Predictors of Appointment-Keeping Behaviors Among Users of Adult Medical Clinics

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PREDICTORS OF APPOINTMENT-KEEPING BEHAVIORS
AMONG USERS OF ADULT MEDICAL CLINICS

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ABSTRACT

PREDICTORS OF APPOINTMENT-KEEPING BEHAVIORS AMONG USERS OF ADULT MEDICAL CLINICS

Ruth L. Campau
Old Dominion University, 1984
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In a descriptive correlational study, three predictors of appointment-keeping behaviors of adults who attend general medical clinics in a primary health care setting were explored. The three selected predictors from the Health Belief Model, a preventive health behavior model, were: (a) perceived barriers to health care, (b) health locus of control (HLC), and (c) satisfaction with health care. The purpose of this study was to identify the predictive value of multiple variables for a specific health-related behavior. Data on the study were collected on a non-probability, purposive sample of 52 users of the adult general medical clinics. The tool was a combined self-administered questionnaire designed to measure appointment-keeping behaviors, number and type of barriers, HLC dimensions, and level of client satisfaction with health care. Pilot studies for validity and reliability were conducted in order to assess the quality and adequacy of the instrument. One hypothesis was tested for significant relationship between the three predictors and the criterion variable using multiple regression models. Results indicated a significant relationship between all three predictors and the appointment-keeping behaviors. Barriers, as the single predictor, was the largest contributor to the variance of the criterion variable. Trends were also identified in certain demographic variables which may have had an influence on the outcome of the study.
DEDICATED TO

My Mother
Zoe Koukloyannou

whose pioneer spirit with the risk-taking, and all the sacrifices that go with it, provided the impetus and nurturance of transculturalism for me and our two-generation bicultural family.
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Chapter 1

Introduction

The current emphasis in community health programs, as demonstrated in both the public and private sector, is on the development of strategies to increase Health-Related Behaviors (HRB) in individuals, families, and communities. The term HRB is used in the literature to describe a group of behaviors, namely health behavior, illness behavior, chronic illness behavior, and at-risk behavior, unless otherwise is specified. Common among all these behaviors is the fact that all are activities undertaken by the clients at a given state in the wellness continuum for the purpose of meeting their health needs. For example, health behavior is an activity undertaken by a client believing to be healthy for the purpose of preventing disease, or detecting it in an asymptomatic stage; while illness behavior is an activity undertaken by a client who feels ill, to define the state of his or her health and to discover a suitable remedy. It was further mentioned that adherence to such health-related behaviors was the primary contributor to the achievement of preventive and therapeutic goals (Mikhail, 1981).

Concern with health behavior was developed in the early 50's when low levels of public participation in
preventive health programs were observed, despite these services being provided free of charge or at low cost. The National Health Planning and Resources Development Act of 1974—Public Law 93-641—was among these early efforts to meet such needs by increasing the availability, accessibility, acceptability, continuity, and quality of health services. This law notes that "large segments of the public are lacking in basic knowledge regarding proper personal health care and methods of effective use of available health services" (Section 21, 6).

Recent studies have shown that while knowledge regarding personal health care and available health care resources has been increased, the rate of nonadherence to HRB's remains high (Pender, 1982). Becker and Maiman (1980) considered noncompliance with HRB's to be the most serious and costly problem facing health care providers today. They specifically stated that,

> Depending upon characteristics of the condition, the treatment, the patient, and the setting, estimates of noncompliance rates typically range from 30% to 60%. The situation worsens markedly where the patients are symptom free. (p. 113)

The private sector has also recognized the importance of health promoting activities and individual behaviors in terms of health maintenance. Longitudinal studies on life cycle preventive health services have been conducted in order to determine the feasibility of implementing
services in primary health care, as a health insurance benefit and to assess the impact of this implementation on providers and consumers (Logsdon, Rosen, & Demak, 1982).

Meanwhile, the consumer's role in American health care, as purchaser and decision maker, has achieved a respectable level. Cron (1981) explained the genesis of "consumer health," as a public health concept on the basis of three strong influences within our society: (a) the rise in educational levels among our citizens; (b) the caution society continues to display toward 'medical miracles'; and (c) the acceptance of proper health care as a citizen's right.

Additional studies have shown that consumers' beliefs about health and health care services have "strong influence on their health-related behaviors" and on the "likelihood of compliance" (Dunbar & Stunkard, 1979). These studies also identified client cooperation as "the single most important determinant of patient adherence" (p. 391). Client cooperation greatly impacts on the client's appointment-keeping behavior—a specified HRB. However, adherence problems are highly complex and not easily definable. Shillinger (1983) explored methods of increasing client participation in treatment programs based on the individuals' perceived health locus of control. She defines locus of control as "the individual's
beliefs about whether or not a relationship exists between their actions and their outcomes . . . an individual difference construct from social learning theory, has shown some promise in predicting and explaining specific health-related behaviors" (p. 58). Shillinger also referred to terms compliance, adherence, and therapeutic alliance as "the process whereby a patient assumes the various tasks that comprise a therapeutic regimen" (p. 58). She further defined these terms with the sequentially corresponding concepts of coercion, conformity, and negotiation, which make up a continuum. This varies in the degree to which a patient is active in the decisions being made about himself, or inversely, the degree to which others determine the patient's behavior. The Health Belief Model (HBM), which originally was developed to account for preventive health actions, has also been employed to explain compliance relative to certain health-related behaviors and as a predictor of general clinic utilization (Becker, Nathanson, & Drachman, 1977; Becker & Maiman, 1980; Rosenstock, 1975).

This research study explored the application of the HBM in nursing practice with users of adult medical clinics in a primary health care setting. The relationship between the health-related behavior of appointment-keeping of these clients and three selected predictors from the HBM--perceived barriers to health care, health locus
of control, and satisfaction with health care—was tested.

Significance of the Study

Numerous studies of nonadherent client behavior to health care plans suggest that there continues to be some question about the factors which influence adherence and the kinds of provider interventions thought to increase it. The high rate of noncompliance with clinic attendance, which ranges from 40% to 75% at the local, state, and national levels (EUHSA, 1979), confirms the significance of the concern of the health providers for the under-utilization of provided services. Appointment-keeping behaviors, as health-related behaviors, often facilitate or interfere with the providers' therapeutic efforts in ways that affect the quality care and the cost effectiveness of the health care services which the client receives.

The currently merging concepts of self-care and therapeutic alliance—a client-provider partnership in decision-making for client's care—are also congruent with the purpose of the study.

From a nursing perspective, recent studies contend that nurses, by virtue of their humanistic orientation, their numbers and amount of client contact, have the greatest potential of any group of health care
professionals for exerting an impact on client health behavior (Becker & Maiman, 1980). A consideration of the types of interventions thought to provide adherence-related behaviors--providing information, obtaining compliance-oriented history, monitoring adherence levels, implementing health education and/or attitude change strategies, enlisting the support of significant others, client contracting and numerous others--leaves no doubt that these functions are also in the nursing domain (Pender, 1982). The construct of health locus of control has an added significance to nursing practice. It was not a conclusive predictor of health behavior, but it can lend valuable insight into the decision regarding the most effective nursing approach with clients displaying various health behaviors. Descriptions and illustrations of incorporating the Health Locus of Control scales in the nursing process were cited in the literature (Shillinger, 1983). In view of the discussed major health and economic impacts of such health-related behaviors upon the individual systems involved and the critical role of the nurse in client-provider therapeutic alliance, the study was perceived as significant.

Purpose

This study was a descriptive exploration of predictors of appointment-keeping behaviors. It was assumed that the
preventive health action, appointment-keeping behaviors in an ambulatory setting, would best be predicted through a consideration of multiple variables including the perceived barriers to health care, the health locus of control, and satisfaction with health care. Also, demographic characteristics of the respondents were described and compared with those of other studies in order to explain variations in the predictors for the appointment-keeping behaviors. The findings of the study have the potential to identify control measures for greater cost effectiveness and improvement of quality care services in an ambulatory care setting.

