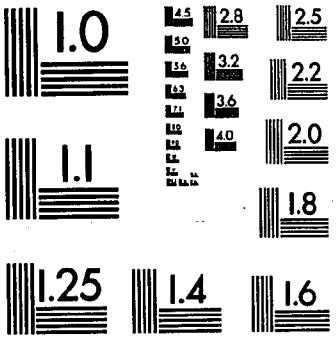

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Keeby-Richardson, Gwendolyn

SOCIOPSYCHOLOGICAL DETERMINANTS OF BREAST SELF-EXAMINATION

City University of New York PH.D. 1985

SOCIOPSYCHOLOGICAL DETERMINANTS OF BREAST SELF-EXAMINATION

by

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A dissertation submitted to the Graduate Faculty in Sociology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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Abstract

SOCIOPSYCHOLOGICAL DETERMINANTS OF
BREAST SELF-EXAMINATION

by

GWENDOLYN KEEBY RICHARDSON

Adviser: Professor Samuel Bloom

The central objective of this study is to examine the influence of psychological and social determinants upon a specific type of widely publicized preventive health medicine, self-examination for breast cancer. A decision to examine or not to examine the breasts reflects attitudes and beliefs which occur within and are shaped by social, cultural, economic, and historical circumstances. Thus, the approach employed in this study may be viewed as a synthesis of different approaches, each of which has itself proved useful in explaining compliance and preventive health behavior. It is hypothesized that the practice of breast self-examination is influenced by a woman's estimate about the efficacy of breast self-examination and the curability of breast cancer. In addition, it is assumed that

interpersonal influence may motivate a woman to examine her breasts. But motivation is not enough, a woman must also know how to go about examining her breasts, know what signs and symptoms to look for. Such knowledge, accordingly, is taken into account. It is reasonable to assume that the idea of breast self-examination itself can indirectly or directly be a source of anxiety, thereby arousing conflicting motives of avoidance. Therefore, anxiety associated with breast cancer is considered as a potential barrier to breast self-examination. The conclusions reached are: physicians' influence is the major determinant of breast self-examination. Further, physicians are an important link between breast self-examination and other factors (such as anxiety and information) that affect it. Anxiety leads to avoidance. As the levels of knowledge increase so does the frequency of practicing breast self-examination. Neither the value of early detection in the cure of breast cancer nor a belief in the efficacy of breast self-examination has an effect on the practice of BSE.

To My Parents

For All The
Love, Warmth and Comfort
They Provided Throughout The Years

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I would like to express my appreciation to Dr. Samuel Bloom for his constructive criticism and skillful guidance. Sincerest appreciation is extended to Dr. Arnold Simmel for the unending high quality of assistance throughout the initiation, execution, and completion of this research project. He was never too busy to devote time to questions I had. I have long been impressed by his dedication to students; his role in this endeavor did serve to reinforce my feelings of admiration for him. The other members of my committee, Dr. Charles Kaudshin and Dr. Aubrey Bonnett, are thanked for their assistance and advice which helped to make this study as complete as possible.

Finally, I would like to thank my family and friends for their support and encouragement.

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INTRODUCTION

Breast cancer has caused considerable alarm and concern in the nation's female population. Approximately 109,000 cases of breast cancer are discovered each year; it occurs more than any other form of cancer among American women. Also, it is the chief cause of cancer death among American women. In 1984, an estimated 36,000 women died from the disease. Breast cancer cannot be prevented, but when diagnosed and treated promptly, the rate of cure is high. Five years after diagnosis, 85 percent of the women treated for the disease, when it was localized, show no evidence of the disease (American Cancer Society 1984).

One symptom of breast cancer, the presence of breast lumps, is easy to detect; a woman can detect it herself. According to the American Cancer Society, 90 percent of breast lumps are discovered by women themselves. However, not all lumps are cancerous. The majority of lumps that are found are not malignant.

The central objective of this study is to examine the influence of psychological and social determinants upon a specific type of widely publicized preventive health medicine, self-examination for breast cancer. According to

Last (1982), "preventive medicine is the branch of medicine that is primarily concerned with preventing physical, mental, and emotional disease and injury, in contrast to treating the sick and injured." Moreover, preventive medicine is thought of as having three components: (1) primary, (2) secondary, and (3) tertiary. Primary prevention means to prevent a disease from occurring such as immunization against mumps. Secondary prevention means the early detection of a disease and intervention. The purpose is to reverse, halt or retard the progress of a condition. Tertiary prevention means minimizing the effects of disease and disability by surveillance and maintenance aimed at preventing complications and premature deterioration, for example, the care of pressure points and bladder function in paraplegia. Clearly, breast self-examination fits the second category: it does not prevent breast cancer, but it can detect the disease while it is localized to the breast.

Statement of the Problem

There are three techniques available to detect cancerous lumps early in the breasts. They are (1) examination by hand, (2) mammography, and (3) thermography. Of these three techniques, the most commonly used, the most well publicized and most widely known is the examination by hand. Breast examination is a simple painless procedure which can be performed by the woman herself, or by the physician. It

has been reported by Gallup (1980) that a large proportion of women do not examine their breasts. This is so in spite of the fact that breast self-examination is known to the majority of women, and the danger of breast cancer is worrying to many. If the possibility of a "most alarming" disease does not result in a simple preventive behavior, it calls into question the rational model of health-related behavior.* If reason is not sufficient to motivate women to examine their breasts, what, then, are the conditions under which they will do so? This is the central question of this study.

Investigators have sought to explain preventive health behavior by a variety of arguments (economic, sociodemographic, cultural, and motivational). No such single factor explanation can give a completely satisfactory solution to a question so clearly multicausal as "why do some people and why do others not engage in a particular health activity?" A decision to act, or not to act, occurs within and is shaped by social, cultural, economic, and historical circumstances, as well as personal attitudes and beliefs. Thus, it seems fruitful for researchers to employ a multiple factor approach in studying preventive health behavior, recognizing that no set of available data is likely to include

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*That people act rationally in the face of danger to their health.

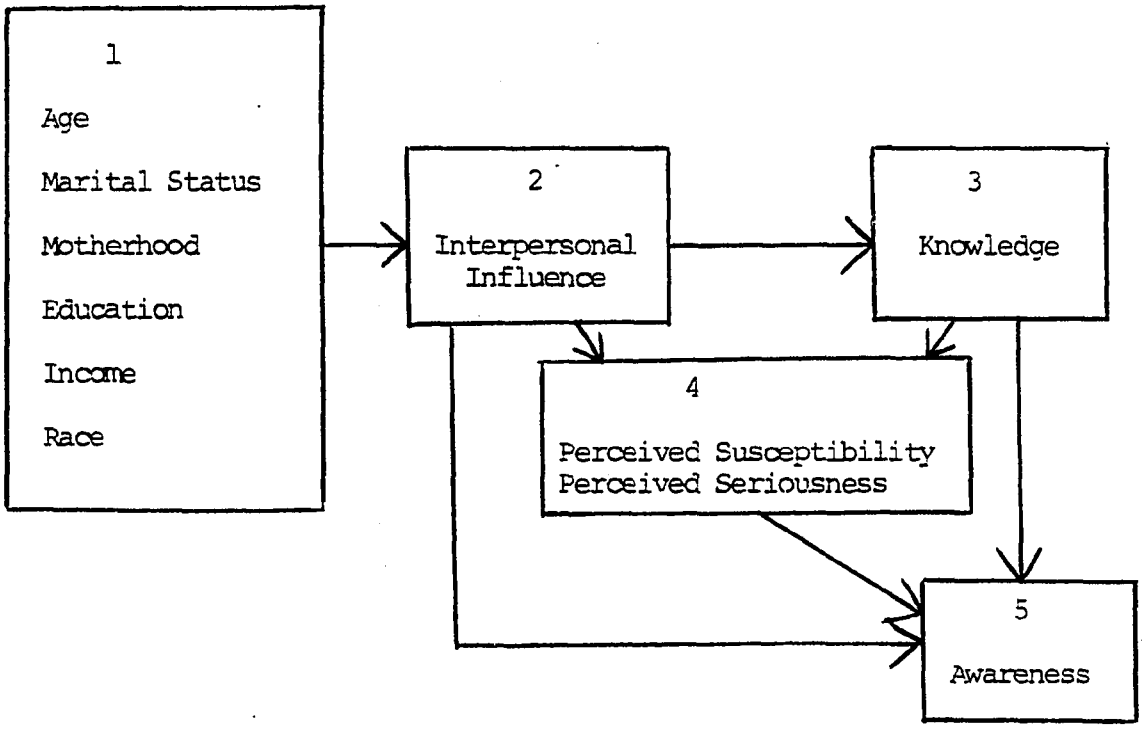
all relevant variables, and that every set of variables that an investigator decides to study is necessarily chosen on the basis of a theory, even if it is not entirely explicit.

