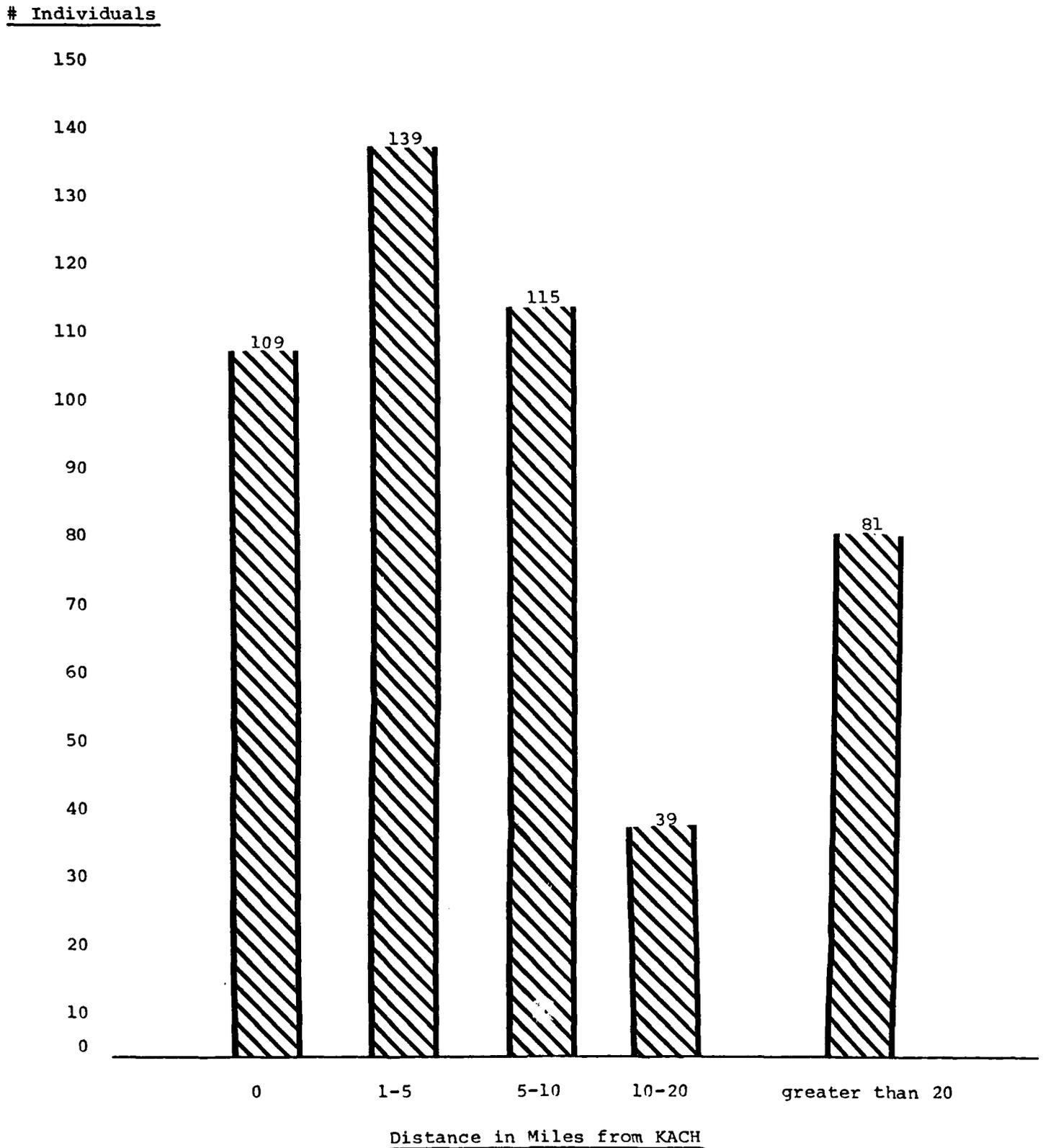


FIGURE 8

PROFILE OF DOMICILE DISTANCES FROM KENNER ARMY COMMUNITY HOSPITAL



the installation probably account for this large number of beneficiaries who travel over twenty miles to receive their medical care.

Comparison of Battery I Responses with the 1983 Study

A one-way analysis of variance was used to compare the overall mean responses for the 1983 study and the present one for the eighteen clinics surveyed during both years. The purpose of this test of the battery I responses was to determine if there had been a significant change in patients' general perceptions concerning outpatient medical care since the conduct of the earlier study. The null hypothesis was accepted at the .05 level of significance indicating that there was no significant change in the overall perception of medical care provided in the clinics.

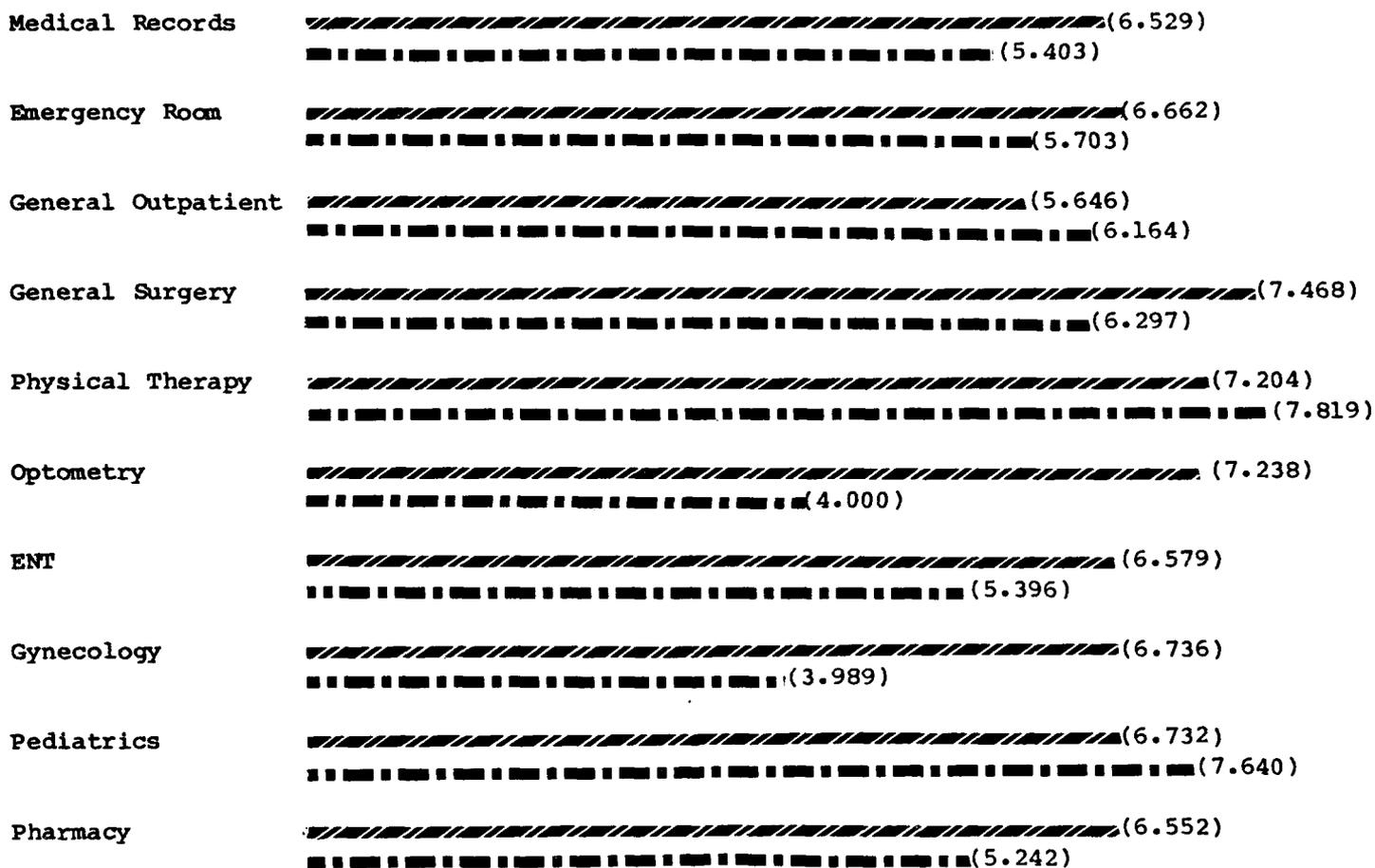
While the overall perception of care did not change significantly from one study to the next, a comparison of satisfaction within individual clinics revealed some dramatic shifts in perceptions. A two-tailed Z-test was performed to measure any changes in the mean responses to individual clinics between the two surveys. The ten clinics which evoked significantly different perceptions are presented in Figure 9, page 58. The most dramatic changes in perception occurred in the Optometry and Gynecology Clinics.

The difference in the results in the Optometry Clinic was probably due, in large part, to the much larger and, theoretically,

FIGURE 9

CLINICS WITH STATISTICALLY SIGNIFICANT CHANGES IN PATIENT PERCEPTION BETWEEN 1983 and 1984

Clinic



0 1 2 3 4 5 6 7 8 9

Satisfaction Scale

▨ 1984 Average Response
 ▤ 1983 Average Response

more reliable sample size of the 1984 study. A total of 185 persons rated the clinic in this survey as compared to only twenty-five in the previous study. No such obvious reason could be found for the great disparity in results in the Gynecology Clinic ratings. While the pilot surveys and studies by other researchers indicated no significant difference in the results between clinic and telephonic responses, the method of administration cannot be ruled out as a possible cause of differing results. The significant differences in mean responses for so many services indicated that conduct of this survey in the clinic may encourage different responses than a telephonic interview. The different stratification in the two studies also may have contributed to the measured differences in mean responses between the two surveys. The stratification of the present study may have skewed the responses to the battery I questions because the clinic survey limited respondents to the users of the Internal Medicine and Gynecology Services and did not accurately reflect the demography of the overall population supported by Kenner Army Community Hospital.