Problem Statement

Empirical studies have established several predictors of preventive health behaviors which in turn have an effect on utilization of preventive health services. The Health Belief Model (HBM) in its evolving form has had the most empirical support from previous studies. Mikhail (1981) in her analysis of the HBM gave an overview of 31 selected studies that used one or more of the HBM variables. The major dimensions of the model explain individual motivation factors. Such factors are cited under individual perceptions in the HBM and some of them are: perceived health locus of control, perceived susceptibility, severity, and benefits of preventive
actions. All of these factors, except the health locus of control dimension, have been found to be positively related to a wide variety of preventive health actions (Becker, et al., 1977; Kegeles, 1963; Mikhail, 1981). Monetary costs, however, have been inconsistent or have shown no relationship to preventive health actions (Aday, 1975; Pender, 1982). Adherence to therapeutic and preventive regimens and appointment-keeping behaviors have also been positively related to the dimensions of client satisfaction, susceptibility, severity, benefits, and perceived controllability of situational factors (Becker, Mathanson, & Drachman, 1977; Pender, 1982; Stratmann, 1975). Perceived health locus of control studies suggest that external control, alienation or powerlessness, are associated with lower rates of compliance, lower health motivation, and reduced tendency to seek relevant information and health care services (Rosenstock, 1975; Wallston, Maides, Wallston, & Kaplan, 1976). This dimension of external-internal orientation has been a controversial one in terms of predictive value. When various situational and cultural factors were considered, externally-oriented individuals were positively related to information seeking and adherence behaviors (Wallston & Wallston, 1978). Lowery (1980) reported that locus of control as the single predictor to the dependent variables of information seeking and adherence to
therapeutic regimens has failed to predict these dependent variables. Nevertheless, she acknowledged this construct as an important emergent area for research. She also recommended a multivariable approach, and indicated that negative results such as these were equally important in research and should be reported in the literature. While many predictors have been identified in numerous studies, the gap between availability of preventive health services and the public's lack of response still exists. It is further confounded by the motivational aspect of behavior, which has a predictive value, but is hard to operationalize and measure (Pender, 1982). It is a conclusive recommendation from various studies in the literature that replication of previous research using similar measurements is necessary in order to define more clearly the role of these variables at the decision-making and action-taking phase; in so doing, a multivariable approach has been suggested.

The problem for study involved exploration of barriers to health care, health locus of control, satisfaction with health care and their relative influence on appointment keeping as a correlate of health-related behaviors. This relationship is illustrated in Figure 1.

Operational Definitions

Clients—Individuals eligible for health care in a Health Department General Medical Clinic as defined by its
protocol (criteria are: age over 21, city resident, entering the system on eligibility basis with priority given, but not limited to, indigent clients).

**Health Provider**—Persons employed in the study site who provided direct care to clients (physician, nurse practitioner, registered nurse, licensed practical nurse, nurse aide, laboratory technician, social worker, receptionist).

**Client Satisfaction**—The degree of congruency between client's expectations of ideal health care and his perception of the actual health care he receives. Satisfaction was operationalized as the Satisfaction with Health Care scale.

**Health Locus of Control**—The notion of the perception of the individual about whether or not he can control his environment, and in this case, his physical health and well-being. Individuals who believe that their actions can control their environment are called internals; those who believe they cannot control their environment or things just happen to them are called externals (Wallston, et al., 1976). Health locus of control was measured with the Health Locus of Control scale.

**Perceived Barriers to Care**—Factors perceived by the client as obstacles to receiving health care at the study's setting. Four selected barriers were studied—transportation, child care, finances, and waiting time in the clinic.
**Health Related Behavior (HRB)**—Voluntary individual or group action taken at the primary, secondary, and tertiary levels of prevention. Elements constituting health-related behavior for this study were behaviors specific to utilization of services, namely appointment-keeping behaviors.

**Theoretical Framework**

The theoretical framework for this study was the modified Health Belief Model as proposed by Pender (1982) (see Figure 2). This is a complementary counterpart to the original model. Historically, the original HBM was developed in the early 1950's by Rosenstock, Hochbaum, and Kegeles in order to provide a paradigm for predicting and explaining the occurrence of preventive health behaviors (Pender, 1982). It is primarily based on Kurt Lewin's two theoretical assumptions: (a) the value of an outcome to an individual and (b) the individual's estimate of the probability that a given action will result in that outcome (Mikhail, 1981). Later, Becker divided the components of the model into individual perceptions, modifying factors, and variables that affect the likelihood of initiating action. Individual perceptions directly affect predisposition, while other variables act as modifying factors that only indirectly affect action tendencies (Becker, et al., 1977). Detailed categorization
PROPOSED MODIFICATIONS OF THE HEALTH BELIEF MODEL

INDIVIDUAL PERCEPTIONS

- Importance of health
- Perceived control
- Perceived threat of specific disease
- Perceived susceptibility
- Perceived seriousness
- Perceived benefits of preventive actions
- Perceived value of early detection

MODIFYING FACTORS

- Demographic variables (age, sex, race, ethnicity, education, income)
- Interpersonal variables (expectations of significant others, family patterns of health care, interactions with health professionals)
- Situational variables (cultural acceptance of health behaviors, reference-group norms, information from nonpersonal sources, e.g., mass media)
- Perceived barriers to action (cost, inconvenience, unpleasantness, extent of life-change required)

LIKELIHOOD OF ACTION

- Likelihood of taking preventive action
- Cues to action (awareness of aging, perception of fatigue, advice from others, recall of previous illness, illness of family member, mass media)

DECISION-MAKING PHASE

ACTION PHASE

Fig. 2. Pender's Proposed Modifications of the Health Belief Model. From Nola J. Pender, Health promotion in nursing practice (East Norwalk, Conn.: Appleton-Century-Crofts, 1982), p. 55. Adapted by permission.

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is shown in Figure 2 of the model. Both the original HBM and this modified Health Belief Model are based on the notion of "value expectancy." It is viewed as a decision model and as such, social learning theory was used for this study. Research in social learning theory concerns itself with the analysis of why individuals behave in certain ways under given conditions and the effects of certain reinforcement patterns on their behavior. Shillinger (1983) provides an overview of Rotter's social learning theory and analyzes the theoretical construct of locus of control. According to Rotter's (1966) social learning theory, individuals develop both a general and specific expectancy about the determinants of the reinforcements they receive. Through a learning process, individuals come to expect that certain outcomes are a result either of their actions or of forces external to them. Locus of control simply refers to individuals' beliefs about whether or not a contingency relationship exists between their behavior (actions) and their reinforcements (outcomes). Through popular use, individuals who tend to expect reinforcements to come from their own behavior have been labeled by Berger (1972) as "internals," and individuals who tend to expect reinforcement or outcomes to relate to forces outside themselves have been labeled "externals." But in its conceptualization, as Lewis, Morisky, and Flynn (1978) pointed out, construct of
locus of control represented the continuum of internality and externality, not a dichotomy.

This theory implies that individuals have a choice as to how they will behave, and before deciding on a particular action they first must consider both their valuation of the outcome (reinforcement value) and their estimation of the likelihood or probability of its occurring (expectancy). In any specific event, persons judge their chances for success by assessing immediate situations (situational expectancy), but they also draw on what they have learned from past situations that seem similar to present experiences (generalized expectancy). Arakelian (1980) supports this notion of generalized expectancy. In fact, she contends that because such generalized expectancies influence perceptions and meanings given to present situations, the importance of the role of generalized expectations in determining behavior becomes apparent.

As a generalized expectancy in social learning theory, locus of control is a relatively stable personality factor developed over time and acquired through a series of many social learning experiences. However, changes in expectancies can be brought about by introducing new experiences that alter previous success and failure patterns. Viewed in this light, the potential exists
for changing a person's locus of orientation (Shillinger, 1983).

Since this study tested predictors such as health locus of control (internal and external resources), satisfaction with health providers (powerful others), perceived barriers (external value expectancy), this theoretical framework served the need of this study.

**Hypothesis**

The hypothesis for this study:

There is a relationship between perceived barriers to health care, health locus of control, satisfaction with health care, and an individual's health care appointment-keeping behaviors.

**Assumptions and Limitations**

It was assumed that clients' health behavior tendencies were representative in their pattern of appointment-keeping.

Any bias due to the researcher's involvement with the studied setting was outweighed by the control measures established for the protection of human subjects in this study.

The study was limited to the population of this setting which was homogeneous in terms of ethnic and socio-economic factors. Further, it was beyond the scope
of this study to deal with the demographic variables of education and marital status, although these may influence appointment-keeping behavior.

Review of Literature

The Health Belief Model has been used to explore several health-related behaviors and their relationship to appointment-keeping behaviors. Relevant findings to the study's purpose have been cited under appropriate subheadings. Additional supportive studies were included in this section.

Lowery (1981) compares Rotter's classical work on social learning theory with the attribution theory approach to understanding causality. Since 1966, locus of control as measured by Rotter's Internal-External (I-E) Scale has been shown predictive of many different dependent variables in both health and non-health situations. However, in many other investigations, locus of control has failed to predict the dependent variable being studied. Therefore, there are limitations to the predictive power of the construct.

Attribution theory is also linked to those of locus of control. For example, each question on the I-E scale can be asked in an attributional way, such as, when something happens to you is it because you are lucky or skillful? The difference between the two lines of thinking
is in the breadth of causal explanations that are addressed in the models. The author concluded that there is no doubt that the locus of control construct has been useful in expanding our understanding of people's responses to health-related events. Meanwhile, she cautioned future researchers to take into consideration misconceptions and limitations of this construct.

Considerable research and theoretical considerations have been written by Wallston and Wallston (1978) in the area of health locus of control. Wallston, Wallston, Kaplan, and Maides (1976) first developed and validated the Unidimensional Health Locus of Control scale, which was used in this study. It was based on the assumption that a health-related locus of control scale would provide more sensitive predictions of the relationship between internality and health behaviors. This instrument is

... an area-specific measure of expectations regarding locus of control and was developed for prediction of health-related behavior. Two experiments show discriminant validity of the HLC in contrast with Rotter's Internal-External Locus of Control scale. (p. 560)

In study one, Health Locus of Control (HLC) internals, who valued health highly, sought more information than other subjects. In study two, subjects in weight-reduction programs consistent with their locus of control beliefs were more satisfied with the programs than were "mismatched" subjects. The 11-item devised scale has a
potential range of 11 to 66. Alpha reliability of the 11 items was .72. Concurrent validity was evidenced by a .33 correlation (p<.01) with Rotter's I-E scale.