In order to do justice to the complexity of the problem and, at the same time, to reduce it to a manageable form for analyzing data and interpreting results, a two-stage, multivariate model was developed as part of this research, which makes explicit some theoretical assumptions.

The model developed, shown in general form in Figure 1, illustrates the major working assumptions of this study: First, that relatively "enduring" personal characteristics (Boxes 1, II-1) either facilitate or discourage "health influence" variables. The health influence variables are: interpersonal influence, health beliefs, and knowledge (Boxes 2, 3, 4, and II-2, II-3, II-4, II-5), that, in turn, either facilitate or discourage awareness of and the practice of breast self-examination (Boxes 5 and II-6; and, second, that the "health influence" variables affect awareness and practice directly as well as by acting on other variables which in turn affect the dependent variables. The research objective is to establish which of many relationships suggested by the model are supported by empirical data. In this way the study can begin to demonstrate how a woman's experiences described by the "health influence" variables

STAGE I

Antecedents of Awareness



STAGE II

Antecedents of Practice, Given Awareness

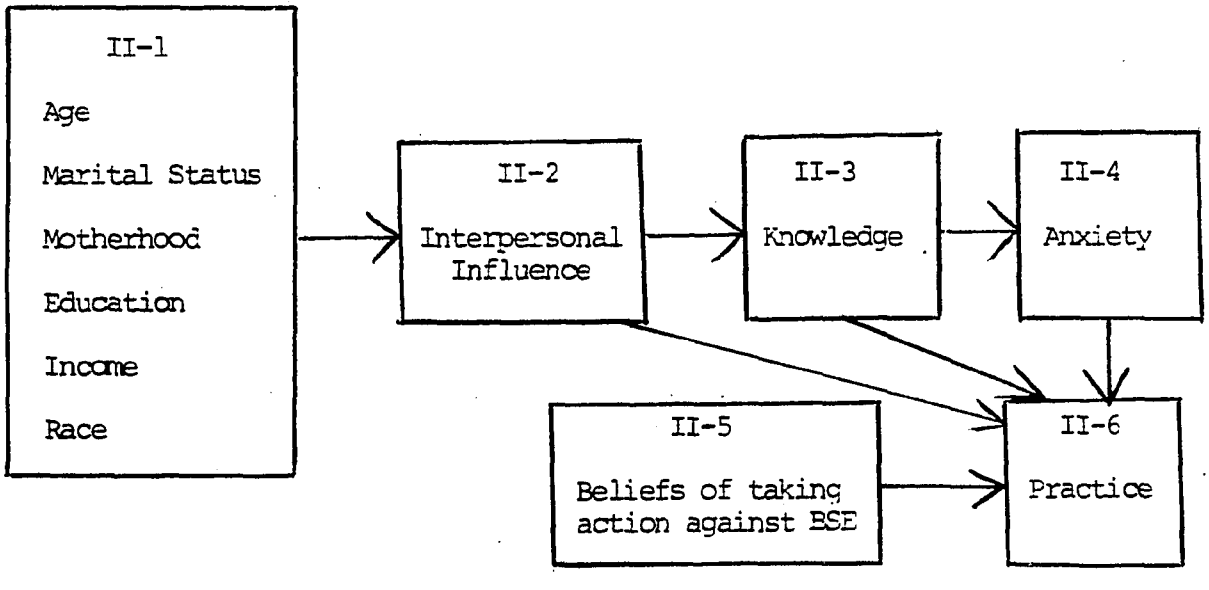


Fig. 1

affect her awareness and her practice of breast self-examination.

At this point, the model is presented in general terms only in order to give an overview of the purpose and scope of the study. The concepts and variables involved in the above model are developed in Chapters II and III, the details of the model and its underlying assumptions are described at the end of Chapter I.

In its attempt to organize the vast amount of literature that has been advanced to explain health related activities, the Carnegie Grant Subcommittee on Modification of Patient - Behavior for Health Maintenance and Disease Control, selected the Health Belief Model. The selection was based on the following reasons:

1. The model variables provide potentially intervenable (i.e., modifiable) links between the demographic, background, and resource variables and ultimate utilization of health and medical care services.

2. The model's core dimensions are derived from a well-established body of psychological and behavioral theory, particularly the work of Kurt Lewin.

3. While the model was originally developed to account for preventive health actions, it has been employed to explain illness and sick role behavior as well.

4. Analogies to the model's health belief variables may be found in other models.

5. Most of the additional variables in the other models (e.g., "enabling factors," demographic and social characteristics, previous health care experiences) can be subsumed under the "modifying and enabling"

> categories of recently expanded and reformulated version of the Health Belief Model. (Becker and others, 1977, pp. 27-28)

Following the Carnegie Grant Subcommittee, the work presented here constitutes an attempt to apply the Health Belief Model to understand and explain women's receptivity to breast self-examination.

Source of Data

The data for this analysis come from a national survey conducted in 1973 by the Gallup Organization. The sample constituted an area cluster probability sample of the non-institutionalized adult female population of the United States. A total of 1007 women, eighteen years old and older, were interviewed. Weights were then assigned to make the sample representative of the female population. The weighted sample number 1870 will be used in the present study.

The Gallup study covered women's attitudes, beliefs and health practices as these relate to the early detection and treatment of breast cancer. The results are essentially descriptive. Some relations between variables were reported but not pursued to any greater depth or related to each other in the sort of systematic fashion that a model like the Health Belief Model demands. The present study does attempt to go beyond description by attempting to explain correlations and patterns of relationships by the introduction of third variables into the analysis.

Chapter I is devoted to a review of the literature on preventive behavior. The literature is reviewed in terms of the "health influence" variables which are treated as either independent or as intervening variables in the theoretical model. The model and the assumptions underlying it are presented in detail at the end of Chapter I. In Chapter II the sample of respondents and the source of data are reviewed. In Chapter III the techniques of analysis and the indices are described, as well as their method of construction. Chapter IV presents the findings on factors that influenced awareness of breast self-examination. Chapter V covers the findings for all the stages from awareness up through the practice of breast self-examination. Finally, the last chapter will draw conclusions from these findings, and will suggest how they can be integrated into an overall framework of knowledge about health behavior.

CHAPTER I

THEORETICAL FRAMEWORK

The Health Belief Model

The Health Belief Model formulated by Hochbaum (1958) and Rosenstock (1960, 1966) seems the most rational explanation yet offered for "health behavior." Health behavior is defined as any health related activity undertaken by a person for the purpose of preventing a disease, or ameliorating its effect once it has been contracted (Kasl and Cobb, 1966). The model may be seen as reflecting a causal process between beliefs and actions taken. Several relevant health beliefs are taken as key variables bearing upon the health decision-making process. Taken together, they constitute an accounting scheme for the study of health behavior, which does not pretend to account for all factors and their relationships to health behavior, nor that the specified causal relations do not occur in the opposite direction. It aims to explain dominant relations, and to explain the dependent variables by means of a one-directional causal model.

Originally, the Health Belief Model (HBM) postulated that health behavior is determined by: (1) the individual's motivation, (2) the individual's subjective stage of

readiness (or predisposition) to act, which is based upon the perceived threat of the disease (which was thought of as a combination of feeling susceptible, and judging the disease as serious), and (3) the belief in the effectiveness of behavior intended to avoid or reduce the risk of the disease, weighed against the perception of barriers such as psychological, physical and financial costs. In addition, the model hypothesized that a stimulus or "cue to action" was needed to trigger or activate the pertinent beliefs. This "cue to action" may derive from internal sources (such as symptoms) or external sources (such as interpersonal interactions, mass media, etc.). Other factors such as demographic and certain socio-psychological variables were assumed to have an effect on an individual's motivation and perceptions; however, these variables were not considered as directly causative of health behavior.

It is worth noting that the concept of motivation was not a separate component as such in the original model, but was inferred from the individual's subjective state of readiness. Nonetheless, it is seen as crucial for perception and action. As Rosenstock (1966) pointed out:

> People who are unconcerned with a particular aspect of their health are not likely to perceive any material that bears on that aspect of their health. Even if, through accidental circumstances, they do perceive such material, they will fail to learn, accept or use the information. (p. 98)

The Health Belief Model has been employed in studies of immunization against polio and influenza (Rosenstock et al., 1959; Rosenstock, 1960); acceptance and non-acceptance of chest X-rays for tuberculosis (Hochbaum, 1958); compliance with penicillin prophylaxis against rheumatic fever (Heinzelman, 1962); screening for breast and cervical cancer (Fink, R. et al., 1972; Flach, E., 1960); and screening for Tay-Sachs disease (Becker et al., 1975). Rosenstock (1974) made a thorough review of studies that have employed the Health Belief Model up to 1974. In this review, he concluded that the findings, in general, provided evidence for the predictive value of the Model. Nevertheless, Rosenstock noted defects in the research, and questioned the validity of the model itself.