Another factor which could have contributed to the measured changes in overall satisfaction with so many clinics is the transient nature of the military population. Approximately one-third of the beneficiaries and the staff turnover every year and these frequent personnel rotations might have had some affect on the satisfaction ratings. The results obtained in this study do not repudiate the reliability or validity of the 1983 survey but

suggest that more testing is necessary among other military populations. It may be found that the transience of the military community actually can contribute to substantial shifts in perceptions in a relatively short period of time.

Reliability Testing of the Battery II Questionnaire

The battery II questionnaire measured known, validated causes of patient satisfaction and dissatisfaction with medical care. The strength of the relationship of the polar-paired questions served as the test of the reliability of each set of questions to measure a particular dimension of health care. The reliability of the battery II questions was tested by the correlation for parallel measures with the square root of the association of the polar-paired questions expressed as the reliability estimate. A reliability coefficient of .5 or greater was considered acceptable for this study. Table 6, page 61, shows the reliability estimates for the Gynecology and Internal Medicine Clinics as well as the combined overall estimates.

The results of the reliability testing revealed that, in all but three instances, the reliability estimate exceeded the minimum criterion. The three cases all appeared in the Internal Medicine Clinic with the reliability estimates for courtesy (.458), facilities (.441), and quality of care (.207) falling below the established criterion. The results, especially the very low correlation for quality of care, raised questions concerning the

TABLE 6

RELIABILITY ESTIMATES OF THE BATTERY II QUESTIONS

| <u>Factors</u> | <u>Gynecology Clinic</u> | <u>Internal Medicine Clinic</u> | <u>Overall</u> |
|---------------------------------|--------------------------|---------------------------------|----------------|
| Appointments | .647 | .549 | .631 |
| Facilities | .620 | .441 | .560 |
| Quality of Care | .610 | .207 | .514 |
| Shortage of Doctors | .567 | .596 | .573 |
| Courtesy | .603 | .458 | .565 |
| Caring | .657 | .507 | .669 |
| Waiting Time | .642 | .628 | .645 |
| Humaneness | .728 | .502 | .696 |
| Comparison with Similar Clinics | .626 | .534 | .618 |

accurate measurement of these factors by the questionnaire. The smaller sample size of internal medicine respondents probably affected the reliability estimate more than the researcher had anticipated. A sample size corresponding to that of the Gynecology Clinic might have been sufficient to raise the scores for facilities and courtesy to at least the minimum reliability criterion. The much lower reliability for the quality of care dimension is more puzzling. It does not appear that an increase in sample size above could raise the reliability estimate for this factor above the .5 level. Considering the much higher reliability coefficients for the Gynecology Clinic, it is possible that the low score was an aberration and would be repudiated by another survey of Internal Medicine Clinic patients.

Other possible reasons for the low correlation on the quality of care questions also must be investigated. The majority of the patients in the Internal Medicine Clinic were elderly and their age and health could have affected their ability to interpret and answer the questions properly. If this possibility is likely, it is baffling that responses by these patients did not produce correspondingly low correlations among the other dimensions of health care. The wording of the questions concerning quality of care may have contributed to the low reliability estimate but it is puzzling that the Gynecology Clinic respondents did not have the same difficulty in answering the polar-paired questions. The length of the survey and the positioning of the questions within the survey are other plausible contributors to the extremely low

reliability correlation for the quality of care questions. Re-fielding of the same questionnaire with a larger sample size would seem to be the most prudent action. Confirmation or repudiation of the results from that survey would provide better insight into whether modifications to the quality of care questions are necessary.

Comparison of Satisfaction Measures Between Clinics

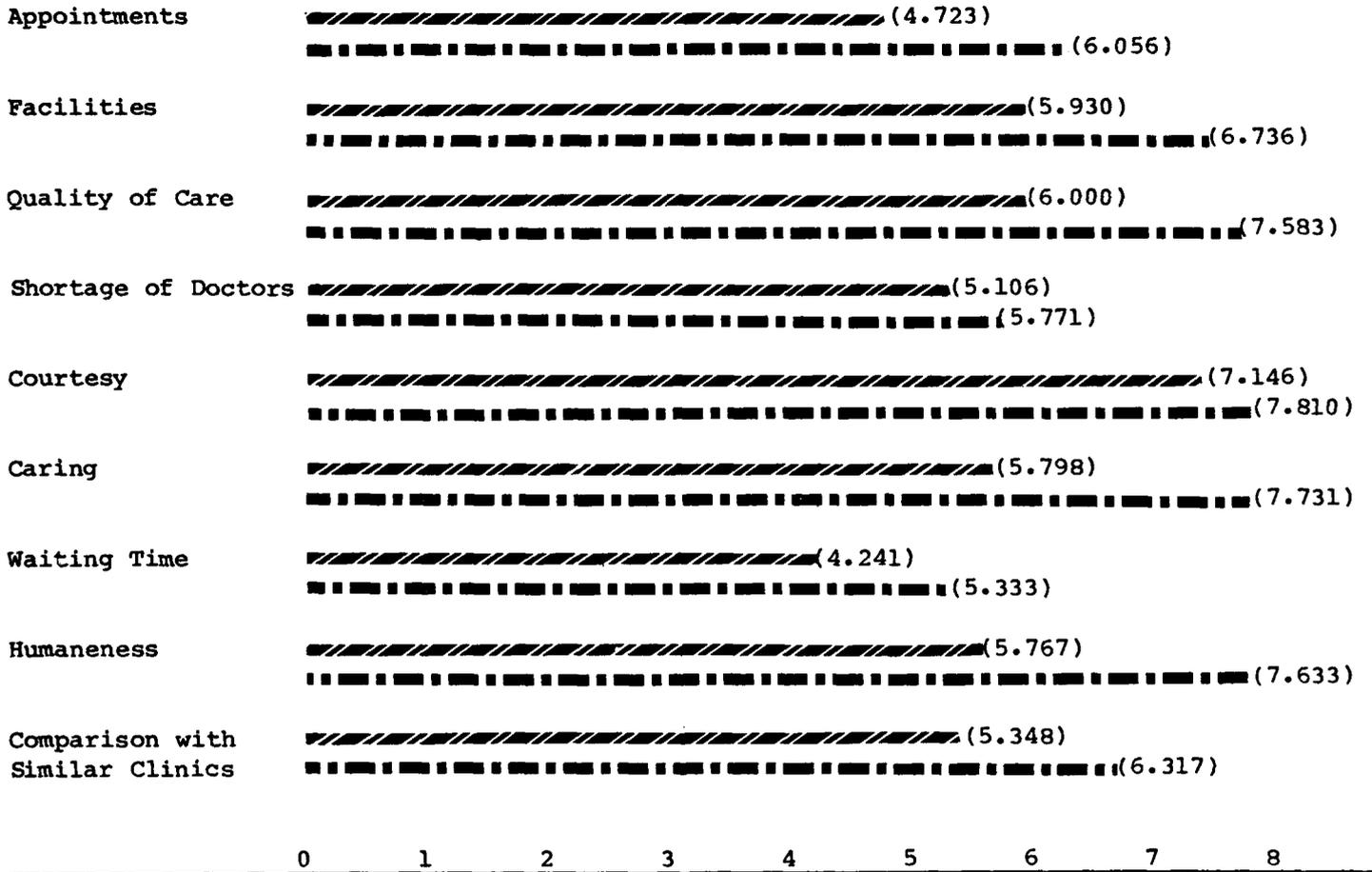
The positively weighted responses from the battery II questionnaire were used to measure patient satisfaction with the specific dimensions which affect perceptions of medical care. A comparison of the mean responses to the positively weighted questions for the Gynecology and Internal Medicine Clinics provided insight into perceptual differences among patients regarding treatment in the two clinics. Figure 10, page 64, displays a comparison of patient satisfaction measures between the Internal Medicine and Gynecology Clinics. In every dimension of care, the satisfaction level was higher among medical patients than among gynecology patients. A two-tailed Z-test showed a significant difference in mean responses among all factors at the alpha equals .05 level of significance. These results lend credence to the belief that patients can and do discriminate among services based upon known causes of satisfaction and dissatisfaction with medical care.

More important to this study, than the comparison of overall satisfaction ratings from the battery I questionnaire, is the

FIGURE 10

COMPARISON OF SATISFACTION MEASURES BETWEEN CLINICS

Factors



Satisfaction Scale

//// Mean Gynecology Response
- - - - Mean Internal Medicine Response

insight gained from the identification of specific factors affecting perceptions. The mean rating of 7.027 for the Internal Medicine Clinic and the mean response of 6.736 for the Gynecology Clinic obtained in the battery I questionnaire indicated a fairly high degree of satisfaction with both clinics. The results of the battery II questionnaire, however, revealed dramatic differences in patient perceptions concerning care. The results enabled the hospital staff to identify concrete, specific problem areas within the Gynecology Clinic that may have otherwise gone undetected. The results also revealed areas of patient concern in both clinics, such as waiting time and the shortage of physicians, which received relatively low marks among respondents in both services. Consistently low scores from more than one clinic may indicate a systemic problem which transcends clinic boundaries and adversely impacts on the entire hospital. Administration of the survey in other departments would help to pinpoint these systemic problems. The bottom line appears to be that patients tend to respond more positively when asked for their general impressions of health care but are more discriminating in their opinions when probed about specific dimensions of care.

Comments from Survey Participants

Comments were solicited from survey participants on the last page of the questionnaire. Patients were encouraged to write down their opinions concerning any clinic or any aspect of the care

provided by the hospital. The purpose of the comment section was to allow participants to amplify on their responses to the questionnaire or to address any areas not covered in the survey. It was felt that responses to this portion of the questionnaire would identify consumers' most important concerns and strongest opinions since they would have to take the time to write them out.