Wallston and Wallston (1978) also developed the Multidimensional Health Locus of Control scales (MHLC). These scales have been developed to tap beliefs that the source of reinforcements for health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others. Possible means of utilizing these scales were discussed in this study. Potential users of the MHLC scales are advised to make appropriate choices of scales to suit their purpose. Choices will vary according to one or more of the following factors: (a) the population being studied; (b) the health behavior(s) being investigated; (c) the time available; and (d) the research design. If a more reliable instrument is desired, Wallston and Wallston (1978) indicated that it would be better to omit one of the scales entirely than to alter them by choosing only some of the items from a given form.

A study of consumer attitudes about health care examined the patients' decision to select a source of care. The findings suggested that economic factors are of much less importance to a person's decision to choose or reject the source of care than are the other criteria
associated with that decision, especially the socio-psychological ones. The analysis also suggested that the consumer does seem to know what he wants and that this utilization of health services is related to his values and purposes. He concluded:

The utilization of health services is a function of the patient's satisfaction with those aspects of the care process that matter to him. Therefore, the patient's reaction to the care process is an essential measure of the merit of any given health care delivery system. (Stratmann, 1975, p. 547)

Pender (1975) described the characteristics of those who use preventive health care services as they have been identified in several studies of cervical screenings. The clients tended to be white, married women who had graduated from college and were in the middle to high income groups. She commented that although the number of people using preventive health care services had increased from year to year, many others with adequate and favorable attitudes about prevention did not always put them into action.

Leopold (1974) compared enrollment and utilization of services for two groups of families who were eligible for a neighborhood pediatric program. The study stressed that

Despite popular assumptions of homogeneity, the urban poor present a wide range of family characteristics, problems and resources utilization patterns. This can be attributed to the far greater variability among the urban poor than popular stereotypes would lead one to believe. (p. 346)
This study was based upon the position that human service programs aiming to alleviate the problems of the poor must take a hard, critical look at themselves and not only at their target population.

Aday (1975) in her study on "Economic and Non-economic Barriers to the Use of Needed Medical Services" introduced an index of access to medical care. The findings suggested that the poor continue to use fewer services in relation to disability that they experience than do the non-poor. This study emphasized non-economic barriers, the organizational barriers, such as long waiting times to obtain services and long travel times to the health care facility (Simpkins, 1977).

Green, Kreuter, Deeds, and Partridge (1980) in developing an inventory of preventive and treatment behaviors analyzed behavior in more specific terms. They developed a flow chart of "causation" or transition from the beginning to the end of a behavioral process or event. For example, the "broken appointment cycle" can be analyzed as a series of causes and effects. It is stated that

This level of specificity makes it possible to isolate concrete behavioral events from non-behavioral factors in such a way as to ensure that interventions--educational and administrative--are highly targeted. (p. 58)
The attached flow chart illustrates some of the behavioral and non-behavioral studied factors for appointment-keeping behaviors (see Figure 3).

Within this chapter, background information of the problem, its significance, and the purpose of the study were related. Review of classic studies relevant to the predictors of health-related behaviors with primary consideration of the empirical studies of the Health Belief Model offered an organized framework for this research. In addition, cited studies supported the inclusion of the specific predictor and criterion variables for the study. The following chapter describes the methodological aspects of the study.
THE BROKEN-APPOINTMENT CYCLE

Patient Dissatisfaction

Inadequate Care

Broken Appointments

Inefficient Use of Staff Time

Overscheduling of Appointments

Increased Waiting Time

Decreased Time With Physician

Poor Doctor-Patient Relationship

Fig. 3. Sample Cyclic Graph from Behavioral Diagnosis: Assessing Health Actions, by L. Green, et al., 1980, p. 59. Copyright 1980 by Mayfield Publishing Co., Palo Alto, Calif. Adapted by permission.
Chapter 2

Methodology

Descriptive correlational research is a non-experimental research which aims to describe the relationship among variables rather than to infer cause-and-effect relationships (Polit & Hungler, 1978).

For the purposes of this study, a descriptive correlational design was used to determine the relationship between the three predictors—perceived barriers to health care, perceived health locus of control, and satisfaction with health care—and the criterion variable, the appointment-keeping behaviors of the respondents.

Sample

The target and accessible populations for the study were users of general medical clinics of a local department of public health. In selecting the sample, three factors were considered: (a) the relative homogeneity of the general population of clients seen in this setting; (b) the availability and accessibility of subjects; and (c) the representativeness of the sample in relation to the population to which the researcher wished to generalize findings. A nonprobability purposive sample was chosen. According to Polit and Hungler (1978) in
nonprobability purposive sampling, respondents are selected by nonrandom methods based upon the researcher's knowledge about the population. The authors acknowledged the convenient and economical aspects of a nonprobability sample and recommended the purposive sample with a relatively homogeneous population. Although they cautioned the researcher on the risk of conscious sample biases, the authors point out that the necessity of making individual decisions minimizes the risk of unconscious biases.

In this study, the researcher perceived the clients of the general medical clinic to be representative of the ethnic and socio-economic factors found among adults seen in this primary health care setting. It was assumed that they were utilizing the health department clinics for preventive health services, since such clinics are preventive in scope. The minimum projected sample size was 50 respondents. A total of 63 were sampled. Five respondents were excluded because their individual responses did not meet the set limit of 90% of questionnaire completion. Respondents who did not answer items 3, 4, and 5 in the Personal Information Sheet were excluded also; otherwise the error in the regression analysis would have been higher. A total of six additional participants were eliminated, and a final sample of 52 respondents was accepted.
Setting

The general medical clinic of a local Department of Public Health was used for carrying out the study. This setting was a development of the Model City Program design. Since the 1970's it has been known as the Neighborhood Center and provides comprehensive and continuing general medical services with emphasis on prevention to various adult populations of the community. Important demographic characteristics of this community are cited by the city's Planning Committee (1982) based on 1980 statistics. The census officially placed this community's population at 4,229, a 33% decrease from the 1970 census count. The population is 98% black, and this percentage has not changed since the 1970 census was taken. The average household income is estimated at $10,723, which is 65% of the citywide average of $16,374. It is predominantly a renter community and contains significantly more workers in the lower income occupations. Large sections of the community are fairly stable in spite of recent major redevelopment activities and its high proportion of renters. The data in this survey indicated also that residents of this setting are following trends reflected elsewhere in the city, including fewer children per family and an increasing number of single person households (Berkley Planning Committee, 1982).
The data collection instrument for this research was a self-administered questionnaire. It was designed to examine aspects of the three predictor variables—barriers, health locus of control, and satisfaction—and the criterion variable, appointment-keeping behaviors. Three components of the tool were included.

**Personal Information Sheet.** This was designed by the researcher to collect data pertaining to behaviors specific to utilization of health services, perceived barriers, and various other socio-demographic data (see Appendix D). It is a seven-item questionnaire. Items 3 and 4 provided the data for the appointment-keeping behaviors of the respondents. One year appointment-keeping pattern was calculated for each client using the ratio number of kept appointments/total number appointments made x 100. Item 5 provided the raw data for the perceived barriers. A barrier score ranging from one to five was used for scoring on the basis of the total numbers of perceived barriers by each respondent.

**Health Locus of Control Scale (HLC).** This tool was developed by Wallston and Wallston (1976) and is cited under Review of Literature. It is a published psychosocial instrument with alpha reliability of the 11 items being .72. According to the authors (1976), it is
self-administered and is made up of 11 statements that are designed to elicit information about persons' health-related beliefs. The variable assessed is the kind and extent of control a person thinks he/she has over his/her own state of health. A six-point Likert-type scale is used for scoring responses. A numerical score from one to six was assigned to the six response categories. The responses to questions 1, 2, 8, 10 and 11 were reversed before being added to the responses to the remaining questions. A high score denotes belief in a high degree of external health locus of control, and a low score denotes belief in a high degree of internal locus of control.

**Satisfaction with Health Care Scale.** The scale was developed by the researcher for a previous study (1979) with the assistance of two pre-existing tools and consultation with people having experience in this field. These tools were: Risser's (1975) instrument for measuring patient satisfaction with nurses and nursing care in primary care setting. This instrument has been published in *Nursing Research* (1975) and is listed in *Instruments for Measuring Nursing Practice and Other Health Care Variables* (1979) among the psychosocial instruments with alpha reliability .912; it is cited also in Polit and Hungler (1978) for content and construct validity index based on the positive skewing of the scores.
The second tool was Simkins (1977) graduate study on utilization of preventive health services, both from a client's perspective. Although neither of these tools could be replicated with the population and setting of this clinic, certain concepts and questions were borrowed from both studies. In constructing this scale, items were selected with the purpose of meeting two dimensions—satisfaction with health care and personal qualities of the health providers. For the first dimension, seven questions were borrowed from Simkins' study with minor modifications. These questions examined satisfaction aspects, such as amount of time spent with clients, perceptions of completeness of examination, participation in decision-making regarding their care, provision of privacy, etc. These items are overlapping with Risser's (1975) conceptualization of the technical-professional behavior of the health provider and its impact in the client's care. The second dimension was based on Risser's (1975) concept of client-provider relationships—trusting, educational, and intra-interpersonal relationship (p. 47).