Theoretical Framework of the Health Belief Model

According to Rosenstock (1966), the major components of the Model were drawn and adapted from general social psychological theory, especially from the work of Kurt Lewin (1939, 1944). As a decision-making model, the Health Belief Model attempts to explain health behavior under uncertainty (behavior in a choice situation) where a decision is made between alternatives having different subjective probabilities of attainment. Thus Kirscht (1974) writes:

> As a model of decision-making under uncertainty, the health belief approach is a member of the value expectancy family, in which the behavioral decisions

> are made to avoid negatively valued outcomes . . . . In evaluating actions in terms of their efficacy against the threat and in the light of their subjective costs, the choice of action is based on subjective estimates that may or may not correspond to objective outcomes and probabilities. (p. 388)

In the following section, we will review four decision-making models which attempt to predict behavior under uncertainty. Also we will make comparisons and parallels between various concepts developed in the models and the basic elements of the Health Belief Model. The four contributors to be reviewed are: (a) Lewin (1939, 1944), (b) Rotter (1958), (c) Atkinson (1957, 1964), and (d) Fishbein (1967, 1973).

Lewin

The theory of the level of aspiration attempts to account for goals an individual will adopt or actions he will take in a choice situation. The level of aspiration has been defined as "the level of future performance in a familiar task which an individual knowing his level of past performance in that task, explicitly undertakes to reach" (Frank, 1935). For Lewin, a choice situation is the psychological situation of a person at the moment he is asked to state his goals. He must decide among a set of alternatives whether he will choose the most difficult one, the easy one, or which one in between. His choice is determined by the attractiveness of the goal, but only in part. In

any choice situation, the individual faces the possibility of succeeding or failing at whatever level he chooses, so that the "positive valence" or attractiveness of future success, and the "negative valence" of future failure enter his choice as well as the relative attractiveness of goals at the different levels.

The major concepts of Lewin's theory are: valence, subjective probability, and force. Lewin employed the term valence to refer to the desirability of goals. Valence that attracts the individual toward the goal is said to be positive, while valence that pulls the individual away from the goal is said to be negative. Accordingly, the positive valence of success at the level of aspiration is positively related to the level of expected difficulty, while the negative valence of failure at the level of aspiration is inversely related to the level of expected difficulty.

Lewin, K., Dembo, T., Festinger, L., and Sears, P. (1944) argued that a level of aspiration will not be set if the task is perceived too easy by the individual. There is no feeling of achievement in mastering easy tasks. As the attainment of the desired goal increases in perceived difficulty, the level of aspiration increases. The increment of difficulty corresponds to the increment of the positive valence of future success. Conversely, the negative valence of failure is inversely related to the expected level of

difficulty of the task. Where the level of difficulty reaches the point that taxes the person's ability to capacity, the valence is likely to be maximum. Thus, Lewin and associates write: "The greater the degree of difficulty, therefore, the higher the valence of success, within the boundary zone of ability" (Lewin et al., 1944, p. 361).

It should be noted that on extremely difficult tasks, the individual will not experience failure since the task does not reflect on his ability. The negative valence of failure would be negligible in such a situation. The negative valence of failure occurs within the range of activities that provide some challenge to one's ability, and it is greater the less difficult the task. The process of selection, however, is not only characterized by the attraction of the goal but by the expectancy of attainment of the goal as well.

In setting goals, an individual is not only faced with the attractiveness of the goal or activity, but with the probability of its attainment as perceived by him, the "subjective probability" of success. The expectancy of success increases as the level of difficulty decreases, while the expectancy of failure increases as the level of difficulty increases. The positive valence of success decreases with the increase of the expectancy. Similarly, the negative valence of failure decreases with increase of

the probability of failure. In order for the selected goal to materialize, a third factor, force, is necessary. Lewin contends that behavior cannot occur unless a force is present. Force is essential for behavior. Force determines the direction and strength of the valence. The joint effect of a number of forces acting together at a given time is called the "resultant force." The "resultant force" will either produce behavior in the direction of the force or a change in the knowledge structure will occur that makes the behavior consistent with the reformulated perceptions.

Atkinson

Atkinson has developed a theory of achievement motivation that is an extension and elaboration of ideas advanced in the theory of the level of aspiration formulated by Lewin. The essential constructs accounting for the determinants of the direction, magnitude, and persistence of behavior in achievement oriented activities are: (1) the subjective probability of success, (2) the subjective probability of failure, (3) the incentive value of success, (4) the negative incentive value of failure, (5) the achievement motive, and (6) the motive to avoid failure.

The subjective probability of success refers to the individual's expectation that his performance will lead to desired goals. The positive attraction of the goals or activities, as it appears to the individual, is designated

as the incentive value of success. In general, the subjective probability of failure and the negative incentive value of failure are the same for the tendency to seek success but the behavioral implications are just the opposite.

Both expectancies and incentives are situationally determined, depending upon the individual's past experience in situations similar to the one that presently confronts him. Accordingly, expectancies and incentives change as the individual moves from one situation to another.

The strength of expectancy of success refers to the individual's subjective probability of success, which ranges in intensity from very strong to very weak. The subjective probability of success will be high if the individual is almost certain that he will succeed. It will be low if an individual is almost certain that he will fail. Thus, the expectancy of success is strong, when the expectancy of failure is weak, and vice versa. In cases of uncertainty, the probability of success or failure is nearer the midpoint of the continuum.

Motives are conceived as tendencies to approach certain positive incentives or to avoid certain negative incentives. These motives are relatively general and stable properties of the individual which are present in any behavior situation. The probability of success is assumed to be a multiplicative function of motive to achieve success, expectancy of success, and the incentive value of success.

Rotter

In his social learning theory, Rotter (1954) is mainly concerned with performance and selection of alternatives. Rotter's concepts for measurement and prediction of choice are: reinforcement, reinforcement value, expectancy, and behavior potential.

Rotter employed the term "reinforcement" for any event (goal or act) that changes behavior in some observable way by either increasing or decreasing the probability of its occurrence. An event that increases the probability for a response is considered a positive reinforcement, while an event that decreases the probability is considered a negative reinforcement. Reinforcements are divided into two types: internal and external. Internal reinforcement refers to a person's experience (or perception) that an event has occurred which has some value for him, while external reinforcement refers to the occurrence of an event or act that is known to have predictable reinforcement value for the group or culture to which the individual belongs. The reinforcement value (positive or negative) is determined by the resultant effects upon behavior.

The second construct, "reinforcement value," is measured in terms of the relative preference by the individual for certain events or acts to occur if the possibilities of their occurring were all equal. Moreover, changes

in the value of reinforcement occur as a function of changes in the expectation for subsequent reinforcement to occur.

The third construct, "expectancy," refers to the individual's perception that a particular reinforcement (event or act) will occur as a result of his behavior in a specific situation or situations. Expectancy is considered to be: (1) a function of probability which can be determined from past histories of reinforcements, and (2) a generalization of expectancies from other related behavior-reinforcement sequences.

According to Rotter, both the values of reinforcements and expectancy are situationally determined. Like Lewin (1951) Rotter defined a situation as "that which is experienced by the person with the meanings that the person gives it." Moreover, this situation must also be describable in objective terms for scientific purposes.

The fourth construct, "behavioral potential," is a function of expectancy and reinforcement. It refers to the likelihood that a behavior will occur in any given situations, calculated in relation to any single reinforcement or set of reinforcements. In sum, the basic constructs interact in the following way: the potential that any behavior will occur in a given situation depends on the individual's expectation concerning the occurrence of reinforcement will have for him.

Fishbein

Fishbein's approach deals with the prediction of specific behavior under a given set of conditions. The basic concepts are: behavior intention, attitude toward the act, normative beliefs, and motivation. The first component, "behavior intention," is the immediate antecedent of overt behavior. It refers to the intention of performing a particular overt activity in a given situation.

The second component, "attitude toward the act," is the individual's attitude toward performing the specific behavior in question in a particular situation. Attitude toward the act is determined by the individual's belief (expectancy) that his behavior in a particular situation will result in a specific outcome, and his preference (evaluation) for the specific outcome. Thus, the attraction (pulling force) of a specific act for an individual is a function of his belief and preference he assigns to the act's outcome.

The third component, "normative belief," is Fishbein's way of bringing the influence of the social environment into his model. Normative belief is defined as the individual's belief about the likelihood that members of a given reference group expect him to perform the behavior in question. Motivation is considered only insofar as it refers to the individual's desire to comply with the reference group's perceived expectation.

For some behavior, "normative beliefs" (influence of friends, family, etc.) may be more decisive in determining behavioral intentions than attitudinal consideration. For other behaviors the reverse may be true. The weights of the different components are expected to vary with the kinds of behavior in question, the situations, and the person who is to perform the behavior.

Fishbein acknowledged the importance of other factors (such as personal characteristics) on behavioral intentions. However, he argued that situational variables are expected to be related to intention and overt behavior only if they affect attitude toward the act, normative belief (motivation to comply) or the weights of these predictors.