Approximately nineteen percent of the survey participants commented on services within the hospital. Of the ninety-four people who wrote comments, thirty-four had favorable opinions, fifty expressed dissatisfaction, and ten wrote both positive and negative remarks. Most of the comments were of a general nature and mirrored responses to the battery II questions. The comments did, however, identify some specific patient concerns. Respondents voiced the greatest dissatisfaction with the waiting time for prescriptions. Additionally, a couple of practitioners were identified as being rude and unprofessional. Sick call procedures also were criticized but no specific reasons for dissatisfaction with the procedures were given. On the positive side, the comments repeatedly cited the excellent care provided by the staff but rarely made specific reference to a provider or a clinic. As expected, people seemed to be more vocal in expressing complaints than in voicing satisfaction with care.

LESSONS LEARNED FROM THE STUDY

Several problems were observed during the administration and analysis of the patient satisfaction questionnaire which require resolution prior to refielding of the instrument. The major problem, the low reliability estimates for some factors in the Internal Medicine Clinic, was discussed earlier in the chapter. This section will focus on flaws in the administration, design, and wording of the questionnaire which were uncovered during the fielding of the survey.

Administration of the Questionnaire

Selection and supervision of clinic coordinators to monitor the distribution and collection of questionnaires surfaced as a major problem in the Internal Medicine Clinic. The low number of questionnaires returned from the clinic pointed out the critical importance of active involvement and commitment on the part of the clinic staff to the success of the survey effort. The prolonged duration of this survey tended to dampen the enthusiasm of the receptionists and erode their dedication to the project. The loss of the coordinator on emergency leave only served to exacerbate the problem. The receptionists in the Gynecology Clinic were self-motivated and, with the encouragement of the supervisor, persevered in the distribution and collection of the surveys. From the feedback from the staff in the clinics, it is obvious that the

researcher failed to anticipate the cumulative motivational impact of the lengthy survey administration. Greater involvement by the researcher might have helped to keep the staff of the Internal Medicine clinic more enthused about the project and might have resulted in a larger sample size.

Modifications to the Questionnaire

The results of the survey revealed areas where changes in the questionnaire are needed. The questions concerning the frequency of visits to the hospital (question three) and the frequency of visits to the clinic (question six) caused some confusion among respondents. The intent of the questions was to determine the number of visits to the hospital within the past year and within the past three years. A cumulative number, including visits within the past year, was the desired response to the query concerning visits during the three year period. During the data encoding process, the researcher noted some inconsistencies in the responses to these questions. Some patients indicated monthly use of the hospital services over the past year while recording an average of only one visit a year over the past three years. Additionally, many respondents who had not lived in the area for more than one year (as determined from question four), completed the item concerning the use of services within the past three years. Rewording of these demographic questions to eliminate the ambiguity and confusion should be accomplished prior to refielding of the questionnaire.

Some participants had trouble following the directions for the battery I questionnaire. The instructions asked the respondents to circle the appropriate answer. Many persons, however, failed to circle any number next to some of the items. They consistently circled responses for services they had used but, instead of circling the zero, left the line blank for services they had not used. Rephrasing of the directions is necessary to emphasize the marking of a response for all departments, even those never used by the respondent. Another problem with the battery I items concerned the location of a particular question. The query concerning the Social Work Service/Community Mental Health Activity was placed too near to the top of the page which caused it to be inadvertently overlooked by many survey participants. This error resulted in fewer people responding to this item than any other on the questionnaire. Relocation of this questions should remedy this problem.

The change in the nomenclature of the scale responses between battery I and battery II questions may have confused some respondents. It was noticed during the data encoding that some people continued to mark one or nine for the battery II questions just as they had done in the battery I items. This pattern resulted in inconsistent responses to the battery II questions and adversely affected the reliability estimates of the polar-paired questions. More explicit directions or a reorganization of the questionnaire format is needed to alert people to the change in the response rating scheme.

Review of the responses to the battery I and battery II questions revealed a very high number of responses at the one, five and nine levels on the Likert scale. This observation seemed to indicate that either the nine point scale was not as discriminating as desired or that most people's opinions lay at the extremes or center of the scale. A possible solution to this problem is the use of more explicit directions to encourage more varied responses. Another alternative which should be considered is the elimination of the neutral response. At least one other study has used this technique to force either a positive or negative decision.⁶

The length of the questionnaire may have accounted for the failure of some people to start but not finish the entire questionnaire. The lack of numbered pages may also have contributed to this problem. Numbering the pages and shortening the questionnaire should help to alleviate this shortcoming. The questionnaire should be refiled after the incorporation of the modifications to determine if the problems have been resolved.

FOOTNOTES

1. Stephen Isaac and William B. Michael, Handbook In Research And Evaluation, 2nd ed. (San Diego, CA: EdITS Publishers, 1981), p. 34.
2. Donald P. Warwick and Charles A. Lininger, The Sample Survey: Theory and Practice, (New York: McGraw-Hill, Inc., 1975).
3. Brian L. Baker, LTC, MC "The Measurement and Analysis of Patient Perceptions and of Staff Opinions as to the Value of such Perceptions in Quality Assurance Activities." (Graduate Research Project submitted to Baylor University in partial fulfillment of the Requirements for the Degree of Master of Health Administration, August 1983) p. 72.
4. Geoffrey A. Goldsmith, "Patient Satisfaction with a Family Practice Clinic: Comparison of a Questionnaire and an Interview Survey," The Journal of Ambulatory Care Management (May 1983): 30.
5. John Colombotos, "Personal Versus Telephone Interviews: Effects on Responses," Public Reports 84 (Sep. 69): 774.
6. Victor Slater, Margaret W. Linn, and Rachel Harris, "A Satisfaction With Mental Health Care Scale," Comprehensive Psychiatry 23 (Jan. 82): 70.

III. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The results of this study indicated that the patient satisfaction questionnaire does provide valuable information concerning patient satisfaction with the medical care provided at Kenner Army Community Hospital. The battery I and battery II questions provided insight for the commander and staff into the patients' perceptions of strengths and weaknesses within the hospital clinics. This section will relate the conclusions drawn from the results of the two batteries of questions.

The battery I questions were fielded as a longitudinal reliability test of the 1983 study at KACH. The results indicated no significant change in the overall satisfaction level with hospital services but revealed dramatic changes in perceptions concerning individual clinics. These substantial differences in satisfaction levels seemed to indicate one of two possibilities; either patients' opinions of services have improved substantially during the interim between the two surveys or one or both of the studies were unreliable estimates of patient satisfaction. No definitive conclusions can be drawn from the comparison of the results of the two surveys because of the different population samples. The stratification for this survey included only visitors to the Internal Medicine and Gynecology Clinics while the previous survey sampled a cross section

of the eligible beneficiaries. It is quite possible that the various categories of beneficiaries perceive the quality of services within the clinics differently. Further internal and external testing of the general satisfaction questionnaire would be necessary before conclusions could be drawn concerning its reliability.

While the battery I items measured overall satisfaction with medical care, the battery II questions addressed specific causes of satisfaction and dissatisfaction within the Internal Medicine and Gynecology Clinics. This questionnaire demonstrated its ability to measure differences in patient satisfaction among specific dimensions of health care. The survey also enabled the commander and staff to compare satisfaction with dimensions of care between the Internal Medicine and Gynecology Clinics. Unfortunately, the failure of three health care factors in the Internal Medicine Clinic to meet the minimum reliability criterion raises some doubts as to the general applicability of this instrument. Notwithstanding the low reliability estimates, the researcher feels confident in drawing the following conclusions from the results of the battery II questionnaire:

1. Beneficiaries are more satisfied with the health care they receive in the Internal Medicine Clinic than in the Gynecology Clinic.
2. Patients are most satisfied with courtesy, caring, and humaneness in the Internal Medicine Clinic and courtesy, quality of care, and facilities in the Gynecology Clinic.
3. Patients are least satisfied with waiting time and the availability of physicians in the Internal Medicine Clinic and waiting time and the availability of appointments in the Gynecology Clinic.

4. Based upon the results of the battery II questions and the comments from beneficiaries, waiting time is the single-most irritant to patients.

Overall, this study met the established goal of developing, fielding, and testing a survey instrument which measures specific causes of patient satisfaction and dissatisfaction. Most importantly, it provided a vehicle for patients to input their opinions concerning the quality of medical care at Kenner Army Community Hospital and a mechanism for the staff to receive, evaluate and act upon these patient concerns.

RECOMMENDATIONS

Based upon the results of this research project, the following recommendations are made:

1. The patient satisfaction questionnaire should be refiled at KACH with the recommended modifications to verify the internal reliability of the survey instrument.
2. The questionnaire should be fielded in other clinics within the hospital to test its general applicability.
3. The questionnaire should be fielded at other Army medical treatment facilities to test its applicability outside of the isolated environment of KACH.
4. The length of the questionnaire should be reduced to the minimum possible while still maintaining the reliability and usefulness of the survey.
5. The sample size of future survey efforts should be consistently reduced until the minimal sample size, contingent upon acceptable reliability criterion, can be established.

6. Possible perceptual differences among categories of beneficiaries should be a topic of investigation in future studies.
7. Future research efforts should include the exploration of staff opinions concerning medical care at Army medical treatment facilities.
8. An inpatient satisfaction questionnaire should be developed to include the measurement of additional areas such as nursing care, food service, accommodations, and admission and disposition services.

It is obvious that this instant study has answered a few questions and generated many more. This researcher believes that this project has reinforced the importance of the assessment of patient satisfaction. It is hoped that this effort has shed some light on this important area of concern for all involved in the health care encounter and has provided a useful tool for health care managers to evaluate the quality of the services provided to patients.