The satisfaction with health care is a 15-item scale with 13 opinion-items which are rated in an ordinal scale from 1 to 5 with 5 the highest satisfaction and 3 neutral. The majority of the statements required a forced choice response. It has a potential range of 13 to 65 with 65 representing the highest level of satisfaction.
Reliability and Validity. The tool was pilot tested with 20 clients of comparable demographic data for instrument clarity and internal consistency. Polit and Hungler (1978) cite the internal consistency approach as the most widely used method among researchers today. This approach is not only economical (it requires only one test administration) but also is the best means of assessing one of the most important sources of measurement error: the sampling of items. Cronbach's alpha was computed separately for each of the two scales. The resulting alpha value for the HLC scale was .616. This was lower than the Wallston and Wallston (1978) studies but nevertheless an indication of a moderate internal consistency. Upon consultation with the research advisor and statistics consultant, it was decided to leave the items intact. The alpha value for satisfaction scale was .926. This obviously indicated that "the test had a high level of internal consistency; and as a result, performance on any item is a fairly good predictor of performance on any other item" (Waltz & Bausell, 1981, p. 189).

The tool was also tested for content validity. Content validity refers to "the degree to which an instrument measures what it is supposed to be measuring . . . and it is concerned with the sampling adequacy of the content being measured" (Polit & Hungler, 1978, p. 445).
Content validity was judged by two nurses who have done research related to client compliance behaviors and by two members of a local health department. Also the questionnaire was discussed with Simkins, whose thesis provided part of the conceptual basis for the item content of this scale. For the readability of both scales, experts in the health education field were consulted. The Gunning's Fog Index was recommended for estimating the readability. The sentences were short; none of the statements had words of more than three syllables; neither were any abbreviations contained in the sentences. The Fog Index was designed for less than fourth grade education (Hoar & Hoar, 1981).

Protection of Human Subjects

The instrument had a cover letter which explained the purpose of the study and the nature of participation (see Appendix B). Respondents were instructed not to put their names on the questionnaire; nor did the tool have a designated space for it. In this way, anonymity was insured. The informed consent form of the Old Dominion University Institutional Review Board, which was used for the study, was designed to ensure protection of the subjects by addressing specific elements. For example, some of them were: explanation of purpose, acceptance of explained risk-benefit ratio and
consequences, confidentiality, freedom to withhold information if it is perceived to be harmful, and the right to contact the Old Dominion University Institutional Review Board for the Protection of Human Subjects (see Appendix C).

Procedures

After the Committee for the Protection of Human Subjects of the Department of Nursing at Old Dominion University approved the research study, a letter requesting permission to carry out the pilot and the actual study at two different departmental settings was addressed to the Health Director through the Nursing Director. The agency was provided with a proposal abstract, the study tools, and the nursing research site approval form. Written permission to use the study site was granted.

Pilot Studies. The site for the pilot study was the General Medical Clinic at the central office of the local Health Department, which was thought to have a similar clientele to the one desired for study. After the agency's approval, previous tentative arrangements with the nursing supervisor of the pilot setting were confirmed and the data collection was started promptly. The researcher met with the charge nurse of the General Medical Clinic, discussed the purpose of the study and the type of clientele needed.
She also obtained the weekly schedule of the clinic. A portion of the clinic waiting room was designated for this study. The questionnaire box was placed by the exit area of this room. In public health uniform, the researcher entered the waiting room, introduced self as an Old Dominion University student and an employee of the health department. She asked to speak with clients other than the new ones in the clinic. Following the explanation of the study, including risks and benefits, volunteer participants were requested to sign the human rights consent form. Once signed, the consent form was detached from each questionnaire, and the participants were asked to follow through with the instructions as the cover letter was read by the researcher. The respondents were encouraged to ask questions concerning instructions or questions for clarity. The researcher made herself available by making periodic visits in the room during the completion of the questionnaire. Survey time ranged from 15 to 20 minutes. The pilot testing of the tool covered a four-week period. Twenty respondents participated in the pilot study. Omitted responses did not exceed the preset 90% limit and all pilot study questionnaires were included in the pilot study. One respondent stated that she was not sure about the meaning of the fifth statement in the HLC scale. Wallston and Wallston (1978) acknowledged that the response scale has a potential source of ambiguity.
for respondents, but in later studies they stated, "If a more reliable instrument is desired, it would be better to omit one of the scales entirely than to alter them by choosing only some of the items from a given form" (p. 168). The review of the questionnaires revealed no adverse comments as to the comprehension of the content of the tool and its readability. As stated under "Instruments," the reliability for both scales was calculated. Coefficient alpha for the satisfaction scale was .926 and HLC scale was .616 for the pilot study. The decision was made to proceed with the actual study.

Data Collection. Upon completion of the pilot testing, the proceedings for the data collection began at the actual study's setting. First, a meeting was arranged with the entire clinic staff including the clinician of the General Medical Clinic. The purpose of the study and the procedure of the data collection were explained. The procedure for the data collection was similar to that of the pilot study. The questionnaire was administered during the five weekly clinic sessions and the clients were approached in groups. Special effort was made to ensure the protection of the respondents. All respondents were advised that they had the right to refuse to participate in the study and that such refusal would not affect the care they received in the clinic. They also were assured that the researcher's employment

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in the setting would not affect their health care regardless of their responses. It was the researcher's personal experience from previous studies, as well as the administrative philosophy of this agency, that the openness and the stated good intent of the staff and the administration to improve the health care services minimized potential psychological threats. Since names were not going to be called from the clinic roster, but the option for participating in the survey was to be given to respondents in the waiting room, anonymity and confidentiality was preserved. Copies of the questionnaire were distributed by the researcher to the respondents. The researcher read the explanation of each subscale and proceeded with the reading of the question due to the varying degrees of literacy among the clients seen in this setting. Then she left the room for the clients to complete the questionnaire. They were instructed to drop it in the designated questionnaire box. The same procedure was repeated during the two-month study period until the projected number of respondents was obtained.

Literature review for statistical methods suggested that the use of multiple correlation and regression strategies permit the inclusion of several predictor variables which improve the predictive value of a model to explain variance in a criterion variable (Daniel,
Based upon the proposed prediction model for the study, multiple correlation and regression strategies were used. The results of the regression analysis and testing of the statistical hypothesis for this study are presented in Chapter Three.
Chapter 3

Results

This research study employed the Health Belief Model (HBM) in order to describe three selected predictors of health-related behaviors of the sample, to determine the ability of these variables, and to predict the respondents' utilization of preventive health services, specifically their appointment-keeping behaviors in a primary health care setting. The selected predictor variables were: (a) perceived barriers to health care; (b) perceived health locus of control; and (c) satisfaction with health care.

Analysis

Descriptive statistics were gathered on the demographic characteristics of the sample. These characteristics were compared with those of other studies. Trends were identified in certain of the demographic variables which may have had an influence on the criterion variable (see Figure 1). Multiple regression analysis was used to determine the support or rejection of the research hypothesis.

Multiple Regression Analysis. The purpose of this analysis was to determine the contribution of the three
selected predictors (independent variables) to the variance of the appointment-keeping behaviors of the respondents (dependent variable). In choosing the predictor variables for the multiple regression equation, the researcher was guided by theoretical and empirical sources. Personal administrative and clinical experiences of the researcher in ambulatory health care settings were also helpful. The null hypothesis was tested first. The optimal predictor set was defined as that "combination of variables which predicts the criterion with a minimum standard error of estimate" (Koerner, 1981, p. 46). The full Multiple Regression Equation (MRE) Model was utilized for the testing of the null hypothesis. The evaluation of the MRE was based upon two factors: (a) the coefficient of multiple determination ($R^2$), and (b) the individual coefficient for each of the independent variables in the equation; the higher the absolute value of the coefficient, the greater the influence in the distribution ratio (that is, the coefficient divided by standard deviation [T-R]). Daniel (1978) defines $R^2$ as the percent number of variability in the dependent variable accounted for by the independent variables adjusted for degrees of freedom. The closer to 1.0 the absolute value of the $R^2$ is, the more significant the regression. The results of the MRE supported the stated research hypothesis: There is a
relationship between perceived barriers to health care, health locus of control, satisfaction with health care, and an individual's health care appointment-keeping behaviors.

Findings

The total sample consisted of 52 adult users of primary health care general medical clinics. Of the 63 respondents, 52 had completed the questionnaire and were included in the analysis of data. The three component parts of the tool—the Personal Information Sheet, the HLC Scale, and the Satisfaction with Health Care Scale—provided the data for the hypothesis testing.