Situation Effects

Up to this point, the discussion has focused on the world of the perceiver; the individual determines what he will do and not the situation (environment). Nonetheless, it is generally agreed that behavior is determined by aspects of the person and the situation. For example, Lewin writes, "behavior must be considered the result of interaction between the person and his immediate psychological environment." The psychological environment, as conceived by Lewin, represented what the person consciously perceives as well as environmental influences outside of conscious awareness. Lewin

has said that "the most important characteristics of a situation are what is possible and what is not possible for the person in the situation" (Lewin, 1936, p. 14). Accordingly, the environment must be considered from the viewpoint of the acting individual, as it exists for him at the time. The environment provides alternative courses of action which may be undertaken by the individual. Further, it identifies the accessibility and acceptability of the courses of action.

In his social learning theory, Rotter (1954) recognized the importance of the situation for prediction of behavior. He assumed that a person's behavior to a large extent is determined by his present situation. According to Rotter, situations should be characterized by their cultural meanings, reflecting the reinforcements that are likely to occur in the situations; for example, dominance situations, conformity situations, academic recognition situations, and so on. From this viewpoint, people can also be thought of as situations. Therefore, different situations imply that particular kinds of reinforcement are likely to occur. It should be noted that more than one kind of reinforcement may exist in any situation.

Rotter argued that the meanings of situations to the individual may differ widely from their cultural meanings. The subjective variations may be the result of parental differences, subculture differences, or personal characteristics. Because of such variations, Rotter focused on the

individual's perception of a specific situation or class of situations.

As discussed earlier, the concept of expectancy is situationally determined. That is, the individual's expectancy that a given behavior will be followed by a given reinforcement is dependent upon how he characterizes the situation. From objective cues (such as the uniformities of approval and disapproval for behavior in social roles) an individual learns which kinds of behavior are more likely to be reinforced in one situation than in another situation. Uniformity of behavior is more likely to occur in cases where social situations are clearly and similarly identified, described, or named by members of the same culture, while the reverse is true in cases of marked dissimilarity. Behavior is more likely to be non-uniform or varied where situations are not uniformly described.

Atkinson (1964), in his theory of achievement motivation, claimed that expectancies and incentives are situationally determined. Motives are conceived of as being relatively stable dispositions that remain latent until aroused by situation cues (e.g., particular instructions) which indicate that some performance will lead to achievement of success.

In sum, behavior is the function of the total situation. As Lewin (1944) writes, "behavior must always be

considered the result of interaction between the person and his immediate environment."

Summary of the Models

Four different theoretical models have been discussed. Each one attempts to predict behavior under uncertainty. Although differences exist, the models employ essentially the same concepts, but use somewhat different terms. For example, Lewin's conception of effective force seems to correspond to Rotter's conception of behavior potential. Similarly, Atkinson's conception of the strength of the tendency to act parallels Fishbein's conception of behavioral intention.

Common to all four of the theories is the notion that the strength of the tendency to act in a certain way depends upon the strength of expectancy that the act will be followed by given consequences (or goals) and the value of these consequences (or goals) to the individual. What Lewin called the valence of the future goal is called the reinforcement value by Rotter, the incentive by Atkinson, and the attitude toward the act by Fishbein.

In each of the models, the situation was considered an essential determinant of behavior. Yet, empirical researchers that have employed these models have not always considered situational variables in their design (Wicker, 1969, and Kelman, 1974).

The Revised Health Belief Model

Becker and Maiman (1975) reformulated and expanded the Health Belief Model, incorporating recent findings on health related behavior. Though the basic paradigm of the original formulation was kept, other variables were added for the first time the concept of health motivation was introduced explicitly into the model.

Becker and Maiman write:

> Motivation refers to differential emotion arousal in individuals caused by some given class of stimuli (e.g., health matters). If a desire to reduce personal susceptibility or severity represents the valence or "pull" toward action, then health related motivation may be seen as the "push" factor in compliance." (pp. 17-18)

Health motivation is measured along four dimensions: (1) a concern about (salience of) health matters in general, (2) willingness to seek and accept medical direction, (3) intention to comply, and (4) positive health activities (such as taking vitamins, brushing one's teeth, and exercising).

Second, the original concept of susceptibility to a specific disease was expanded to include illness in general. And, finally, demographic, structural, interaction, and "enabling" variables were added as modifying and enabling factors.

An Analogy of the Health Belief Model and the Discussed Models

The Health Belief Model is analogous to the previously discussed models in the following ways: (1) the valuation of a positive state of health or lower susceptibility and severity is a special case of Lewin's valences, to Atkinson's incentives, to Fishbein's evaluation, and Rotter's reinforcement value; (2) it should be noted that reinforcement value (as the concept of health motivation) is considered as a separate motivational variable; (3) the positive and negative estimation of the consequences of behavior in the Health Belief Model are comparable to Atkinson's, Lewin's and Rotter's expectancy, and to Fishbein's attitude toward the act; (3) the disposition to act, the model's outcome variable, is equivalent to Atkinson's resultant motivation, to Fishbein's behavioral intention, to Rotter's behavior potential, and to Lewin's resultant valence.

Fishbein's emphasis on specificity of the situation has special relevance to the Health Belief Model, since most of the studies that have employed the model have explained and predicted specific behavior such as getting a chest X-ray, being screened for cervical cancer to Tay-Sachs disease, prophylactic action against rheumatic fever, and participation in polio and influenza immunizations (Hochbaum, 1958; Kegeles, 1965; Becker and associates, 1975; Heinzelman, 1962; Rosenstock and associates, 1959).

Interpersonal Influence

Despite the claim that provides support for the Health Belief Model in predicting health action, various forms of social pressures may be effective in stimulating individuals to take recommended preventive health action even in the absence of the kinds of personal readiness considered in the Health Belief Model (Rosenstock, 1966; Green, 1970). In this section, we will consider how interpersonal influence may affect an individual's decision to engage in a given health action.

It is frequently said that interpersonal influence is important both for shaping people's opinions and attitudes and for their dispositions to act. Katz and Lazarsfeld (1955), following Cooley (1909), define interpersonal influence as those communication contacts which involve a direct face-to-face exchange between the communicators and the person to whom the communication is addressed. The most common sources of interpersonal influence are small intimate groups of family, friends, and co-workers. Such groups are usually characterized by their small size, relative durability, informality, face-to-face contact and manifold, more or less unspecified, purposes.

Studies that deal with the effect of personal influence on preventive health behavior are not yet abundant,

but what there is, is persuasive. We know, for example, from several studies that vaccinated persons were more likely than unvaccinated persons to report discusions of vaccination with relatives, or friends, or neighbors, or with a physician, or with a minister (Deasy, 1956; Clausen, 1954; Glasser, 1958; Merril, 1958; and Belcher, 1958).

In a study of acceptance by sugar cane workers of gloves as a preventive measure, Suchman (1964) found that individuals who had discussed the gloves with other sugar cane cutters, or with non-sugar cane cutting friends and with their wives and family, were more likely to accept the gloves than those who had not had such discussions. It would appear that such discussions provide a form of social support for the action under discussion, in this case an instance of preventive health behavior.

In a study of men with cardiovascular impairment and their compliance with medical regimens, Davis and Eichhorn (1963) found that patients who were greatly influenced by family and friends complied more than other patients with the medical regimen established by their physician. Heinzelmann (1962) in a study of factors in prophylactic behavior of patients who had had rheumatic fever were more likely to continue prophylactic practices than persons who did not have relatives who had rheumatic fever. While no explicit study of communication among

family members was done, it seems a fair assumption that besides all the other factors that make family members similar to each other, communication among them is likely to promote compliance with medical recommendation. That families have a strong effect on compliance may be inferred also from a case where family pressures were in the direction opposite to medical recommendations (MacKinlay, 1976).

Caldwell (1970) drew a similar conclusion from a comparison of patients who stopped drug treatment, and those who continued drug treatment in an antihypertensive program. He found that patients who dropped out of the program were less likely to know someone in their family who had hypertension.

In his review, Green (1970) emphasized the surrounding social milieu as a powerful influence on behavior. For example, individuals may have a chest X-ray because a neighbor or a friend had one even though the individual himself shows none of Rosenstock's predisposing attitudes (Rosenstock, 1960).

The evidence that intimate groups actively influence and support most of an individual's beliefs, attitudes, and action is abundant in the social scientific literature of communication and interaction. In their analysis of the 1940 presidential election, Lazarsfeld, Berelson, and Gaudet (1948) observed that personal contacts were more effective

than the mass media in influencing voters' decisions. They suggested that ideas flow from the mass media to certain key persons and from these opinion leaders to less active individuals.

Wilkening (1952) proposed a series of stages in the process of adopting an innovation. He postulated that individuals go through five stages before finally accepting the innovation:

1. Awareness and knowledge of the innovation.
2. Interest in the innovation.
3. Mental evaluation of the innovation.
4. Trying the innovation on a limited basis.
5. Finally, adoption.