APPENDIX A

DEFINITIONS

DEFINITIONS

Analysis of Variance - A collection of statistical models and methods that deal with whether the means of a variable differ from one group of observations to another.

Correlation for Parallel Measures - An estimate of a measure's reliability obtained by dividing the true score variance by the observed variance. Items are considered parallel if the responses to the items differ only with respect to random fluctuations.

Factor Analysis - This concept refers to a variety of statistical techniques whose common objective is to represent a set of variables in terms of a smaller number of hypothetical variables or factors.

Reliability - A measure of the closeness of each observation to its own average over repeated trials, that is, the consistency of each observation.

Stratification - This technique classifies the population into several segments from which a random sample is selected from each stratum.

Validity - This index reflects the extent to which an item measures what it is supposed to measure and does not measure what it is not supposed to measure.

APPENDIX B

OUTPATIENT CATCHMENT AREA

POPULATION ESTIMATES

FY83 AMBULATORY CATCHMENT AREA POPULATION ESTIMATES

KENNER AH FT LEE CATCHMENT AREA

| Age/Sex | Beneficiary Category | | | | | Total |
|---------|----------------------|--------------------------|---------|--------------------------|----------------|--------|
| | Active Duty | Dependents of Act Dty | Retired | Dependents of Retired | Sur- vivors | |
| 0-4 /M | 0 | 808 | 0 | 43 | 0 | 851 |
| 5-14 /M | 0 | 1,435 | 0 | 450 | 17 | 1,902 |
| 15-17/M | 0 | 318 | 0 | 421 | 20 | 759 |
| 18-24/M | 1,771 | 230 | 7 | 536 | 31 | 2,575 |
| 25-34/M | 1,435 | 85 | 43 | 9 | 1 | 1,573 |
| 35-44/M | 1,036 | 16 | 357 | 2 | 0 | 1,411 |
| 45-64/M | 106 | 6 | 2,436 | 7 | 1 | 2,556 |
| 65+ /M | 0 | 2 | 481 | 3 | 1 | 487 |
| 0-4 /F | 0 | 781 | 0 | 44 | 1 | 826 |
| 5-14 /F | 0 | 1,397 | 0 | 451 | 18 | 1,866 |
| 15-17/F | 0 | 327 | 0 | 389 | 18 | 734 |
| 18-24/F | 449 | 901 | 0 | 520 | 30 | 1,900 |
| 25-34/F | 222 | 1,368 | 1 | 126 | 6 | 1,723 |
| 35-44/F | 16 | 750 | 1 | 613 | 22 | 1,402 |
| 45-64/F | 1 | 168 | 11 | 2,209 | 176 | 2,565 |
| 65+ /F | 0 | 15 | 8 | 258 | 90 | 371 |
| TOTAL | 5,036 | 8,607 | 3,345 | 6,081 | 432 | 23,501 |

APPENDIX C

PILOT TELEPHONIC PATIENT
SATISFACTION QUESTIONNAIRE

PATIENT TELEPHONIC QUESTIONNAIRE

Patient Stratification Code (Please fill in before contacting respondent)

1. Military status (check one item)
 - a. Active Duty Soldier _____
 - b. Retiree _____
 - c. Dependent of Active Duty Soldier _____
 - d. Dependent of Retiree _____
2. Sponsor's Grade (check one item)
 - a. O4 and above (Major, Lieutenant Colonel, Colonel, General) _____
 - b. WO1 thru CW4 and O1 thru O3 (Warrant Officer, Lieutenant, Captain) _____
 - c. E-6 thru E-9 (Staff Sergeant, Specialist Six, Sergeant First Class, Master Sergeant, First Sergeant, Sergeant Major) _____
 - d. E-1 thru E-5 (Private, Private First Class, Corporal, Specialist Four, Specialist Five, Sergeant) _____

Introduction

Hello, is this Mr/Mrs/COL/SGT, etc _____? My name is _____ and I am with the Red Cross volunteer services at Fort Lee. We are conducting a survey to evaluate the quality of medical care provided by Kenner Army Community Hospital. You were selected by chance from among the active duty and retired military population who live in the Fort Lee area. I would like to ask you some questions. Your responses will help us to improve the quality of medical care which we provide to you. Your name will not appear on any report and any opinion you give me will be held in strict confidence. Have you used the services at Kenner Army Community Hospital within the past three years?

- a. Yes _____ (Continue)
- b. No _____ (Conclude the interview)

Have you filled out a questionnaire at Kenner Army Community Hospital within the past month?

- a. Yes _____ (Conclude the interview)
- b. No _____ (Continue)

Would you be willing to spend about 5-10 minutes to answer some questions about the medical care at the hospital?

- a. Yes _____ (Continue)
- b. No _____ (end the interview. Do not coerce the person, but if he/she volunteers a reason for not wanting to participate, write it down)

1. Approximately how often have you used the services at Kenner Army Community Hospital?

- a. In the past three years? _____
 - b. In the past year? _____
2. How long have you lived in the Fort Lee area? _____
3. How many miles do you live from Fort Lee? _____

Please think about the medical care you are now receiving or would expect to receive as you answer the following questions. There are NO right or wrong answers. We just want your opinion.

4. Which department or services have you used and how satisfied/dissatisfied were you on a scale of 1 to 9 with 9 being could not be more satisfied; 1 - could not be less satisfied; and 5 - average. You can be satisfied with some things and dissatisfied with others and still be satisfied overall. If you have not used a service, please tell me. (Please circle response. Circle 0 if person has not used a service).

| DEPARTMENT/SERVICE | HAVE NOT USED SERVICE | COULD NOT BE LESS SATISFIED | AVERAGE | COULD NOT BE MORE SATISFIED |
|------------------------------|-----------------------|-----------------------------|---------|-----------------------------|
| Central Appointments | 0 | 1 | 5 | 9 |
| Medical Records | 0 | 1 | 5 | 9 |
| Emergency Room | 0 | 1 | 5 | 9 |
| General Outpatient Clinic | 0 | 1 | 5 | 9 |
| Internal Medicine | 0 | 1 | 5 | 9 |
| General Surgery | 0 | 1 | 5 | 9 |
| Orthopedics | 0 | 1 | 5 | 9 |
| Physical Therapy | 0 | 1 | 5 | 9 |
| Optometry | 0 | 1 | 5 | 9 |
| Ear, Nose & Throat (ENT) | 0 | 1 | 5 | 9 |
| Gynecology | 0 | 1 | 5 | 9 |
| Social Work/Community Mental | | | | |
| Health Activity | 0 | 1 | 5 | 9 |
| Pediatrics | 0 | 1 | 5 | 9 |
| Medical Inpatient | 0 | 1 | 5 | 9 |
| Surgical Inpatient | 0 | 1 | 5 | 9 |
| Laboratory | 0 | 1 | 5 | 9 |
| Radiology | 0 | 1 | 5 | 9 |
| Pharmacy | 0 | 1 | 5 | 9 |
| Audiology | 0 | 1 | 5 | 9 |

If respondent is male --

- a. If he has used the Internal Medicine Clinic, then continue by asking questions about the Internal Medicine Clinic.
- b. If he has not used the Internal Medicine Clinic, conclude the interview.

If respondent is female --

- a. If she has used the Internal Medicine or Gynecology Clinics, then continue the interview.
 - (1) If she has used the Internal Medicine Clinic, but not the Gynecology Clinic, continue with questions about the Internal Medicine Clinic.
 - (2) If she has used the Gynecology Clinic, but not the Internal Medicine Clinic, continue with questions about the Gynecology Clinic.
 - (3) If she has used both the Internal Medicine Clinic and Gynecology Clinic, alternate asking respondents about the Internal Medicine Clinic and Gynecology Clinics (for example, ask one about Internal Medicine and the next one about Gynecology).
- b. If she has not used either the Internal Medicine or Gynecology Clinics, conclude the interview.

Now I would like to ask you some more questions about the _____ (Internal Medicine/Gynecology) Clinic.

5. Approximately how often have you been treated in this clinic?

- a. In the past three years? _____
- b. In the past year? _____

Please respond to the following statements using the 9-point scale as before. This time, however, let 9 indicate that you strongly agree; 1 means you strongly disagree; and 5 indicates a neutral feeling about the statement. Please circle your response.

| | STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|---|----------------------|---|---|---|---|---|---|---|---|---|-------------------|
| 6. Its hard to get an appointment for this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 7. The doctors are always running behind schedule on their appointments. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 8. I think the clinic has everything needed to provide complete medical care. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 9. The physicians in the clinic are very careful to check everything when examining me. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 10. There are enough doctors in this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 11. The staff in the clinic are always friendly and courteous. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 12. This clinic provides better care than similar clinics at other Amry hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 13. The doctors cause me to worry a lot because they do not explain medical problems. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |
| 14. The doctors in the clinic genuinely care about their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | |

| | STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|--|----------------------|---|---|---|---|---|---|---|---|---|-------------------|
| 15. I have no trouble getting an appointment for this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 16. I never have to wait when I have an appointment at this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 17. The doctors in the clinic are not as thorough as they should be. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 18. This clinic has a big shortage of doctors. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 19. The physicians always do their best to keep me from worrying. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 20. The clinic lacks some things needed to provide complete medical care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 21. The doctors in the clinic do not care about the feelings of their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 22. The quality of medical care in this clinic is much worse than at other Army hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 24. The staff in the clinic are rude and discourteous to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |

This concludes the survey. Do you have any comments about this clinic or any other area of the hospital that you would like to share with us?

Thank you for taking the time to answer my questions. We value your opinion and look forward to providing you with the best possible medical care. Good-bye.

APPENDIX D

PATIENT SATISFACTION QUESTIONNAIRE

FROM THE 1983 STUDY

PATIENT TELEPHONIC QUESTIONNAIRE

INTRODUCTION

Hello, is this Mrs./Mr/Ms/SGT, etc (name of individual to be surveyed)?