Personal Information Sheet. This was the first component of the tool. Data regarding age, sex, difficulty in getting appointments, length of time attending clinic, health problems and source for information about the clinic were collected from the six forced response questions. These data are descriptive of the demographic profile of the respondents and are presented in Table 1. Age ranged from 19 to 84, with the median age for respondents being 35 to 44. Age group 75-84 had the least numbers of respondents (1). Forty-one of the respondents were female. Difficulty in getting appointments was reported by only one respondent. Length of time attending the health care facility ranged from
| 1. Age:          | Less than 20 | 2/3.84 |
|                 | 20-34        | 19/19.23 |
|                 | 35-44        | 12/23.07 |
|                 | 45-54        | 11/21.15 |
|                 | 55-64        | 5/9.61  |
|                 | 65-74        | 8/15.38 |
|                 | 75-84        | 1/1.92  |

| 2. Sex:         | Female       | 41/78.84 |
|                 | Male         | 11/21.15 |

| 3. Difficulty in Getting Appointments: |
| Yes             | 1/1.92 |
| No              | 51/98.07 |

| 4. Length of Time Attending Health Care Facility: |
| Less than 1 year | 13/25.0 |
| 1-5 years        | 24/46.15 |
| 6-10 years       | 10/19.23 |
| More than 10 years | 5/9.15 |

| 5. Source for Information About the Clinic: |
| Friend          | 32/61.53 |
| Nurse           | 6/11.53 |
| Sent from other agency | 2/3.84 |
| Newspaper       | 1/1.92 |
| Other           | 11/21.15 |

| 6. Health Problems/Reasons for Seeking Care: |
| High Blood Pressure | 33/63.46 |
| Heart Condition     | 4/7.69 |
| Diabetes            | 9/17.30 |
| Need Physical Examination | 29/55.76 |
| Pap Smear           | 21/40.38 |
| Arthritis           | 1/1.92 |

| 7. Race: |
| Black    | 51/98.07 |
| White    | 1/1.93 |

---

*aSome respondents checked more than one source of information and more than one health problem.

*bData from the researcher's personal observation.
less than a year to more than 10 years with the median being 5.5 years. Thirty-nine of the respondents had been attending the clinic longer than a year, and ten respondents, 6 to more than 10 years. Under "source of information about the clinic," friends were the most common source of information. Some respondents checked multiple sources. Health problems accounting for clinic attendance were grouped in six categories. The majority (63.46%) attended the clinic for treatment of hypertension. The second most common reason for attending clinics was physical examinations (55.76%).

Appointmnet-Keeping Pattern. Questions three and four provided the data for the calculation of the appointment-keeping pattern, the criterion variable for this study. Question three concerned the number of appointments made in the last year. Question four provided the number of missed appointments. These data were used to calculate the ratio of appointments kept over the number of appointments made.

Barriers. Question five provided the data for the Barrier index, which was one of the predictors. Scores ranged from a possible 1 to 4 with the specific barriers of transportation, child care (babysitting), finances, and long wait in clinic.

Table 2 represents the frequency of these cited barriers and corresponding percentages of mean scores of
Table 2
Frequency of Perceived Barriers to Health Care and Corresponding Mean Scores of Kept Appointments by Respondents Who Reported Barriers (Absolute Number/Percent of Total Sample) (N=24)\(^a\)

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Respondents</th>
<th>Percent of Kept Appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation(^b)</td>
<td>14/26.92</td>
<td>53.25</td>
</tr>
<tr>
<td>Finances(^b)</td>
<td>6/11.53</td>
<td>60.57</td>
</tr>
<tr>
<td>Babysitter</td>
<td>2/ 3.84</td>
<td>67.50</td>
</tr>
<tr>
<td>Long Wait in Clinics</td>
<td>2/ 3.84</td>
<td>37.00</td>
</tr>
<tr>
<td>Total</td>
<td>24/46.13</td>
<td>54.58</td>
</tr>
</tbody>
</table>

\(^a\)24 of the 52 respondents who were included in data analysis reported these specified barriers. The rest of the respondents reported "not applicable" or simply put a check mark in the barrier column under "other."

\(^b\)Three respondents reported both, Transportation and Finances.
appointments kept by the 24 respondents who reported one or more of these barriers. Transportation was reported most frequently (26.92%), and in three cases in combination with finances. Respondents who identified transportation as a barrier had the lowest percentage (53.25%) of appointment-keeping behavior except for two respondents who identified the long waiting time in the clinic as the barrier. Respondents who did not answer this question concerning barriers were excluded from the study.

**Health Locus of Control (HLC) Scale.** This self-administered tool is a six-point Likert-type scale and provided scores for the 11 items with reverse scoring of the internal direction of 1, 2, 8, and 11 items (see Appendix A). The scores ranged from 28 to 56 with a maximum score of 66 representing high externality. Individual mean scores were used for this predictor in the multiple regression analysis in order to provide more accurate data in cases of omitted responses. The total individual scores were also used for descriptive analysis with measures of central tendency and dispersion of this sample. Frequency distribution and the median score were presented in Table 3. The median was the choice measure of central tendency. This represents the commonly accepted approach used in HLC measure of ranking.
Table 3

Median of Frequency Distribution of HLC Scale Scores of the Respondents (N=52)

<table>
<thead>
<tr>
<th>X₁</th>
<th>f₁</th>
<th>Σf₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>31</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>33</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>36</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>37</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>38</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40</td>
<td>2</td>
<td>3*</td>
</tr>
<tr>
<td>41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>42</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>43</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>45</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>46</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>47</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>52</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>56</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>52</td>
</tr>
</tbody>
</table>

*If x₁ > median = Externals (21)
If x₁ < median = Internals (31)

\[ a_{x_1} \] = i-th observation
\[ b_{i} \] = frequency of \[ x_1 \]
\[ c_{i} \] = summation Sign

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respondents' scores. That is, the higher the score, the more external the individual was considered, and the lower the score the more internal the individual. Table 3 indicates that the median (40.5) divides the 52 respondents into 59.61% internals and 40.38% externals. The HLC external-internal orientation of the respondents is placed in a continuum with more weight towards internal directionality.

A comparative analysis of the HLC orientation with the demographic variables of age and sex is presented in Table 4. Again, both males and females in this sample were skewed toward internality, with 44.23% of the women in the sample (N=23) and 15.23% of men (N=8) being internals. Age category of 35 to 54 had more internals than the other age categories.

Satisfaction with Health Care. This was the third component of the questionnaire and provided scores on an ordinal scale of 1 to 5 for 13 opinion items. The scores ranged from 37 to 65, with 65 being the highest possible score on this scale. Respondents who scored above 3, which was assigned as a neutral response, were classified as satisfied with the care they received. Respondents who scored below 3 were classified as dissatisfied. A comparison of the two dimensions of this scale—satisfied and dissatisfied—is presented in Table 5. Of the
Table 4
Comparative Analysis of the HLC Orientation with Demographic Variables and Appointment-Keeping Behavior (Absolute Number/Percent)

<table>
<thead>
<tr>
<th>HLC Dimensions</th>
<th>Sex</th>
<th>Age</th>
<th>Percent of Appointments Kept</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>&lt;35</td>
</tr>
<tr>
<td>Internals</td>
<td>8/15.38</td>
<td>23/44.23</td>
<td>8/15.34</td>
</tr>
<tr>
<td>Externals</td>
<td>3/5.76</td>
<td>18/34.61</td>
<td>6/11.53</td>
</tr>
</tbody>
</table>
Table 5

Descriptive Analysis of the Respondents for Satisfaction with Health Care
(Absolute Number/Percent of Total Sample)

<table>
<thead>
<tr>
<th>Satisfaction Scale Dimensions</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>51/98.08</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>1/1.92</td>
</tr>
<tr>
<td>Total</td>
<td>52/100</td>
</tr>
</tbody>
</table>

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respondents sampled, 98.08% were reported as satisfied. On Table 6, the high level of satisfaction was represented by the mode (5) of frequency distribution of the respondents. The mode of frequency distribution was chosen for this scale due to the extreme unidirectionality of the responses.

**Full Multiple Regression Equation Model.** The first analysis of variance with full multiple regression equation model supported the research hypothesis. The three predictors for the criterion variable, appointment-keeping behaviors, were included. Table 7 indicates that the null hypothesis was rejected at the .01 level, that \( p < .01 \), while the set level for significant difference was .05. The computed F ratio (\( F \)) of 12.56 at 3 and 48 degrees of freedom was significantly higher than the critical value of 4.73 at the .005 significance level, that is \( p < .005 \). The coefficient of multiple determination (\( R^2 \)) also indicated that 44% of the total variation in the criterion variable values of appointment-keeping behavior was accounted for by the three predictors—barriers to care, perceived health locus of control, and satisfaction with health care. It was concluded, therefore, that there is a significant relationship between the three combined predictors and the appointment-keeping behavior.