The mass media appear to play the most important role in making individuals aware of and informed about innovations. But personal influence seems to play the most important role in creating interest, in influencing judgment, getting someone to try it, and finally adopting the innovation.

In a study of the adoption of new types of agricultural spray, Rogers and Beal (1958) found that the mass media were more important in the early phase of making persons aware of the product, while interpersonal (personal) influence was dominant in acquiring additional information and deciding whether to use the product for a trial period. These findings imply the usefulness of the distinction emphasized by Katz (1961) between obtaining information about an innovation and

its legitimation. By legitimation in this context is meant the approval by a group in favor of adopting the innovation.

In two different studies, Katz found that awareness and acceptance were affected by separate channels of communication networks. In both studies, commercial or formal sources played an important role in disseminating information about the innovation. But in the trial and adoption phase, personal communications with friends, neighbors, and colleagues played the crucial role of legitimizing its use. By way of example, farmers gained information about a new hybrid corn primarily from salesmen and agricultural bulletins; and doctors gained information about a new drug from salesmen or medical journals. Farmers were most influenced to try out or adopt the product by their neighbors, doctors by their colleagues and by medical journals.

From the above evidence, it seems clear that interpersonal influence plays an important part in influencing people's attitudes and dispositions to act. Now, it seems appropriate to ask, what accounts for the substantial influence that people in face-to-face contact seem to have on each other? It seems equally important to ask, which people will be influential for which others and under what circumstances?

Research by Merton (1968) provides some insight on these questions. His exploratory study on patterns of

interpersonal influence in a local community revealed that interpersonal influence is not a random occurrence between two people, but take place within well structured patterns of social interaction.

Within the local influence structure (apart from the immediate family), Merton observed two types of influentials: the "local" and the "cosmopolitan." These terms do not refer to geographic regions where interpersonal influence is exercised but, rather, the orientation of the influentials toward the local community. The local confines his interest to the community, devoting little energy and time to national or international affairs. Conversely, the cosmopolitan is significantly oriented toward the larger society, maintaining minimum relations with the local community.

The local's interpersonal influence is determined primarily by an elaborate network of personal relationships, whereas the cosmopolitan's influence is determined primarily by previous achievements and previously acquired skills. Therefore, the local influential is sought out for his sympathetic understanding, and the cosmopolitan influential is sought out for his specialized skills and experience.

According to Merton, interpersonal influence resulting from specialized expertness usually indicates social distance between the influential (advice-giver) and the influenced (the advice-seeker), while interpersonal influence

resulting from sympathetic understanding usually indicates more personal relations. Merton also pointed out that other studies have shown that "the proportion and situation of the types of influential vary as the social structure of the community varies" (Merton, 1968, p. 459).

Turning to the question of who is influential for whom, and under what circumstances, Merton's study provides some tentative explanations. For example, those at the top of the influence-structure were found to exert influence upon people on all levels. A secondary tendency, however, was observed that people were more likely to be influenced by their peers than by people in other strata.

Even though interpersonal influence is concentrated at the top of the influence-structure, Merton cautions the reader against making inferences from such findings, because the findings reflect only a segment and not the entire distribution of interpersonal influence in the total influence-structure. By examining the entire distribution of influence in the influence-structure, Merton writes:

> Despite the concentration, it appears likely that more personal decisions in a community may be the result of advice by the many people ranking low in the influence-structure than by the few ranked at the top. (Merton, 1968, p. 465)

The top influentials have a large individual quantum of influence, but they are few in numbers and consequently accounted for a minor share of the total interpersonal

influence. On the other hand, each person in the lower strata has relatively little influence, but they collectively accounted for the greater share of interpersonal influence, since they make up the majority of people in the influence structure.

In addition to the distribution of personal influence, Merton also stresses that "spheres of influence" are important to an analysis of interpersonal influence. Shperes of influence may be specific or diffuse. Where interpersonal influence is exerted in a clearly and, perhaps, narrowly defined area such as in the area of politics, fashion, arts, and others, we may think of the sphere of influence as specific. This type of interpersonal influence does not spill over into other spheres of activity. In contrast, someone has a diffuse sphere of influence if interpersonal influence is being exerted in a variety of areas. The "local" influentials are more likely to represent the diffuse type, and the "cosmopolitan" are more likely to represent the specific type.

Personal Characteristics and Health Behavior

Variables such as age, socioeconomic status and racial status broadly locate individuals in the structure of society and reflect fundamental differences in their experiences and orientations. These are fundamental variables that affect

behavior of people in all aspects of social life and contribute to the consistencies of attitudes and behavior.

Age

With regard to age, numerous studies have shown that younger people accept health innovations more readily than older people (Belcher, 1958; Kegeles and others, 1965; Watts, 1966; Naguib and associates, 1968; Fink and others, 1972); Ogionwo, 1973). The underlying assumption is that older people are more set in their habits than younger people and therefore more likely to resist innovations.

Socioeconomic Status (Social Class) and Health Behavior

Members of different socioeconomic groups typically enjoy different opportunities and behave differently in a wide variety of ways. For instance, people of higher social status participate more actively in community organizations than people in lower social status. They are more likely to engage in preventive health behavior. They have more complex attitudes on issues, since they have access to more divergent opinions. Differences between social classes are accentuated and maintained by the tendency of people to interact primarily with members of their own class. Members of each social class share expectations, and these expectations exert a considerable amount of influence on their behavior, although they by no means completely regulate their behavior. A person whose

contacts are chiefly with persons of higher socioeconomic status is expected to keep reasonably well informed about matters of current interest ranging from news and cultural events to the latest ideas about homemaking and child-rearing to lay medical knowledge. Such people not only acquire information for its usefulness value, but for use in conversation and because they are both expected to be and expect themselves to be informed. But a person of lower socioeconomic status does not have to be well informed to meet the expectations of those around him, hence he is somewhat less motivated in his quest for knowledge (Hodge and Treiman, 1958; Simmons, 1958).

The socioeconomic differences in levels of health behavior reflect the whole network of manners and behavior patterns outlined above. In the field of health research, it has been shown that as a person's education, income, and occupation rise, there is a corresponding rise in the amount of various health related activities. Deasy (1956) found differences between socioeconomic status affecting participation in the polio vaccine field. Parents who were of high and middle socioeconomic status were twice as likely to give consent for their children to participate in the program as parents who belonged to the lowest socioeconomic status. Deasy also claimed that parents in the upper groups had in the past taken certain precautions they felt would lessen

their children's chance of being victimized by poliomyelitis, unlike parents of the lowest socioeconomic level.

Wisen and Palmer (1957) analyzed the relationship of socioeconomic status and seeking preventive dental care. And, indeed, the report on regular visits varied regularly by occupation, income, and education. First, the frequency of seeing the dentist varied with occupation: families whose head of household was a professional or a manager saw the dentist more than families whose main earner was an unskilled, semiskilled or domestic worker. Second, as income increased so did the frequency of visits to the dentist. And, finally, as education increased, the proportion of those seeing a dentist increased. These findings are not surprising, knowing what we know about the social structure and the superior access that the upper classes have to all goods and services.

Paterson's study on public opinion of cancer (1958) and Kutner in his study on seeking care for cancer (1961) have demonstrated that there is a greater frequency of reported cancer symptoms by women of high socioeconomic status, and the reporting declined with decreasing socioeconomic status.

By analyzing national health surveys, Bice and associates (1972) observed that over the last 40 years, the relationship between family income and physician use has diminished substantially. Further, they observed that the

continuing difference in health of different socioeconomic groups can be attributed to the difference in the use of preventive services by their children. In contrast, the relationship between other indicators and use of physician services has not changed as dramatically as the income-utilization relationship. For example, the association of the educational levels of the family head with physician use observed in 1966-67 was similar to that in 1957-59. The relationship remained after controlling for income.

The association between educational levels and health utilization may be due, in part, to the learning of health facts, which, in turn, brings about changes in attitudes and therefore changes in health utilization. The exact manner in which groups differ in learning performance is a complex matter. Nonetheless, Hovland and associates (1949) provide some insight into the process. In discussing the results of their experiments with U.S. Army indoctrination films, Hovland and associates attributed superior learning of the better educated soldiers to three factors:

1. More intelligent men, as a function of both selection and training, probably have a higher degree of interest in the material presented and motivation to learn it.*

2. . . . Individuals with more intelligence and more schooling will have acquired a better context or related information which would facilitate the acquisition of new facts.

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*"Intelligence," in this study, is defined in terms of the number of years of schooling.