My name is _____. I am a (Red Cross Volunteer) working in coordination with the Army Medical Department in an attempt to evaluate the Fort Lee communities' perceptions of the medical care provided by Kenner Army Community Hospital. Any opinions you give me will be in the strictest confidence and your name will not appear on any report. Would you be willing to take 5 - 10 minutes to give me some frank and honest answers to some questions regarding this subject?

YES _____ proceed

NO _____ DO NOT attempt to ascertain why individual refuses. If a reason is given make note on form "REFUSAL NOTES"

Have you been treated at Kenner Army Community Hospital in the last 3 years?

YES _____ Questionnaire A

NO _____ Questionnaire B

POPULATION TELEPHONIC QUESTIONNAIRE

QUESTIONNAIRE A

(PATIENT WHO HAS UTILIZED KENNER ARMY COMMUNITY HOSPITAL IN THE LAST 3 YEARS)

1. How long have you lived in the Fort Lee Area?
2. What is the distance in miles from your home to Kenner?
3. How often have you been to Kenner?
4. Which departments or services have you used and how dissatisfied/satisfied were you on a scale of 1 to 9 (9 - couldn't be more satisfied; 1 - couldn't be less satisfied; and 5 - average or neutral).

DEPARTMENT/SERVICE

(CA) Central Appointments

(MR) Medical Records

(ER) Emergency Room

(GOP) General Outpatient Clinic

(IM) Internal Medicine

(GS) General Surgery

(ORTHO) Orthopedics

(PT) Physical Therapy

(OP) Optometry

(ENT) Ear Nose and Throat

(G) Gynecology

(SOC) Social ^{work} Services/Community Mental Health Activity

(PED) Pediatrics

(MIP) Med In-Patient

(SIP) Surg In-Patient

(LAB) Laboratory

(XR) Radiology

(P) Pharmacy

(O) Other

QUESTIONNAIRE A - Cont'd

5. Do you have any particular comments on the services you received?
6. From what you have heard or from your experience do you feel the quality of services at Kenner have become

(MW) Much Worse

(B) Better

(W) Worse

(MB) Much Better

(S) About the Same

(NO) No Opinion

7. On a scale of 1 to 9 (dissatisfied/satisfied) what is your overall impression of the quality of services at Kenner?

8. Are there any problems that you have had or might have for which you would not go to Kenner?

Yes _____ continue

No _____ go to Question 11.

9. Which problems are these? (Code A + A.S. (Anything serious)).

10. Why would you not utilize Kenner for these problems?

11. Have you ever used any other Army hospitals other than Kenner?

Yes _____ go to Question 12.

No _____ go to Question 13.

12. How many other Army hospitals have you used?

13. How does the quality of care at Kenner compare to your experience or impression of other Army hospitals?

(MW) Much Worse

(B) Better

(W) Worse

(MB) Much Better

(S) About the Same

(NO) No Opinion

14. Have you utilized CHAMPUS or civilian care since you have been here at Fort Lee? (In last 3 years).

Yes _____ Continue

No. _____ Go to Question 18

15. How many times have you used CHAMPUS or civilian care in the last 3 years?

16. What services have you used on CHAMPUS or in the civilian sector? (Code A).

QUESTIONNAIRE A - Cont'd

17. On a scale of 1 to 9 (dissatisfied/satisfied) how would you rate the quality of care of these services?
18. What is your general opinion of the quality of care in the civilian sector when compared to your opinion of Kenner?
- | | |
|--------------------|------------------|
| (MW) Much Worse | (B) Better |
| (W) Worse | (MB) Much Better |
| (S) About the Same | (NO) No Opinion |
19. Do you have any comments or suggestions you would like to make regarding health care at Fort Lee?

THANK YOU VERY MUCH FOR YOUR COOPERATION AND ASSISTANCE!

INTERVIEWER'S INSTRUCTIONS

1. The purpose of this survey is to find out how the Fort Lee Community feels about the health services at Kenner Army Community Hospital.
2. You play an extremely important role in this survey. Your attitude and tone of voice on the phone will influence the respondents. Be as pleasant as you can be.
3. The surveys are attached to lists of names to be called. Both the lists and the questionnaires are identified by a code and number. Please speak only to the person on the list (not other family members). Please keep the surveys and corresponding lists together and return the lists when you return the questionnaires.
4. The questionnaire is divided into two sections. The first section contains demographic information and questions about general opinions of hospital clinics. (Questions 1-4). The second part of the questionnaire asks questions about a specific clinic, either gynecology or internal medicine. (Questions 5-24).
5. Questionnaires are being filled out in the clinics also so you may have some people say they have filled one out within the past month. Do not ask them to answer the questionnaire. We do not want to duplicate responses.
6. Remember not to voice your opinion about a clinic. You may influence the person and bias his/her answers. You may answer questions but be sure you get the person's own opinion about the services.
7. Please return the completed questionnaires as soon as you can but no later than 7 February 1984.
8. If you have any problems, do not hesitate to call me. You also may refer anyone with questions to me. You can reach me at work at 734-3369 or my home number is 526-7925.
9. Enjoy yourself!
10. Thank you very much for your help.

Captain Mike Anders

APPENDIX F

PILOT CLINIC PATIENT
SATISFACTION QUESTIONNAIRE

PATIENT QUESTIONNAIRE

We are conducting a survey to evaluate the quality of medical care provided by this hospital. We would like you to answer some questions. Your responses will help us to improve the quality of medical care which we provide to you. Your name will not appear on any report and any opinion you give will be held in strict confidence. (If you have participated in a telephonic survey on the quality of care at this hospital within the past month, please do not complete this questionnaire but return it to the receptionist). If you have not recently participated in our survey, please continue.

1. Please indicate your military status. (check one item)
 - a. Active duty Soldier _____
 - b. Retiree _____
 - c. Dependent of Active Duty Soldier _____
 - d. Dependent of Retiree _____

2. Please indicate your/your sponsor's grade. (check one item)
 - a. O4 and above (Major, Lieutenant Colonel, Colonel, General) _____
 - b. WO1 thru CW4 and O1 thru O3 (Warrant Officer, Lieutenant, Captain) _____
 - c. E6 thru E9 (Staff Sergeant, Specialist Six, Sergeant First Class, Master Sergeant, First Sergeant, Sergeant Major) _____
 - d. E1 thru E5 (Private, Private First Class, Corporal, Specialist Four, Specialist Five, Sergeant) _____

3. Approximately how often have you used the services at Kenner Army Community Hospital?
 - a. In the past three years? _____
 - b. In the past year? _____

4. How long have you lived in the Fort Lee area? _____

5. How many miles do you live from Fort Lee? _____

Please think about the medical care you are now receiving or would expect to receive as you answer the following questions. There are NO right or wrong answers. We just want your opinion.

6. Which department or services have you used and how satisfied/dissatisfied were you on a scale of 1 to 9 (9-could not be more satisfied; 1 - could not be less satisfied; and 5 - average). Please circle the number which reflects your overall satisfaction. (You can be satisfied with some things and dissatisfied with others and still be satisfied overall). If you have not used a service, please circle 0.

| DEPARTMENT/SERVICE | HAVE NOT USED SERVICE | COULD NOT BE LESS SATISFIED | AVERAGE | COULD NOT BE MORE SATISFIED |
|------------------------------|-----------------------|-----------------------------|---------|-----------------------------|
| Central Appointments | 0 | 1 | 5 | 9 |
| Medical Records | 0 | 1 | 5 | 9 |
| Emergency Room | 0 | 1 | 5 | 9 |
| General Outpatient Clinic | 0 | 1 | 5 | 9 |
| Internal Medicine | 0 | 1 | 5 | 9 |
| General Surgery | 0 | 1 | 5 | 9 |
| Orthopedics | 0 | 1 | 5 | 9 |
| Physical Therapy | 0 | 1 | 5 | 9 |
| Optametry | 0 | 1 | 5 | 9 |
| Ear, Nose & Throat (ENT) | 0 | 1 | 5 | 9 |
| Gynecology | 0 | 1 | 5 | 9 |
| Social Work/Community Mental | | | | |
| Health Activity | 0 | 1 | 5 | 9 |
| Pediatrics | 0 | 1 | 5 | 9 |
| Medical Inpatient | 0 | 1 | 5 | 9 |
| Surgical Inpatient | 0 | 1 | 5 | 9 |
| Laboratory | 0 | 1 | 5 | 9 |
| Radiology | 0 | 1 | 5 | 9 |
| Pharmacy | 0 | 1 | 5 | 9 |
| Audiology | 0 | 1 | 5 | 9 |

Now we would like to ask you some more questions about the clinic you are visiting today. If this is your first visit to this clinic, please do not answer the remaining questions but return this questionnaire to the receptionist. Thank you. Otherwise, please continue.

7. Approximately how often have you been treated in this clinic?
- a. In the past three years? -----
- b. In the past year? -----

Please respond to the following statements using the 9-point scale as before. This time, however, let 9 indicate that you strongly agree; 1 means you strongly disagree; and 5 indicates a neutral feeling about the statement. Please circle your response.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|----------------------|---|---|---|---------|---|---|---|-------------------|
| | STRONGLY DISAGREE | | | | NEUTRAL | | | | STRONGLY AGREE |
| 8. Its hard to get an appointment for this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 9. The doctors are always running behind schedule on their appointments. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10. I think the clinic has everything needed to provide complete medical care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 11. The physicians in the clinic are very careful to check everything when examining me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 12. There are enough doctors in this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 13. The staff in the clinic are always friendly and courteous. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|---|----------------------|---|---|---|---|---|---|---|---|---|-------------------|
| 14. This clinic provides better care than similar clinics at other Army hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 15. The doctors cause me to worry a lot because they do not explain medical problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 16. The doctors in the clinic genuinely care about their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 17. I have no trouble getting an appointment for this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 18. I never have to wait when I have an appointment at this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 19. The doctors in the clinic are not as thorough as they should be. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 20. This clinic has a big shortage of doctors. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 21. The physicians always do their best to keep me from worrying. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 22. The clinic lacks some things needed to provide complete medical care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 23. The doctors in the clinic do not care about the feelings of their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |

| | STRONGLY DISAGREE | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|--|----------------------|---|---|---|---|---|---|---|---|-------------------|
| 24. The quality of medical care in this clinic is much worse than at other Army hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 25. The staff in the clinic are rude and discourteous to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

This concludes the survey. Do you have any comments about this clinic or any other area of the hospital that you would like to share with us?