According to the positive or negative coefficient of the independent variables in the equation and the completed
Table 6

Mode of Frequency Distribution of the Satisfaction Scale of the Respondents

<table>
<thead>
<tr>
<th>$x_1^a$</th>
<th>$f_1^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>424</td>
<td>5</td>
</tr>
<tr>
<td>114</td>
<td>4</td>
</tr>
<tr>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

$^a_{x_1} = i$-th observation

$^b_{f_1} = \text{frequency of } x_1$
Table 7
Multiple Regression Analysis Using the Full Multiple Regression Equation Model (MRE)

\[ * \text{MRE: } Y = 95.0 - 5.65X_1 + 4.22X_2 - 25.0X_3 \]

ANOVA Table for Full MRE Model

<table>
<thead>
<tr>
<th>Source of Variation for the 3 Predictors</th>
<th>SS</th>
<th>D.F.</th>
<th>MS = SS</th>
<th>V.R. (F)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Regression</td>
<td>14327.6</td>
<td>3</td>
<td>4775.9</td>
<td>12.56</td>
<td>.005**</td>
</tr>
<tr>
<td>Residual</td>
<td>18243.2</td>
<td>48</td>
<td>380.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32570.8</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ Y = \text{Appointment-Keeping Behavior} \]
\[ X_1 = \text{Health Locus of Control} \]
\[ X_2 = \text{Satisfaction with Health Care} \]
\[ X_3 = \text{Barriers to Health Care} \]

**Significant difference at \( a = .05 \)
coefficient/standard deviation (T-R) in the multiple regression analysis, the following relationships between individual predictors and appointment-keeping behavior have been identified:

(a) A positive or direct linear relationship exists between the predictor—satisfaction with care—and appointment-keeping behavior. Thus, the greater the satisfaction, the higher the percentage of kept appointments. This relationship, however, was not significant at the $a = .05$ (see Table 8);

(b) A negative or inverse linear relationship exists between the predictor—Health Locus of Control—and appointment-keeping behavior. Since the high scores in the HLC scale indicate externality, it was assumed that the greater the externality of the individual, the lower the percentage of kept appointments. This relationship was not significant at .05 level (see Table 8);

(c) A negative inverse relationship exists between predictor—barriers to care—and appointment-keeping behavior, and as such, the higher the number of barriers, the lower the percentage of appointment-keeping behavior. This relationship was highly significant at the .01 level of significance (see Table 8).

**ALL Possible Regression Model.** It was previously stated that, if a situation in which the full MRE model has reached the prescribed level of significance ($p<.05$),
Table 8

Further Analysis of the Full MRE Model Including the Sample Coefficient of Determination Measures and T-Ratio for the Three Individual Predictors

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$R^2$</th>
<th>df</th>
<th>T-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Locus of Control ($X_1$)</td>
<td>.074</td>
<td>48</td>
<td>-1.21*</td>
</tr>
<tr>
<td>Satisfaction with Health Care ($X_2$)</td>
<td>.001</td>
<td>48</td>
<td>0.72*</td>
</tr>
<tr>
<td>Barriers to Health Care ($X_3$)</td>
<td>.417</td>
<td>48</td>
<td>-5.59**</td>
</tr>
</tbody>
</table>

* $p > .05$
** $p < .005$
a step-wise All Possible Regression Model will be used to test, individually and combined, the independent variables. Tables 7, 8, and 9 indicate that the Barriers ($x_3$) had the highest regression weight in the equation with the $R^2$ (.417) accounting for 41.7% variability of the appointment-keeping behavior in this sample. Thus, barriers accounted for the highest predictive value in accounting for the total variation in the criterion variable. This predictor, in the coefficient of multiple determination and as single and combined variable in the stepwise multiple regression analysis, had the highest $R^2$ (.417) and the highest absolute value of individual coefficient among each of the independent variables. HLC $R^2$ (.074) accounted for 7.4% of the total variability. In satisfaction with health care in this setting had no significant predictive value for the criterion variable. The $R^2$ (0.1) accounted only for .001%.

Additional descriptive statistics regarding variables in hypothesis and a comparative analysis of the criterion variable and the demographic variables of age and sex are presented in Tables 10 and 11.

In general, the results in this study supported the research hypothesis through the null hypothesis testing. The predictive value of the three predictors was estimated. Also, a comparative descriptive and multiple regression analysis were presented. Conclusions drawn from data analysis and the research design as implemented are discussed in the following chapter.
Table 9
Stepwise Multiple Regression Analysis Using the All Possible Regressions Model

<table>
<thead>
<tr>
<th>Step Number</th>
<th>Component(s) Entered</th>
<th>R</th>
<th>R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barriers Index ((X_3))</td>
<td>.645</td>
<td>.417</td>
<td>35.82*</td>
</tr>
<tr>
<td>2</td>
<td>HLC Scale ((X_1))</td>
<td>.270</td>
<td>.074</td>
<td>3.98**</td>
</tr>
<tr>
<td>3</td>
<td>Satisfaction Scale ((X_2))</td>
<td>.031</td>
<td>.001</td>
<td>.041**</td>
</tr>
</tbody>
</table>

* \(p<.005\)
** \(p>.05\)
Table 10
Comparative Analysis of the Appointment-Keeping Behavior for Age and Sex (Percent Measures)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>&lt;35</th>
<th>35-54</th>
<th>55-64</th>
<th>65-84</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment-Keeping Behavior</td>
<td>86.66</td>
<td>67.91</td>
<td>67.42</td>
<td>72.00</td>
<td>68.00</td>
<td>72.53</td>
</tr>
</tbody>
</table>
### Table 11

Descriptive Statistics for the Variables in Hypothesis (Absolute Number/Percent)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>Maximum Possible Score</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Locus of Control</td>
<td>28-56</td>
<td>66</td>
<td>34.21</td>
<td>4.65</td>
</tr>
<tr>
<td>Health Care Satisfaction</td>
<td>37-65</td>
<td>65</td>
<td>51.21</td>
<td>5.87</td>
</tr>
<tr>
<td>Barriers to Health Care</td>
<td>0-3</td>
<td>4</td>
<td>.75</td>
<td>4.47</td>
</tr>
<tr>
<td>Appointment-Keeping Behavior</td>
<td>0-100</td>
<td>100</td>
<td>73.5</td>
<td>19.50</td>
</tr>
</tbody>
</table>

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Chapter 4

Discussion

The theoretical framework of the Health Belief Model (HBM) was the basic structure of this study. This is a conceptual model for preventive health behavior; it is a decision-making model based on social learning theory with emphasis on Rotter's (1966) theoretical construct of locus of control.

The purposes of this descriptive correlational study were to gain insight into specific predictors which could influence the respondents' decision and likelihood of using the adult General Medical Clinics of a primary health care setting, to describe and compare characteristics of the respondents in the study, and to explain individual variations in the appointment-keeping behaviors.

The tool cited in the study was a self-scored questionnaire which was designed to collect selected demographic data and to measure satisfaction with health care, the respondents' internal-external orientation of Health Locus of Control (HLC), and the perceived barriers to health care. A single research hypothesis was developed relating to appointment-keeping behaviors of the respondents to the three predictors.
Conclusions

Data on the study variables were collected on a nonprobability, purposive sample of 52 users of the adult General Medical Clinics in a primary health care setting. The accessible population was a relatively homogeneous group; ages 35 and older, largely members of similar socioeconomic class, of varying degrees of literacy, and representative of a single racial minority. Several clients, mostly elderly, declined to participate, making statements such as, "I forgot my glasses," and "Let my wife do it for me." Women seemed more eager to participate and made frequent inquiries into the study's results. The percentage of not-kept appointments (27%) by the respondents was comparable to the lower non-adherence levels reported in the literature and the agency's monthly and annual reports. In Table 10, the comparative analysis of the appointment-keeping behaviors for age and sex categories was congruent with those of other studies; that is, individuals in extreme age groups and females have been shown to be positively correlated with higher use of health services (Pender, 1982, p. 51).

Additional sociodemographic data such as convenience of getting appointments in this setting, length of time attending the health care facility, source for information about the clinic, reasons for seeking care and race were collected and presented in Table 1.
While the consideration of these factors was beyond the scope of this study, they may very well have affected the appointment-keeping behavioral process of the respondents. For example, convenience of getting appointments in this setting, the social pressure from peers and family, prior contact with the health care facility, and perceived susceptibility and severity to their reported diseases such as hypertension and diabetes have been cited in the HBM as powerful motivational forces at the decision-making and action-taking phase for preventive health behaviors including clinic attendance (Becker, 1977, p. 35).

Prior to hypothesis testing, the researcher was interested to find out whether the reliability of the HLC scale items of the sample was different from those of the pilot study and of the original study (Wallston, et al., 1976). The Cronbach's alpha for internal consistency was calculated and the resulting alpha was .316. While this contrasts with the alpha reliability of .72 reported for the original Wallston HLC scale and with the alpha of .616 in the pilot study, previous studies reveal a consistent problem with low alpha coefficients. Wallston, et al. (1979) have acknowledged potential sources for ambiguity. Possible reasons for such ambiguity and low alpha reliability include: (a) the
homogeneity of samples (only college students were used in one study), and (b) person-item response inconsistency, such as the responses of "moderately disagree" and "slightly agree," which have the same connotation. They suggest a five-point rather than a six-point response scale in future studies in order to provide a more specific measure of information relevant to the HLC construct (DHEW Publication, 1979, p. 155).