3. Also, the more intelligent and better educated man will probably have learned better techniques of learning and remembering facts presented to them. (Hovland, et al., 1949, p. 153)

These claims are illustrated in studies on polio vaccine trials by Clausen and associates (1954) and Deasy (1956). Their analyses indicated that differences in attitude and general orientation of parents who have consent, as opposed to those who did not, were associated with considerable differences between the two groups in educational level. For example, it was found that respondents had similar newspaper subscription habits, thus, access to newspaper information was alike, but the better educated (high school graduates and those with some college) were shown to catch and absorb information in the newspaper more effectively. Further, it was pointed out that the less educated tended to have more difficulty in assessing the objectives of the Salk Vaccine Program. Moreover, certain attitudes were tied to education levels, especially an appreciation by the better educated of the research aspect of the trials as against mistrust of the trials in the less educated groups.

Similarly, Rosenblatt and Suchman (1964) noted that a scientific interpretation of disease causation, and a sympathetic attitude toward modern treatment methods and technology are usually characteristic of more highly educated groups. Pratt, Seligman, and Reader (1958) have pointed out

that a clearer perception of the disease process and the role of the medical doctor in arresting it appears to encourage high use rates in the better educated groups.

Health Knowledge and Health Utilization

The preceding discussion provides a context for understanding the potential role of health knowledge in influencing health utilization. It is reasonable to assume that knowledge is a necessary resource for breast self-examination. As Lewin (1936) pointed out, "a person may come to a region that he cannot cross because he does not have sufficient cognitive structuring" (p. 134). According to Lewin, a lack of knowledge may be considered as one of the most difficult kinds of obstacle, usually making it impossible for a person to change behavior. He noted that the difficulty associated with change in behavior, if it is due to a lack of knowledge, will be overcome if the necessary knowledge is obtained. Thus, Lewin concluded:

> A change in the knowledge of the boundary zone, or in other words a change of its cognitive structure, may show the existence of a part of the boundary zone which can be crossed more easily than the parts which were known originally. Furthermore, a more exact knowledge of boundary zones often allows one to find a different kind of locomotion by means of which one can cross the zone without meeting great resistance. (Lewin, 1936, p. 135)

In other words, the acquisition of a crucial piece of knowledge may be the last obstacle to attaining a goal.

Various utilization studies suggest that knowledge about illness is positively related to the propensity to seek medical care. In discussing the results of their study on the conditions under which individuals will seek medical care for symptoms associated with cancer, Kutner and Gordon (1961) noted that lack of knowledge of cancer symptoms ("the seven danger signals") was correlated with delay. Respondents who had minimal knowledge about cancer symptoms were more likely to delay in seeking care, while those respondents who had maximal amount of knowledge were least likely to delay in seeking care. Similarly, Cobb (1954), in her study of cancer patients at Anderson Hospital in Texas, found that those patients who possessed knowledge of cancer, its symptoms and treatment sought medical attention earlier than those who lacked knowledge.

Several other studies reflect the importance of knowledge as a predictor in continued care. In a study of membership in the Anti-Coronary Club in New York City, Archer and associates (1967) found knowledge of the symptoms of coronary heart disease to be significantly correlated with members' continued participation in the club. Tagliacozzo and Ima (1970) observed the attendance behavior of clinic patients, and found that patients who were better informed about the causes, symptoms, and complications of their illness were more likely to continue care than patients who were less informed.

Knowledge also has been shown to play a major role in participation in experimental programs. In a study of a mass tuberculin testing program in Cambridge, Massachusetts, Schonfeld (1963) noted that mothers who gave permission for their children to be vaccinated were more likely than mothers who refused to participate to report greater knowledge about the course and cure of tuberculosis as well as administration of the tuberculin testing program. In a pediatric experimental study, Elling and associate (1960) found that mothers who gave a medical interpretation that penicillin combats streptoccal infections were inclined to be high participators, while mothers who deviated from the medical interpretation were generally low participators.

It has also been shown that physicians are inclined to consider knowledge of illness as an important factor in compliance. In a study of variations in patients' compliance with doctors' orders, Davis (1966) noted that a large percentage of the surveyed physicians believed that patients' understanding of their illness resulted in an increased compliance rate.

Up to this point, the discussion has focused on the positive correlation between health information (knowledge) and health utilization. Yet it is argued that mere information is not sufficient to elicit recommended behavior. Hochbaum (1958) found this to be the case when he studied

why people sought diagnostic chest X-rays for tuberculosis. He found that:

> Information alone is not a motivating force, although it is basic to most behavior. Without knowing what to do and how to do it, one cannot act, but only when this knowledge is related in some way to one's needs will it actually be translated into action.

Further, he writes:

> It is a matter of real belief and of conviction on the part of people that such information applied to them personally and that it is important to them as individuals.

In this connection, Kelman (1974) noted that in the course of deciding to act and carrying out an action, a person processes various items of information that have attitudinal relevance. This selection process was observed by Newcomb, Converse, and Turner (1965). They contend that perceptual events are influenced by motives of the individual which are organized around the behavior of the moment. The concept of perceptual selectivity refers to that portion of the total information that the situation presents. For example, in any complex situation, a person is confronted with a tremendous amount of information; however, his capacity to absorb all the information accurately is limited. Thus, according to Newcomb, Converse, and Turner, an individual will choose to pay attention to that portion that is in accord with his motives.

Continuing, they point out that "the motivated person does not respond to all possible stimuli. His attention

tends to focus on those details that provide information useful to his motivated behavior." Bettinghaus (1961) summarized the importance of predispositions in affecting responses to persuasive communications:

> If the individual has built up a pattern of attitudes toward an object or set of objects based on the experience he has had in the past he will use the attitude structure as a frame of reference to assess any messages related to the structure.

From the above review, health knowledge has been shown to be related to health behavior, but the mechanisms explaining this relationship are still unclear. It is essential to note that the modes of measuring knowledge, health behavior, and the conditions surrounding them have been too varied to permit reliable comparison. In spite of the methodological difficulties, the above studies assumed that medical knowledge produced a trigger-like reaction whereby new health facts lead to a change in health attitudes and values, which in turn bring about changes in health practice.

Proposed Theoretical Approach For This Study

Whether or not a woman examines her breasts is the result of a decision made by her. The fundamental problem with which this research is concerned can be stated by the following question: Under what conditions do women decide to examine their breasts? And, conversely, under what conditions do they decide not to examine their breasts?

From the preceding discussion, it is clear that there are likely to be many determinants of breast self-examination, some sociological in nature, others psychological, and, still others, situational. Hence, the approach for this study is designed to deal with a variety of factors that may affect a woman's decision to examine or not to examine her breasts.

It is useful, for analytic purposes, to divide the variables to be considered into two classes: background variables are considered "exogenous" in the sense that in any causal model they are prior to all other variables and cannot be influenced by them. Interpersonal influence, health belief variables, knowledge, and the dependent variables (awareness of breast self-examination and its practice) are considered "endogenous," since they are subjected to the influence of other elements in the network of variables. Our causal model states that our two dependent variables are to be seen as having their values as the result of a person's position on the "health influence" variables; and that these, of course, are influenced by a person's general status in society. It was also hypothesized that the influence of the background variables is likely to be largely absorbed by the health influence variables, i.e., that after the latter are taken into account further effects of the background variables will be minor.

Personal Readiness Factors

Following the Health Belief Model formulated by Hochbaum (1958) and Rosenstock (1960, 1966), personal readiness for breast self-examination may be defined in terms of three beliefs: (1) one's belief about how probable it is that one will contract breast cancer; (2) one's belief about the seriousness of the consequences of breast cancer if one gets it. Together, these beliefs represent the perception of threat due to breast cancer. The third belief (3) concerns the benefits of taking action against the threat of breast cancer.

A woman's perception of her susceptibility to breast cancer may be influenced by: (1) age; a woman may believe that her age puts her at a greater or lesser risk of developing breast cancer; or (2) she may believe that having ever been pregnant affects her chances of developing breast cancer; or (3) her acquaintance with women who have had breast cancer may influence her belief of her own susceptibility.

Like beliefs about one's susceptibility, beliefs about how serious breast cancer is may be influenced by a number of factors. A woman's interest in her breasts is not due to any single factor; it is surely not restricted to physiological function, nor is the interest entirely erotic. Clearly, women's interests in their breasts derive from a complex of social and psychological needs. Given the

meanings that breasts have for women (and men), it is reasonable to assume that breast cancer will have serious consequences for a woman's life, particularly in relation to her sense of being a woman and of being desirable as a sexual or marriageable partner.

Hypothesis I

> The proportion of women who are aware of breast self-examination as a preventive measure will be greater among those who believe that they are relatively likely to contract breast cancer and who believe that breast cancer would have serious consequences for them, if contracted, than among those who believe that there is little chance of them contracting breast cancer and who believe the disease will have little impact on their lives.

The potential threat of developing breast cancer as measured by susceptibility index and seriousness indicator is viewed here as providing the motivation to breast examination. However, doing it is assumed to be influenced by women's perception of the curability of breast cancer and the role breast self-examination plays.

Hypothesis II

> The proportion of women who practice breast self-examination will be greater among those who believe that if breast cancer is detected early the chances of cure are better, and who believe that breast self-examination is effective in detecting signs that might be indicative of breast cancer than among those who believe that early detection makes no difference and who expressed little confidence in the efficacy of breast self-examination.