Thank you for taking the time to answer our questions. We value your opinion and look forward to providing you with the best possible medical care. Please fold the survey in half and place it in the designated box or return it to the receptionist. Again, thank you.

APPENDIX G

DESCRIPTIVE DATA FROM THE

PILOT QUESTIONNAIRES

BMOPI0 - SIMPLE DATA DESCRIPTION AND DATA MANAGEMENT
BMDP STATISTICAL SOFTWARE, INC.
1964 WESTMOCO BLVD. SUITE 202
(213) 475-5700
PROGRAM REVISED APRIL 1982
MANUAL REVISED -- 1981
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COMPUTER UNIT, UNIVERSITY OF WARWICK,
COVENTRY, CV4 7AL, UNITED KINGDOM
TELEPHONE (+44) 203-24011, EXT 2357
TELEX 31406 COVLIB G

6TH MARCH 1984 AT 8:37

PROGRAM CONTROL INFORMATION

/ PROBLEM
TITLE = 'DESCRIPTIVE DATA ON TELEPHONIC AND "IN CLINIC" SURVEYS.' .
/ INPUT
VARIABLES = 47 .
CASES = 113 .
FORMAT = FREE .
/ VARIABLE
NAMES = 'CASE #', STATUS, GRADE, FAST3, PAST1, MONTHS, MILES,
APNTMNTS, 'MED RCDS', EMRGNCY, 'CUT CLNC', 'I/M CLNC',
'GEN SURG', ORTHOPED, 'P THRPY', OPTONTRY, 'CENT',
GYNCLGY, 'SW/CHHA', PEDIATCS, 'MED IN', 'SURG IN',
LABRTRY, RADIOLOGY, PHARMACY, AUDIOLOGY,
'VISIT 3', 'VISIT 1',
'APPTS(-)', 'WAIT(-)', 'FACIL(+)', 'QUAL(+)', 'DC TRS(+)',
'CRISY(+)', 'KACH(+)', 'HUMNE(-)', 'CARE(+)', 'APPTS(+)',
'WAIT(+)', 'QUAL(-)', 'DC TRS(-)', 'HUMNE(+)', 'FACIL(-)',
'CARE(-)', 'KACH(-)', 'CRISY(-)',
TYPE .
LABEL = 'CASE #'.
MINIMUM = (8)1, (9)1, (10)1, (11)1, (12)1, (13)1, (14)1, (15)1, (16)1, (17)1,
(18)1, (19)1, (20)1, (21)1, (22)1, (23)1, (24)1, (25)1, (26)1,
(29)1, (30)1, (31)1, (32)1, (33)1, (34)1, (35)1, (36)1, (37)1,
(38)1, (39)1, (40)1, (41)1, (42)1, (43)1, (44)1, (45)1, (46)1 .
/ PRINT
DATA .
/ END

PROBLEM TITLE IS
 DESCRIPTIVE DATA ON TELEPHONIC AND "IN CLINIC" SURVEYS.

NUMBER OF VARIABLES TO READ IN. 47
 NUMBER OF VARIABLES ADDED BY TRANSFORMATIONS. 0
 TOTAL NUMBER OF VARIABLES 47
 NUMBER OF CASES TO READ IN. 113
 CASE LABELING VARIABLES CASE #
 MISSING VALUES CHECKED BEFORE OR AFTER TRANS. BEFORE
 BLANKS ARE. MISSING
 INPUT UNIT NUMBER 5
 REWIND INPUT UNIT PRIOR TO READING. NO
 NUMBER OF WORDS OF DYNAMIC STORAGE. 14998

VARIABLES TO BE USED

| | | | | |
|-------------|-------------|-------------|-------------|--------------|
| 2 STATUS | 3 GRADE | 4 PAST3 | 5 PAST1 | 6 MONTHS |
| 7 MILES | 8 APNTMNTS | 9 MED RCDS | 10 EMRGNCY | 11 OUT CLNC |
| 12 I/M CLNC | 13 GEN SURG | 14 ORTHOPED | 15 P THRPY | 16 OPTOMTRY |
| 17 (ENT) | 18 GYNCLGY | 19 SW/CPHA | 20 PEDYRICS | 21 MED IN |
| 22 SURG IN | 23 LABRTRY | 24 RADICLGY | 25 PHARMACY | 26 AUDIOLOGY |
| 27 VISIT 3 | 28 VISIT 1 | 29 APPTS(-) | 30 WAIT(-) | 31 FACIL(+) |
| 32 QUAL(+) | 33 DCTRS(+) | 34 CRTSY(+) | 35 KACH(+) | 36 HUMNE(-) |
| 37 CARE(+) | 38 APPTS(+) | 39 WAIT(+) | 40 QUAL(-) | 41 DCTRS(-) |
| 42 HUMNE(+) | 43 FACIL(-) | 44 CARE(-) | 45 KACH(-) | 46 CRTSY(-) |
| 47 TYPE | | | | |

INPUT FORMAT IS
 FREE

MAXIMUM LENGTH DATA RECORD IS 80 CHARACTERS.

PRINT ALL CASES.

| VARIABLE NO. NAME | TOTAL FREQUENCY | MEAN | STANDARD DEVIATION | ST. ERR OF MEAN | COEFF. OF VARIATION | S M A L L E S T VALUE | L A R G E S T VALUE | Z-SCORE | RANGE |
|-------------------|-----------------|---------|--------------------|-----------------|---------------------|-----------------------|---------------------|---------|---------|
| 2 STATUS | 113 | 2.726 | 1.037 | 0.0976 | 0.38054 | 1.000 | 4.000 | -1.66 | 3.000 |
| 3 GRADE | 112 | 2.607 | 0.842 | 0.0796 | 0.32300 | 1.000 | 4.000 | -1.91 | 3.000 |
| 4 PAST3 | 79 | 17.418 | 35.527 | 3.9971 | 2.03973 | 0.000 | 300.000 | -0.49 | 300.000 |
| 5 PAST1 | 105 | 5.329 | 8.385 | 0.8183 | 1.43869 | 0.000 | 50.000 | -0.70 | 50.000 |
| 6 MONTHS | 104 | 131.221 | 122.116 | 11.9744 | 0.93061 | 3.000 | 600.000 | -1.05 | 597.000 |
| 7 MILES | 107 | 7.416 | 8.675 | 0.8386 | 1.16976 | 0.000 | 52.000 | -0.85 | 52.000 |
| 8 APNTMNTS | 105 | 6.914 | 2.346 | 0.2289 | 0.33925 | 1.000 | 9.000 | -2.52 | 8.000 |
| 9 MED RCDS | 106 | 7.009 | 2.202 | 0.2138 | 0.31411 | 1.000 | 9.000 | -2.73 | 8.000 |
| 10 EMRGNCY | 87 | 7.483 | 2.151 | 0.2306 | 0.28740 | 1.000 | 9.000 | -3.01 | 8.000 |
| 11 QUT CLNC | 83 | 6.639 | 2.387 | 0.2620 | 0.35954 | 1.000 | 9.000 | -2.36 | 8.000 |
| 12 I/M CLNC | 44 | 7.591 | 1.618 | 0.2440 | 0.21321 | 4.000 | 9.000 | -2.22 | 5.000 |
| 13 GEN SURG | 26 | 8.346 | 1.355 | 0.2657 | 0.16232 | 5.000 | 9.000 | -2.47 | 4.000 |
| 14 ORTHOPED | 41 | 7.415 | 2.037 | 0.3181 | 0.27471 | 2.000 | 9.000 | -2.66 | 7.000 |
| 15 P THRPY | 27 | 7.444 | 2.082 | 0.4006 | 0.27963 | 1.000 | 9.000 | -3.10 | 8.000 |
| 16 OPTOMTRY | 53 | 7.509 | 2.198 | 0.3019 | 0.29271 | 1.000 | 9.000 | -2.96 | 8.000 |
| 17 (ENT) | 35 | 7.486 | 1.884 | 0.3185 | 0.25174 | 1.000 | 9.000 | -3.44 | 8.000 |
| 18 GYNCLGY | 56 | 7.321 | 2.072 | 0.2769 | 0.28306 | 2.000 | 9.000 | -2.57 | 7.000 |
| 19 SW/CHMA | 14 | 8.214 | 1.311 | 0.3505 | 0.15965 | 5.000 | 9.000 | -2.45 | 4.000 |
| 20 PEDTRICS | 24 | 7.417 | 2.062 | 0.4210 | 0.27808 | 2.000 | 9.000 | -2.63 | 7.000 |
| 21 MED IN | 19 | 8.053 | 1.268 | 0.2909 | 0.15748 | 5.000 | 9.000 | -2.41 | 4.000 |
| 22 SURG IN | 20 | 8.400 | 1.046 | 0.2340 | 0.12456 | 5.000 | 9.000 | -3.25 | 4.000 |
| 23 LABRTRY | 85 | 7.694 | 1.766 | 0.1916 | 0.22956 | 1.000 | 9.000 | -3.79 | 8.000 |
| 24 RADIOLOGY | 71 | 7.775 | 1.943 | 0.2306 | 0.24997 | 1.000 | 9.000 | -3.49 | 8.000 |
| 25 PHARMACY | 101 | 7.267 | 2.083 | 0.2072 | 0.28659 | 1.000 | 9.000 | -3.01 | 8.000 |
| 26 AUDILOGY | 20 | 7.800 | 1.673 | 0.3742 | 0.21453 | 5.000 | 9.000 | -1.67 | 4.000 |
| 27 VISIT 3 | 90 | 5.022 | 12.101 | 1.2755 | 2.40943 | 0.000 | 100.000 | -0.42 | 100.000 |
| 28 VISIT 1 | 102 | 2.020 | 3.348 | 0.3315 | 1.65763 | 0.000 | 20.000 | -0.60 | 20.000 |
| 29 APPTS(-) | 76 | 4.724 | 2.951 | 0.3385 | 0.62476 | 1.000 | 9.000 | -1.26 | 8.000 |
| 30 WAIT(-) | 76 | 4.618 | 2.870 | 0.3293 | 0.62151 | 1.000 | 9.000 | -1.26 | 8.000 |
| 31 FACIL(+) | 76 | 6.447 | 2.385 | 0.2736 | 0.36999 | 1.000 | 9.000 | -2.28 | 8.000 |
| 32 QUAL(+) | 76 | 6.553 | 2.635 | 0.3023 | 0.40215 | 1.000 | 9.000 | -2.11 | 8.000 |
| 33 OCTRS(+) | 74 | 4.230 | 2.728 | 0.3171 | 0.64486 | 1.000 | 9.000 | -1.18 | 8.000 |
| 34 CRTSY(+) | 75 | 7.667 | 2.473 | 0.2856 | 0.32260 | 1.000 | 9.000 | -2.70 | 8.000 |
| 35 MACH(+) | 75 | 5.947 | 2.211 | 0.2553 | 0.37182 | 1.000 | 9.000 | -2.24 | 8.000 |
| 36 MACH(-) | 77 | 3.455 | 2.784 | 0.3173 | 0.80592 | 1.000 | 9.000 | -0.88 | 8.000 |
| 37 CARE(+) | 77 | 6.727 | 2.474 | 0.2820 | 0.36780 | 1.000 | 9.000 | -2.31 | 8.000 |
| 38 APPTS(+) | 75 | 5.360 | 3.030 | 0.3498 | 0.56525 | 1.000 | 9.000 | -1.44 | 8.000 |
| 39 WAIT(+) | 77 | 4.597 | 2.597 | 0.2959 | 0.56485 | 1.000 | 9.000 | -1.39 | 8.000 |
| 40 QUAL(-) | 75 | 3.880 | 2.557 | 0.2953 | 0.65908 | 1.000 | 9.000 | -1.13 | 8.000 |
| 41 OCTRS(-) | 72 | 5.583 | 2.658 | 0.3132 | 0.47601 | 1.000 | 9.000 | -1.72 | 8.000 |
| 42 MACH(+) | 73 | 6.822 | 2.341 | 0.2740 | 0.34320 | 1.000 | 9.000 | -2.49 | 8.000 |
| 43 FACIL(-) | 75 | 4.920 | 2.760 | 0.3186 | 0.56088 | 1.000 | 9.000 | -1.42 | 8.000 |
| 44 CARE(-) | 76 | 3.013 | 2.397 | 0.2750 | 0.79557 | 1.000 | 9.000 | -0.84 | 8.000 |
| 45 MACH(-) | 76 | 3.079 | 2.273 | 0.2607 | 0.73827 | 1.000 | 9.000 | -0.91 | 8.000 |
| 46 CRTSY(-) | 77 | 2.130 | 2.296 | 0.2617 | 1.07808 | 1.000 | 9.000 | -0.49 | 8.000 |
| 47 TYPE | 113 | 3.319 | 1.378 | 0.1296 | 0.41510 | 1.000 | 5.000 | -1.68 | 4.000 |