Lewis and Morisky (1978) studied the effects of self-reported compliance for a predominantly female, black, low-income sample of hypertensive patients by using the HLC scale. They too reported a low alpha reliability (.36). Deletion of single items from the scale did not appreciably raise the alpha coefficient. They assumed that this problem was possibly due to the conditions of administration and to their homogeneous population (p. 145).

The fact that this sample consisted largely of a single racial group and was homogeneous in terms of socioeconomic background may account for the low alpha. Despite the limitations identified, it was decided that for the purposes of this study, the HLC scale would be included in the multiple regression analysis as it was planned in the methodology of the study. The rationale for this decision was based on increased predictive
value of this construct when multiple variables are included (Lowery, 1981, p. 294).

**Research Hypothesis.** The results of the multiple regression analysis supported the hypothesis of this study. A significant relationship was found between all three of the predictors and the criterion variable, appointment-keeping behaviors. Further multiple regression analysis using the All Possible Regression Model was pursued. The three predictors used in the All Possible Regression analysis determined the contribution of the largest component of the three selected predictors to the variation in the criterion variable values.

Barriers \((x_3)\), as the single predictor variable, was the largest contributor \((44.0\%)\) to the variance in the appointment-keeping behaviors, the criterion variable. The health locus of control \((x_2)\) was the second largest contributor \((7.4\%)\) but showed no statistical significance in the hypothesis testing. Satisfaction with the health care provided a negligible contribution \((0.001\%)\) in predicting the appointment-keeping behaviors of the respondents. Thus, while a significant relationship was found between all three predictors and the appointment-keeping behaviors of respondents, perceived barriers proved to be the major predictor of appointment-keeping behaviors.
Recommendations

The perceived barriers to health care appeared to be the best predictor for clinic attendance in this study. This suggests that health care providers in ambulatory settings should seriously consider the effects of this variable in their health care planning. While this predictor is placed in the action phase of the model, consideration of potential barriers and plans to minimize their impact should also become an integral part of the decision-making phase. For example, the four perceived barriers reported by the respondents in this setting might be minimized with more communications among staff, clients, and transportation coordinator, and through a more efficient appointment-monitoring system. Public transportation and the setting's available vehicle for the needy client may not have been utilized effectively. The public transportation does not go directly to the setting or at least through that community; instead, the bus follows a long route through the main city with medical centers and clinics nearby. As a result, many clients may have chosen other, more convenient health care agencies while the available health care services of this setting within a radius of less than two miles are under-utilized. Financial barriers may not be eliminated completely, but could be alleviated through exploration
of eligibility for clinical and other support services. Although "Long Wait in Clinics" is often reported as a long-standing problem in the clinics, enforcement of a staggered appointment system or improved patient flow efficiency may reduce the waiting period.

Strategies for decreasing such barriers have been suggested: (a) Present findings to the administration, community leaders, city management, and consumer advisory committees. (b) Establish a monitoring appointment system. Current chart documentation of appointment-keeping is neither consistent nor adequate for establishing baseline patterns of appointment-keeping behaviors. Since continuous practice of health-related behaviors requires periodic reinforcement, the development of a monitoring system, computerized or manual, could serve as an external intensified cur for such health-related action (Pender, 1982, p. 51). (c) Develop a mechanism or utilize currently available computer programs for patient flow analysis in order to identify promptly and possibly eliminate barriers to patient clinic flow; and (d) Explore the efficiency of staffing patterns at various clinic stations.

The predictor of perceived Health Locus of Control showed no statistical significance for predicting the criterion variable of appointment-keeping behaviors.
Nevertheless, the inverse relationship which was identified in the multiple regression analysis supports the findings of similar studies. That is, people with internal locus of control orientation tend to engage more frequently in health-related behaviors than those with the external orientation (Pender, 1982, p. 57; Wallston, et al., 1976). This trend was also observed in the descriptive comparative analysis of the HLC orientation and of the appointment-keeping behaviors of the respondents. Table 4 shows that the internals had a higher percentage of kept appointments than the externals. Additional descriptive statistics in Tables 4 and 10 indicate that the findings of this study in terms of the demographic variables of age and sex are consistent with several of the HBM studies. The females and the 35-54 age group demonstrated an internal orientation. Also, the individuals under 35 and over 65 had the highest percentage of appointments kept which supports the identified trend reported earlier (Becker, et al., 1977; Pender, 1982; Rosenstock, 1975). Although these findings cannot be interpreted in terms of cause-effect relationships, it would be safe to assume that the compliance trend demonstrated by the extreme ages in this study might have been due to the dependency needs of these groups, which is characteristic at these
developmental stages. Other trends of potential significance surfaced in this study and were in a previous descriptive study carried on by the researcher in a similar health care setting. These were the increased preventive health behaviors of the black women and the shifting from the external health locus of control orientation of the black population coming from low socioeconomic communities. Possible explanations are: (a) The increased opportunity for personal control in their choice of health care through their medical assistance program which offers them the option to choose private or public health care agencies; (b) increased emphasis on prevention of illness and healthy lifestyles congruent with the individual's and group's culture through multiple and accessible media; (c) the human rights movement of the last half-century is assumed to have contributed toward the behavioral and attitudinal changes of the recipients of health care, as well as of the providers; (d) the increased positive self-concept of the black women as evidenced from their wide participation in community activities, the educational and professional achievements, and the refusal of several young black women to accept social service assistance, preferring employment and further educational opportunities; and (e) the establishment of eligibility payment
system within the public agency has somewhat neutralized
the indigent stigma effect of these services.

While the nonsignificant results of the HLC scale and
its low alpha severely limits the generalizability of
the findings, the potential implications for nursing
practice have promise. Shillinger (1983) acknowledges
the limited value of the HLC scale at the present, but
asserts that this tool can lend a valuable insight into
the decision regarding the most effective nursing
approach with clients displaying various health behaviors.
In her illustration of the utility of the HLC scale and
its concepts in clinical practice, Shillinger offers
several suggestions, such as: When eliciting clients'
descriptions of themselves as "generally healthy" or
"generally ill," one is given an indication of their
perceived place on the wellness-illness continuum. By
incorporating a locus of control measure into health
care, she cautions that the purpose is not to label
clients as internal or external but rather to gain some
insight into their orientation on the I-E continuum and
facilitate intervention effectiveness (p. 61).

Satisfaction with Health Care was the third predictor
of this study. As previously mentioned, this predictor
had no statistical significance for this study in spite
of the high level of satisfaction reported by the
respondents and the fact that this predictor previously has been highly correlated with clinic attendance and other health-related behaviors in numerous studies (Maiman, 1980; Stratman, 1975). Possible explanations for the findings of this study could be: (a) The sample might have been representative only of people who had a history of clinic attendance; (b) the respondents' effort at achieving cognitive balance or inability of the measures to adequately discriminate between various health beliefs and the influence of different combinations of beliefs on health-related behaviors (Maiman, 1981, p. 71); and (c) the tool might not have included certain dimensions of satisfaction important to the client. However, the high level of satisfaction could be considered as a valuable criterion for the quality care the client perceives to receive at any given health care agency.

**Design and Tools.** The correlational design was helpful in collecting considerable data concerning the three predictors and certain demographic characteristics of this sample. It explained each of the three predictors and the criterion variable and served the purpose of the study. Problems associated with this design were those of the anticipated ones due to the nature of the descriptive correlational designs and the newness of the tool.
The format of the tool should be refined. For future studies, the personal information sheet could be expanded to include the socio-demographic variables of education and family support systems. These are highlighted in literature as significant predictive contributors to the variability of the criterion variable, the health related behaviors.

Concerning the examined barriers in this study, the design included primarily barriers of external nature whether these were perceived or real barriers. Literature suggests that the interaction of these barriers with barriers of internal nature, such as perceptions of inability to follow through with health recommendations, may influence the client's readiness to act. Thus, expanding the barrier index to include such variables may lead to more differentiation and instrument clarity.

More data concerning the appointment-keeping behaviors would be helpful. Cross-validation of self-reported behaviors with corresponding records documentation would be useful. These data were not collected, since a consistent appointment-monitoring system has not been established.

The second component, the HLC scale, and the rationale for inclusion in this study was discussed earlier in this chapter. For future use, the researcher's recommendations are to test the scale with more heterogeneous populations.
and to employ a five-point rather than a six-point response scale as suggested earlier.

The third component, Satisfaction with Health Care, is a newly developed tool as described in "Methodology." In spite of the consistent results of this scale in two different settings, the researcher believes that the dimensions of satisfaction may not be adequately differentiated. In an attempt to maintain brevity and ease of administration for the accessible population, items which may have elicited better discriminatory responses were omitted. For client satisfaction studies, it may be more meaningful to develop or utilize existing tools which address clients' perceptions of aspects of health care in terms of congruency between relative importance of these aspects and actual satisfaction with the aspects of health care.