Anxiety About Breast Self-Examination

No matter what women believe about the usefulness of breast self-examination, the doing of such an examination itself may be a source of anxiety, and this anxiety may prevent some women from the practice of breast self-examination.

Hypothesis III

The proportion of women who practice breast examination will be greater among those who are less anxious about monthly breast examination than among those who are more anxious about monthly breast examination.

Interpersonal Influence

A woman's decision to examine or not to examine her breasts may be affected by her immediate personal environment, by providing role models, advice, opportunities for learning, and social pressures. Hochbaum (1958), for example, points out that "people may come for X-rays not for any health relevant reasons but to please other people, to be accepted by their groups, and the like."

Hypothesis IV

The proportion of women who are aware of breast self-examination will be greater among those who know someone personally who has had breast cancer than among those who do not know someone personally who has had breast cancer.

Physician's Influence

Several studies (Clausen, 1954; Glasser, 1958; and Belcher, 1958) have demonstrated the physician's influence

on the utilization of health services. People have consistently reported that they would use various health services or engage in health related activities provided that a physician had recommended it.

It is commonly thought that the physicians' influence is due to their expertise; they are perceived as the most knowledgeable persons in matters of health. Katz and Lazarsfeld (1955) contended that the amount of influence outside of the family-friendship network is minimal. But, if it should occur, it is usually from knowledgeable people, the experts in the areas of concern. It is expected that physicians influence women to examine their breasts (a) directly by discussing or recommending breast self-examination; and (b) indirectly, since an examination of the breasts by the physician may be a demonstration of technique, which may implicitly suggest to women that they should do it.

Hypothesis V

> The proportion of women who practice breast examination will be greater among those who have discussed breast self-examination with a physician than among those who have not discussed breast self-examination with a physician.

Knowledge and Signs and Symptoms of Cancer and Procedures of Breast Self-Examination

As previously mentioned, symptoms and signs of breast cancer are easy to detect; a woman can detect them herself. According to the American Cancer Society, 90 percent of

breast lumps are discovered by women themselves. But if one does not know the symptoms and the signs of breast cancer, one is not likely to be aware that breast self-examination is likely to show the presence of one of these.

Hypothesis VI

> Women who are more informed about signs and symptoms of breast cancer are more likely to be aware of breast self-examination than women who are less informed about signs and symptoms of breast cancer.

Women may be informed about the signs and symptoms of breast cancer, but unless they know how to examine their breasts they cannot very well do it. The early detection of signs of possible breast cancer is dependent upon such know-how.

Hypothesis VII

> Women who are more informed about breast self-examination procedure are more likely to practice breast self-examination than women who are less informed about breast self-examination procedure.

Additional Assumptions

The rationale has already been described for the claim that "health influence" variables are causally related to awareness and the practice of breast examination. In addition, it is assumed that various attributes of the respondents have direct and indirect effects on the dependent variables.

First, we assume that variables descriptive of a person's "position in life" are likely to have a bearing on

what other factors will influence a person's health behavior. We expect age to have an influence because in many respects age affects what our bodies require for good health and it occasionally affects relevant attitudes. We expect motherhood to change certain aspects of a woman's attitudes to her body and to provide her with varied experiences of contact and interaction with health care practitioners; and marital status may surely influence both attitudes and practices. More indirectly, we expect a general notion of social position to have a pervasive influence. This is often said, but the mechanisms through which socioeconomic status affect attitudes are not always well specified. We expect that education will have some influence on what people know, on the level of knowledge they are likely to maintain throughout their lives, and on the people with whom they associate, who have expectations about what they should know, or what is considered knowledge in their social circle. Income, no doubt through a similar mechanism, is likely to have a similar effect; besides, it is one of the most clearcut mechanisms that limits a person's opportunities for all kinds of action; and race is in a similar manner an indicator of various levels of limitation that people suffer in our society.

These are the "background variables" which we assume to be relevant to health practices, and in this particular

study, to the practice of breast self-examination and even to the awareness that this practice is recommended as useful.

A Theoretical Model of Awareness and the Practice of Breast Self-Examination

A theoretical model is purposely a highly simplified version of reality. No theoretical model can ever be established as the correct one since models including other variables may provide equally adequate or even better descriptions of reality. The purpose of using a model is not primarily to establish its correctness but to evaluate and modify it in accordance with the data anlayzed. Blalock writes:

> In order to avoid empirical objections to causal terminology, we prefer to think in terms of causal models of reality . . . . Since these do not refer to reality itself, and since a number of alternative models may yield the same predictions, we can never actually establish a given model. But we can proceed by eliminating or modifying inadequate models that give predictions inconsistent with the data. (Blalock, 1961, p. 173)

An important advantage of using a causal model is that it makes explicit the researcher's assumptions about the causal order of the variables that might otherwise remain implicit. Duncan writes of the causal model, or his way of representing it by a path diagram:

> The point is that <u>any</u> causal interpretation must rest on assumptions . . . . The great merit of the path scheme, then, is that it makes the assumptions explicit and tends to force the discussion to be at least internally consistent . . . . With the causal scheme made explicit, moreover, it is in a form that enables

> criticism to be sharply focused and hence potentially relevant not only to the interpretation at hand but also, perchance, to the conduct of future inquiry. (Duncan, 1966, p. 7)

And, finally, a causal model, such as the one presented in this study, is based on assumptions about the causal sequence of variables that cannot be demonstrated empirically but can only be defended on the basis of previous findings, theory, and logical argument.

General Causal Order

The most fundamental of such assumptions underlying this study's model is that attributes of a person, whether they are enduring personal characteristics, interpersonal relationships, or knowledge of signs or symptoms, are considered causal antecedents of awareness and that awareness is a causal antecedent of the practice of breast self-examination. The guiding research objective is to examine how "health influence" variables affect awareness and the practice of breast self-examination.

The basis for the overall causal order of variables in this study's model is also derived from the theoretical and empirical works of Hochbaum (1958) and Rosenstock (1959, 1960, and 1966) which address the ways in which social and psychological attributes of persons affect their health behavior. The primary differences between their assumptions and the causal model adopted here is that their implicit

assumptions about causal relationships are here made explicit.

Becker and Maiman (1975) and Becker, Haefner and others (1977) do make their assumptions about causal order explicit. In both models, demographic variables (age, race, sex, etc.) and sociopsychological variables (social class, peer and reference group pressure, etc.) were placed as intervening between the health beliefs (perceived seriousnes of disease "X", perceived seriousness of disease "X", and perceived benefits of preventive action) and the recommended health action. However, for this study, it makes no sense to think of the health beliefs as "causes" of demographic variables (such as age and race) and interpersonal influence, but the reverse is plausible. For example, a woman's age increases or decreases her sense of being susceptible to breast cancer. Therefore, in our causal model, health beliefs intervene between the independent variables and the outcome variables.

Thus, as Land (1969) recommends, the general causal order of variables in the model for this study is based on substantive findings in the area of this research, as well as on the findings and ideas of other relevant research. A few points about the causal sequence of certain intervening variables are clarified below.

The Model in Detail

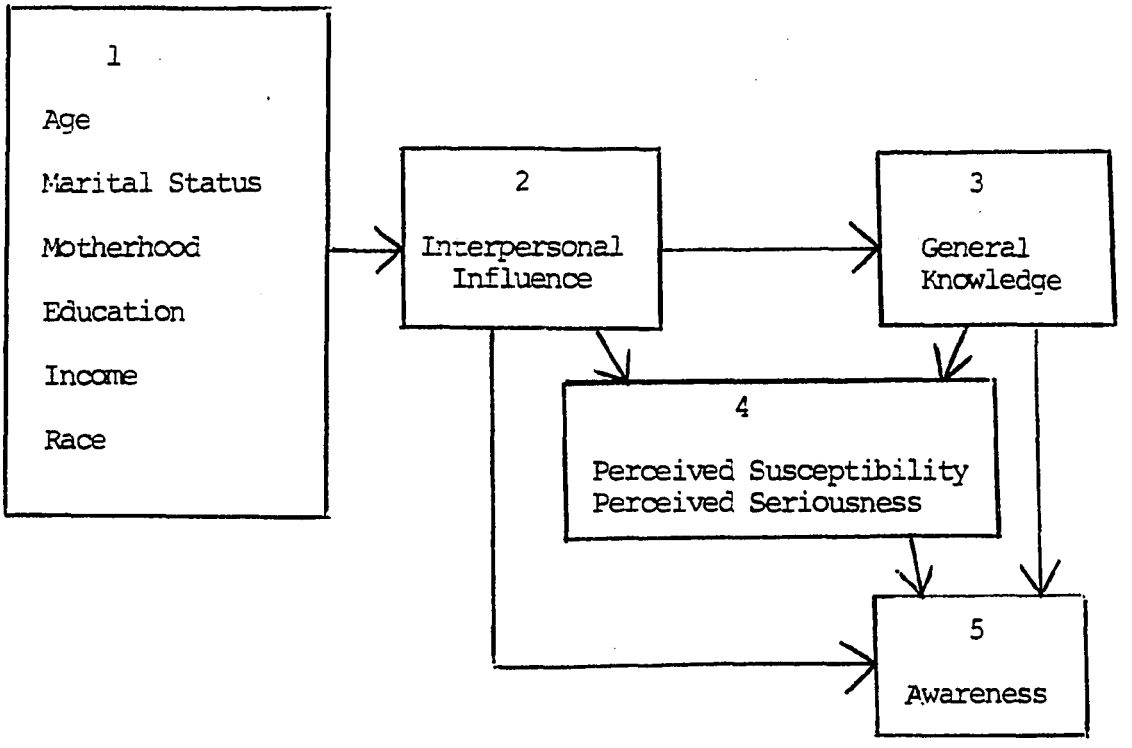
Figure 1.1 is a simplified representation of the study's theoretical model. The various sets of variables are enclosed in boxes to reduce the number of arrows that have to be drawn. In the analysis and interpretation of findings each variable within each box in Figure 1.1 is treated as a separate variable. Thus, for example, the effect that age has on a woman's interpersonal relationships, knowledge of signs and symptoms of breast cancer, perceived susceptibility, perceived seriousness, and awareness are all examined.