APPENDIX H

PARENT PATIENT SATISFACTION

QUESTIONNAIRE

(1-3) Case # _____

PATIENT QUESTIONNAIRE

We are conducting a survey to evaluate the quality of medical care provided by this hospital. We would like you to answer some questions. Your responses will help us to improve the quality of medical care which we provide to you. Your name will not appear on any report and any opinion you give will be held in strict confidence. (If you have filled out a questionnaire or participated in a telephonic survey on the quality of care at this hospital within the past month, please do not complete this questionnaire but return it to the receptionist). If you have not recently participated in our survey, please continue.

(4) 1. What is your military status. (check one item)

- a. Active duty Soldier _____
- b. Retiree _____
- c. Family member of Active Duty Soldier _____
- d. Family member of Retiree _____

(5) 2. What is your/sponsor's grade. (check one item)

- a. O4 and above (Major, Lieutenant Colonel, Colonel, General) _____
- b. WO1 thru CW4 and O1 thru O3 (Warrant Officer, Lieutenant, Captain) _____
- c. E6 thru E9 (Staff Sergeant, Specialist Six, Sergeant First Class, Master Sergeant, First Sergeant, Sergeant Major) _____
- d. E1 thru E5 (Private, Private First Class, Corporal, Specialist Four, Specialist Five, Sergeant) _____

3. Approximately how often have you used the services at Kenner Army Community Hospital?

- a. In the past year? (check one item)
 - 1. At least once a month _____
 - 2. Once every 2-3 months _____
 - 3. Once every 4-6 months _____
 - 4. Once a year _____

(please continue)

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1 March 1984

(7) b. In the past three years? (check one item)

1. At least once a month _____
2. Once every 2-3 months _____
3. Once every 4-6 months _____
4. Once a year _____

(8) 4. How long have you lived in the Fort Lee area? (check one item)

- a. Less than 1 year _____
- b. Between 1 and 4 years _____
- c. Between 4 and 10 years _____
- d. More than 10 years _____

(9) 5. How many miles do you live from Fort Lee? (check one item)

- a. Live on Fort Lee _____
- b. Live within 5 miles of Fort Lee _____
- c. Live between 5 and 10 miles of Fort Lee _____
- d. Live between 10 and 20 miles of Fort Lee _____
- e. Live more than 20 miles from Fort Lee _____

Please think about the medical care you are now receiving or would expect to receive as you answer the following questions. There are NO right or wrong answers.
We just want your opinion.

(please continue)

6. Which department or services have you used and how satisfied/dissatisfied were you on a scale of 1 to 9 (9-could not be more satisfied; 1 - could not be less satisfied; and 5 - average). Please circle the number which reflects your overall satisfaction. (You can be satisfied with some things and dissatisfied with others and still be satisfied overall). If you have not used a service, please circle 0.

| DEPARTMENT/SERVICE | HAVE NOT USED SERVICE | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | COULD NOT BE MORE SATISFIED |
|--------------------------------|-----------------------|---|---|---|---|---|---|---|---|---|---|-----------------------------|
| (10) Central Appointments | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (11) Medical Records | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (12) Emergency Room | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (13) General Outpatient Clinic | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (14) Internal Medicine | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (15) General Surgery | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (16) Orthopedics | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (17) Physical Therapy | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (18) Optometry | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (19) Ear, Nose & Throat (ENT) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (20) Gynecology | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |

(please continue)

| | HAVE NOT USED SERVICE | COULD NOT BE LESS SATISFIED | COULD NOT BE MORE SATISFIED | AVERAGE | COULD NOT BE MORE SATISFIED | | | | | |
|--|-----------------------------|-----------------------------------|-----------------------------------|---------|-----------------------------------|---|---|---|---|---|
| (21) Social Work/Community Mental Health Activity | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (22) Pediatrics | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (23) Medical Inpatient | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (24) Surgical Inpatient | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (25) Laboratory | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (26) Radiology | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (27) Pharmacy | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (28) Audiology | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Now we would like to ask you some more questions about the clinic you are visiting today. If this is your first visit to this clinic, please do not answer the remaining questions but return this questionnaire to the receptionist. Thank you. Otherwise, please continue.

7. Approximately how often have you been treated in this clinic?

- (29) a. In the past year? (check one item)
1. At least once a month _____
 2. Once every 2-3 months _____
 3. Once every 4-6 months _____
 4. Once a year _____

(please continue)

- (30) b. In the past three years? (check one item)
1. At least once a month _____
 2. Once every 2-3 months _____
 3. Once every 4-6 months _____
 4. Once a year _____

Please respond to the following statements using the 9-point scale as before. This time, however, let 9 indicate that you strongly agree; 1 means you strongly disagree; and 5 indicates a neutral feeling about the statement. Please circle your response.

| | STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|---|----------------------|---|---|---|---|---------|---|---|---|---|-------------------|
| | | | | | | NEUTRAL | | | | | |
| (31) 8. Its hard to get an appointment for this clinic. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (32) 9. The doctors are always running behind schedule on their appointments. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (33) 10. I think the clinic has everything needed to provide complete medical care. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (34) 11. The physicians in the clinic are very careful to check everything when examining me. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (35) 12. There are enough doctors in this clinic. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (36) 13. The staff in the clinic are always friendly and courteous. | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

(please continue)

| | STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|---|----------------------|---|---|---|---|---|---|---|---|---|-------------------|
| (37) 14. This clinic provides better care than similar clinics at other military hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (38) 15. The doctors cause me to worry a lot because they do not explain medical problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (39) 16. The doctors in the clinic genuinely care about their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (40) 17. I have no trouble getting an appointment for this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (41) 18. I never have to wait when I have an appointment at this clinic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (42) 19. The doctors in the clinic are not as thorough as they should be. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (43) 20. This clinic has a big shortage of doctors. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (44) 21. The physicians always do their best to keep me from worrying. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (45) 22. The clinic lacks some things needed to provide complete medical care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| (46) 23. The doctors in the clinic do not care about the feelings of their patients. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |

(please continue)

| | STRONGLY DISAGREE | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | STRONGLY AGREE |
|---|----------------------|---|---|---|---|---|---|---|---|-------------------|
| (47) 24. The quality of medical care in this clinic is much worse than at other military hospitals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| (48) 25. The staff in the clinic are rude and discourteous to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

This concludes the survey. Do you have any comments about this clinic or any other area of the hospital that you would like to share with us?