An overview of the appointment-keeping behavioral process in this study points to a series of contributory factors; from the beginning, when the need was defined, to the end, when the outcome or behavior occurred according to the respondents' expectancies. Statistical analysis was limited to only three factors which accounted for 44% of the total variability. The remaining 56% of the variance in this health-related behavior of these respondents remains an empirical question for future research.
As for the theoretical framework of the HBM, the researcher proposes an unlimited potential for expansion of the model and its usefulness for theory testing and development, not only by nursing but by other disciplines as well.
BIBLIOGRAPHY


APPENDIXES
APPENDIX A

HEALTH LOCUS OF CONTROL SCALE ITEMS
HEALTH LOCUS OF CONTROL SCALE ITEMS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I take care of myself, I can avoid illness.</td>
<td>I</td>
</tr>
<tr>
<td>2. Whenever I get sick, it is because of something I've done or not done.</td>
<td>I</td>
</tr>
<tr>
<td>3. Good health is largely a matter of good fortune.</td>
<td>E</td>
</tr>
<tr>
<td>4. No matter what I do if I'm going to get sick, I will get sick.</td>
<td>E</td>
</tr>
<tr>
<td>5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings.</td>
<td>E</td>
</tr>
<tr>
<td>6. I can only do what my doctor tells me to do.</td>
<td>E</td>
</tr>
<tr>
<td>7. There are so many strange diseases around that you can never know how or when you might pick one up.</td>
<td>E</td>
</tr>
<tr>
<td>8. When I feel ill I know it's because I'm not getting the proper exercise or eating right.</td>
<td>I</td>
</tr>
<tr>
<td>9. People who never get sick are just plain lucky.</td>
<td>E</td>
</tr>
<tr>
<td>10. People's ill health results from their own carelessness.</td>
<td>I</td>
</tr>
<tr>
<td>11. I am directly responsible for my health.</td>
<td>I</td>
</tr>
</tbody>
</table>

I = Internally worded; E = Externally worded. The scale is scored in the external direction with each item scored from 1 (strongly disagree) to 6 (strongly agree) for the externally worded items and reverse scored for the internally worded items.

REQUEST FOR INFORMATION

Dear Client:

This is to inform you that this survey is designed to find out what people believe about health. Also, it seeks to learn what kinds of things clients like or don't like about the health care they receive.

The information may help to use the available services more effectively and to improve the health care you now receive. There is no risk involved except for the inconvenience of completing the questionnaire. Confidentiality will be maintained throughout the study and in my presentation of data.

It will involve approximately 15 to 20 minutes of your time while you are waiting in the clinic.

If you are willing to participate, please sign the consent form and complete the questionnaire. Please return it in the designated box.

Sincerely,

Ruth Campau, R.N.
Graduate Student
Old Dominion University

RC:1gt
QUESTIONNAIRE

Personal Information Sheet

I. Directions: Please answer the following questions by placing a mark (x) beside the answer which best expresses your knowledge.

AGE:_________  SEX:  Male _____  Female _____

1. Length of time that you have been coming to this clinic:
   _____Less than one year
   _____Between 1 to 5 years
   _____Between 6 to 10 years
   _____Over 10 years

2. Did you have difficulty getting appointments:
   Yes____  No _____

3. How many appointments did you have during the last year?  (Write Number):_____

4. How many appointments you were not able to keep during the last year?  (Write Number):_____

5. Which of the following kept you from coming for your appointment:
   _____Transportation  _____Finances (Money)
   _____Child care (babysitting)  _____Long wait in clinic
   Other (explain)____________________________________________________

6. Your coming to the clinic is for one or more of the following:
   _____High blood pressure  _____Need physical examination
   _____Heart condition  _____Pap smear
   _____Diabetes  _____Other (specify) _______
   ________________________________________________

7. How did you find out about the clinic?
   _____Friend  _____Nurse
   _____Sent from other agency  _____Newspaper
   _____Other (specify)______________________________________________

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II. Directions: The following are belief statements related to important health-related issues. There is no right or wrong answer. Please circle the number that represents the extent to which you disagree or agree with the statements.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>If I take care of myself, I can avoid illness.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<td>Good health is largely a matter of good fortune.</td>
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<td>4</td>
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<td>No matter what I do, if I'm going to get sick, I will get sick.</td>
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<td>5</td>
</tr>
<tr>
<td>5.</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<td>There are so many strange diseases around that you can never know how or when you might pick one up.</td>
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<td>3</td>
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<td>5</td>
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<tr>
<td>8.</td>
<td>When I feel ill I know it is because I'm not getting the proper exercise or eating right.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>People who never get sick are just plain lucky.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10.</td>
<td>People's ill health results from their own carelessness.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11.</td>
<td>I am directly responsible for my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
DIRECTIONS: Below are questions related to your personal satisfaction with clinic services and its health care providers. Please circle the answer which best expresses your feelings.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In your opinion are you provided personal privacy in this clinic?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The amount of time spent with you by the health workers, is it enough?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Do you feel the health workers' examinations are thorough enough?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Are you allowed to participate in decisions about your health care?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Are examination results, treatments to be given, and referrals made to other places explained to you by the worker in a way that is easy for you to understand?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Are you allowed to ask questions of the health workers?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. If you are allowed to ask questions, how often are the questions answered to your satisfaction?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Are the health workers warm and friendly?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Do you feel that the health workers seem willing to spend time listening to your problems?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Do they appear to try to understand your problems?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
11. Do the health workers give you information on how to stay healthy?  
   Never 1 2 3 4 5
12. Are you treated by the health workers with respect and dignity?  
   Never 1 2 3 4 5
13. Do the health workers take personal interest in you as an individual?  
   Never 1 2 3 4 5
14. How does this clinic compare with other clinics you have used:
   _____Better than other clinics
   _____Worse than other clinics
   _____Better in some ways; worse in other ways
   _____Same as other clinics
   _____I have never been to another clinic.
15. Would you recommend this clinic to friends?  _____Yes  _____No

Thank you very much for the time and your help.
APPENDIX C

INFORMED CONSENT FORM
OLD DOMINION UNIVERSITY

INFORMED CONSENT FORM

Project Name: ________________________________

Investigator(s) ________________________________

DATE: __________________

This is to certify that I, ________________________________, hereby agree to participate as a volunteer in a scientific investigation as a part of the educational and research program of Old Dominion University, under the supervision of ___________________________.

(Faculty Person/Principal Investigator)

The investigation and the nature of my participation have been described and explained to me, and I understand the explanation. (See attached one page abstract.) I understand that I am one of ____ individuals participating in this research project. I further understand that I may withdraw from the project at any time, without penalty or prejudice.

I have been afforded an opportunity to ask questions concerning the purpose of this project and all such questions have been answered to my satisfaction. I understand that should I have additional questions in the future about this project or the manner in which it is conducted, I may contact __________________ at ________.

(Faculty Person/ Principal Investigator Number Telephone)

I understand that I am free to withhold any answer to specific items or questions in any questionnaire submitted to me for this project. I understand that any data or answers to questions will remain confidential with regard to my identity. I further understand that no data which can be identified with me will be released to persons outside the research team without the team first obtaining my written permission.

I acknowledge that I was informed about any possible risks to my health and well being that may be associated with my participation in this research (see attached abstract). I understand that no medical or psychological assistance will be made available to me by either Old Dominion University or any member of the research team as a result of any physical or emotional harm I may experience as a result of this research project.
I acknowledge that I have been advised of how I may obtain a copy of the results of this research project and that upon my making such a request, a copy will be provided without charge.

I have been informed that I have the right to contact the Old Dominion University Institutional Review Board for the Protection of Human Subjects should I wish to express any opinions regarding the conduct of this study. I further understand that all or a portion of the records concerning this study may be reviewed by the U.S. Food and Drug Administration.

______________________________ Date:_______________
Signature of Volunteer

Witnessed by:____________________________ Date:_______________
APPENDIX D

COPYRIGHT HOLDERS' CONSENTS
March 5, 1984

Ms. Ruth L. Campau
1969 Kingston Ave.
Norfolk, VA 23503

Dear Ms. Campau:

This is in response to your request of March 3. Mayfield is happy to grant you permission to reproduce Figure 4.3, the Broken Appointment Cycle, from Health Education Planning: A Diagnostic Approach, by L. Green, et al. in your master's thesis.

Please give credit to the author, title, and publisher. If at any time in the future you plan to have your thesis published, a new permission request must be obtained.

Sincerely,

Pamela G. Trainer
Rights & Permissions Editor

PGT/ei

Telephone 415 326-1640
March 3, 1984

Appleton-Century-Crofts
25 Van Zant Street
East Norwalk, CT 06855

Dear Publisher:

I am requesting permission to reproduce FIGURE 3-2 Pender's Proposed Modifications of the Health Belief Model on Page 55 from her book *Health Promotion in Nursing Practice*, Nola J. Pender, 1982. It will be used for my master's thesis which will be an unpublished paper, bound and included in the University Library. I am a graduate nursing student at the Old Dominion University pending an oral defense of my thesis. I plan to graduate in May, 1984.

I am eagerly awaiting your prompt response. For your convenience I am enclosing a self-stamped envelope.

Sincerely yours,

Ruth L. Campau

[Permission granted]

Raymond Lams, Pres.
3-7-84

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