Thank you for taking the time to answer our questions. We value your opinion and look forward to providing you with the best possible medical care. Please return the questionnaire to the receptionist. Again, thank you.

APPENDIX I

DESCRIPTIVE DATA FROM THE PARENT
PATIENT SATISFACTION QUESTIONNAIRE

PAGE 4 BMDP10 DESCRIPTIVE DATA ON TELEPHONIC AND "IN CLINIC" SURVEYS.

| VARIABLE NO. NAME | TOTAL FREQUENCY | MEAN | STANDARD DEVIATION | ST-ERR OF MEAN | COEFF. OF VARIATION | S M A L L E S T VALUE | Z-SCORE | L A R G E S T VALUE | Z-SCORE | RANGE |
|-------------------|-----------------|-------|--------------------|----------------|---------------------|-----------------------|---------|---------------------|---------|-------|
| 2 STATUS | 489 | 2.742 | 1.110 | 0.0502 | 0.40496 | 1.000 | -1.57 | 4.000 | 1.13 | 3.000 |
| 3 GRADE | 472 | 2.775 | 0.931 | 0.0429 | 0.33542 | 1.000 | -1.91 | 4.000 | 1.32 | 3.000 |
| 4 PAST1 | 469 | 2.475 | 1.030 | 0.0476 | 0.41628 | 1.000 | -1.43 | 4.000 | 1.48 | 3.000 |
| 5 PAST3 | 347 | 2.729 | 0.977 | 0.0525 | 0.35914 | 1.000 | -1.77 | 4.000 | 1.30 | 3.000 |
| 6 MONTHS | 468 | 2.624 | 1.146 | 0.0530 | 0.43692 | 1.000 | -1.42 | 4.000 | 1.20 | 3.000 |
| 7 MILES | 483 | 2.673 | 1.356 | 0.0617 | 0.50733 | 0.000 | -1.97 | 5.000 | 1.72 | 5.000 |
| 8 APNTMNTS | 451 | 5.397 | 2.261 | 0.1065 | 0.35341 | 1.000 | -2.39 | 9.000 | 1.15 | 8.000 |
| 9 MED RCDS | 452 | 6.529 | 2.328 | 0.1095 | 0.35660 | 1.000 | -2.37 | 9.000 | 1.06 | 8.000 |
| 10 EMRGNCY | 343 | 6.662 | 2.596 | 0.1402 | 0.39968 | 1.000 | -2.18 | 9.000 | 0.90 | 8.000 |
| 11 OUT CLNIC | 353 | 5.646 | 2.512 | 0.1337 | 0.44498 | 1.000 | -1.85 | 9.000 | 1.34 | 8.000 |
| 12 I/M CLNIC | 192 | 7.027 | 2.176 | 0.1613 | 0.30961 | 1.000 | -2.77 | 9.000 | 0.91 | 8.000 |
| 13 GEN SURG | 122 | 7.648 | 1.858 | 0.1682 | 0.24299 | 1.000 | -3.58 | 9.000 | 0.73 | 9.000 |
| 14 ORTHOPED | 123 | 6.821 | 2.378 | 0.2144 | 0.34866 | 1.000 | -2.45 | 9.000 | 0.92 | 8.000 |
| 15 P THRPY | 93 | 7.204 | 2.209 | 0.2291 | 0.30669 | 1.000 | -2.81 | 9.000 | 0.81 | 8.000 |
| 16 OPTOMTRY | 185 | 7.239 | 2.029 | 0.1492 | 0.28034 | 1.000 | -3.07 | 9.000 | 0.87 | 8.000 |
| 17 (ENT) | 178 | 6.579 | 2.428 | 0.1820 | 0.36906 | 1.000 | -2.30 | 9.000 | 1.00 | 8.000 |
| 19 GYNCLGY | 307 | 6.736 | 2.330 | 0.1330 | 0.34593 | 1.000 | -2.46 | 9.000 | 0.97 | 8.000 |
| 19 SW/CHHA | 48 | 6.953 | 2.231 | 0.3220 | 0.32061 | 1.000 | -2.67 | 9.000 | 0.92 | 8.000 |
| 20 PCTRCS | 123 | 6.732 | 2.169 | 0.1956 | 0.32226 | 1.000 | -2.64 | 9.000 | 1.05 | 8.000 |
| 21 MED IN | 110 | 7.291 | 2.169 | 0.2068 | 0.29746 | 1.000 | -2.90 | 9.000 | 0.79 | 8.000 |
| 22 SURG IN | 91 | 7.740 | 1.993 | 0.2090 | 0.25621 | 1.000 | -3.40 | 9.000 | 0.61 | 8.000 |
| 23 LABRTRY | 345 | 7.104 | 2.043 | 0.1100 | 0.28761 | 1.000 | -2.99 | 9.000 | 0.93 | 8.000 |
| 24 RADIOLOGY | 232 | 7.151 | 2.244 | 0.1474 | 0.31389 | 1.000 | -2.74 | 9.000 | 0.82 | 8.000 |
| 25 PHARMACY | 417 | 6.552 | 2.437 | 0.1194 | 0.37201 | 1.000 | -2.28 | 9.000 | 1.00 | 8.000 |
| 26 AUDIOLOGY | 68 | 7.456 | 1.679 | 0.2036 | 0.22519 | 5.000 | -1.46 | 9.000 | 0.92 | 4.000 |
| 27 VISIT 1 | 454 | 2.297 | 1.455 | 0.0683 | 0.63329 | 0.000 | -1.58 | 4.000 | 1.17 | 4.000 |
| 28 VISIT 3 | 376 | 2.346 | 1.547 | 0.0798 | 0.65935 | 0.000 | -1.52 | 4.000 | 1.07 | 4.000 |
| 29 AFPS(-) | 332 | 5.118 | 2.917 | 0.1492 | 0.56995 | 1.000 | -1.41 | 9.000 | 1.33 | 8.000 |
| 30 WAIT(-) | 374 | 4.797 | 2.738 | 0.1416 | 0.57093 | 1.000 | -1.39 | 9.000 | 1.54 | 8.000 |
| 31 FACIL(+) | 378 | 6.199 | 2.430 | 0.1250 | 0.39266 | 1.000 | -2.14 | 9.000 | 1.16 | 8.000 |
| 32 QUAL(+) | 374 | 6.508 | 2.613 | 0.1351 | 0.40156 | 1.000 | -2.11 | 9.000 | 0.95 | 8.000 |
| 33 DCTRS(+) | 361 | 4.496 | 2.708 | 0.1425 | 0.60236 | 1.000 | -1.29 | 9.000 | 1.66 | 8.000 |
| 34 CRTSY(+) | 337 | 7.362 | 2.371 | 0.1205 | 0.32203 | 1.000 | -2.68 | 9.000 | 0.69 | 8.000 |
| 35 KACH(+) | 376 | 5.665 | 2.228 | 0.1149 | 0.39333 | 1.000 | -2.09 | 9.000 | 1.50 | 8.000 |
| 36 HUMNF(-) | 380 | 3.450 | 2.730 | 0.1400 | 0.79122 | 1.000 | -0.90 | 9.000 | 2.03 | 8.000 |
| 37 CARE(+) | 399 | 6.446 | 2.449 | 0.1244 | 0.39000 | 1.000 | -2.22 | 9.000 | 1.04 | 8.000 |
| 38 AFPS(+) | 352 | 5.162 | 2.977 | 0.1523 | 0.57652 | 1.000 | -1.40 | 9.000 | 1.29 | 8.000 |
| 39 WAIT(+) | 376 | 4.598 | 2.690 | 0.1387 | 0.58507 | 1.000 | -1.34 | 9.000 | 1.64 | 8.000 |
| 40 QUAL(-) | 373 | 4.236 | 2.740 | 0.1439 | 0.65632 | 1.000 | -1.16 | 9.000 | 1.71 | 8.000 |
| 41 DCTRS(-) | 364 | 5.321 | 2.621 | 0.1374 | 0.49251 | 1.000 | -1.65 | 9.000 | 1.40 | 8.000 |
| 42 HUMNE(+) | 369 | 6.374 | 2.568 | 0.1337 | 0.40285 | 1.000 | -2.09 | 9.000 | 1.02 | 8.000 |
| 43 FACIL(-) | 367 | 4.553 | 2.596 | 0.1350 | 0.56796 | 1.000 | -1.37 | 9.000 | 1.72 | 9.000 |
| 44 CAPE(-) | 390 | 3.187 | 2.499 | 0.1282 | 0.78431 | 1.000 | -0.87 | 9.000 | 2.33 | 8.000 |
| 45 KACH(-) | 373 | 3.110 | 2.136 | 0.1106 | 0.68668 | 1.000 | -0.99 | 9.000 | 2.76 | 8.000 |
| 46 CRTSY(-) | 380 | 2.082 | 2.072 | 0.1063 | 0.99520 | 1.000 | -0.52 | 9.000 | 3.34 | 8.000 |
| 47 TYPE | 490 | 3.614 | 0.789 | 0.0356 | 0.21919 | 1.000 | -3.32 | 5.000 | 1.76 | 4.000 |

NUMBER OF INTEGER WORDS OF STORAGE USED IN PRECEDING PROBLEM 1556
 CPU TIME USED IN PRECEDING PROBLEM 70.983 SECONDS
 CUMULATIVE CPU TIME USED 70.983 SECONDS

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