The independent or exogenous variables are six attributes of respondents, called background variables. As independent or exogenous variables, these characteristics are considered given in the context of this model.

Our causal model states that our two dependent variables are to be seen as having their values as the result of a person's position on the "health influence" variables; and that these, of course, are influenced by a person's general status in society; but that the influence of these background variables is likely to be largely absorbed by the health influence variables, i.e., that after the latter are taken into account, further effects of the background variables will be minor.

STAGE I

Antecedents of Awareness



STAGE II

Antecedents of Practice, Given Awareness

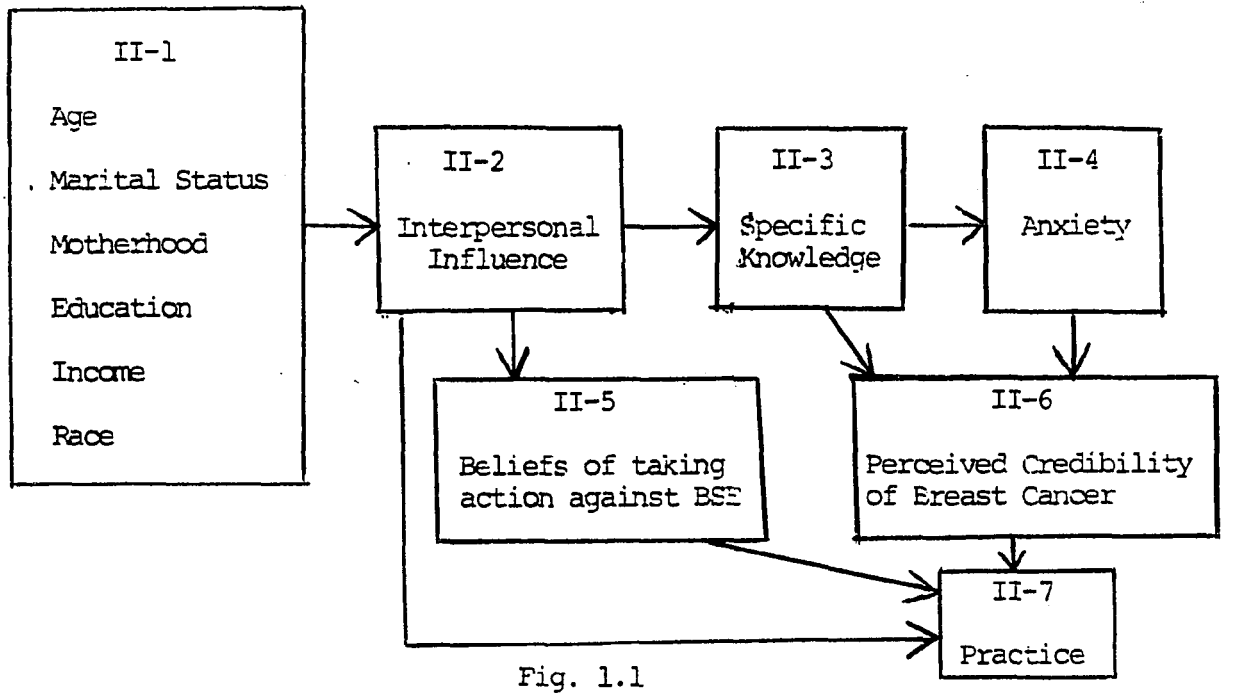


Fig. 1.1

Each variable in the model is posited as affecting all subsequent variables. Thus, for example, interpersonal influence is assumed to have a direct effect on awareness as well as an indirect effect via the three variables that are placed between interpersonal influence and awareness.

CHAPTER II

SPECIFICATION OF DATA SOURCE

The data for this analysis come from a national survey conducted in 1973 by the Gallup Organization. In utilizing secondary data, two major obstacles must be overcome: finding information which appropriately fits the needs of the project at hand and being sure that the data are sufficiently accurate.

Finding appropriate data. Because secondary data are collected for other purposes they often do not meet immediate needs. In instances where secondary data are relevant for the subject under study, they may be just enough off the point to be rendered useless. Three common elements that often impair the value of secondary data are: (1) units of measurement, (2) definition of classes, and (3) recency (Hyman, H., 1972).

Variation in the units of measurement is a common deficiency of secondary data. Income, for instance, may be measured for individual, spending units, or head of household. In view of the differences in the units of measurement, the various data can be used together only for rough approximation.

Another common variation in secondary data is the different construction given to classes in different projects. Educational attainment, for instance, may be measured by less then eighth grade, some high school, high school graduate, some college, and college graduate, or it may be high school and less, and more than high school. Still another common variation in secondary data is recency. That is, data collected at one point in time may be of little use at another point in time.

Once having discovered appropriate secondary data, the analyst must determine whether or not the data are accurate enough for the purposes at hand. Before using secondary data, the investigator must subject them and the circumstances under which they were gathered to a critical evaluation (Hyman, H., 1972).

Of critical importance in this evaluation is the identification of the data's source. Secondary data may be derived from a secondary source or from an original source. One of the main advantages of original sources is that they usually explain how the data were collected. This facilitates an appraisal of their reliability. One of the main disadvantages of using secondary sources is that they not only frequently omit this explanation, but they may also make errors in copying data.

Our evaluation of the data used in this study was guided by the following four considerations: (1) pertinency of the data, (2) who collected and published the data and why, (3) methods of collecting data, and (4) general evidence of careful work.

Pertinency of the data. In the present study, the same classifications used in the Gallup project were used, as well as classes of data. The data were derived from the universe of interest.

The Gallup Organization (1973) conducted this study on women's attitudes regarding breast cancer for the American Cancer Society, obtaining information that could be used in planning programs to increase the public knowledge of breast cancer and the methods of its detection and treatment.

This survey was based on a national probability sample. The sampling procedure was designed to produce an approximation of the adult female population living in the United States, except for those women in institutions such as prisons or hospitals. A detailed description of the sampling procedure can be found in Appendix A.

Review of the research design. The research design for the Gallup study is a survey conducted at one point in time. The survey instrument consisted of both fixed-choice and open-ended questions. This research design, like any other, has its limitations and its advantages.

First, in a study like this one, the investigator depends on respondents' answers to specific predetermined, fixed-choice questions as measures of their feelings and actions. Problems of validity and reliability arise. The items may be understood in different ways by different respondents; respondents may be to some degree unwilling or unable to express their feelings or describe their actions in terms of the answer choices given them; and interviewers may miscode or misinterpret the answers that are given. To combat these problems as much as possible, the Gallup Organization, prior to formulating the questionnaire, held four group discussions which were used as a qualitative basis for refining the specific objectives of the study, and for developing specific questions to ask in the survey. The four discussion groups were divided into two types: (a) younger groups, and (b) older groups. In each group the demographic composition represented women of higher and lower socioeconomic status. The discussion leaders reflected the type of groups they led; for instance, the leaders for the two younger groups were women in their mid-twenties, while for the two older groups, the leader was a woman in her fifties. Each group was composed of approximately eight to ten women, and the discussion lasted about one and a half hour. These discussions were tape recorded.

After reviewing the group discussions, the Gallup Organization drafted a questionnaire which was revised after consultation with the American Cancer Society. The questionnaire was then pretested and further revised in the light of the pre-test experience.

Because the project was concerned with women's attitudes and opinions, interviews were conducted at times when women were in general more likely to be at home, weekends, or if weekdays, after 4:00 P.M. To compensate for women not at home, the Gallup Organization used a weighting procedure developed by Politz, A. and Simons, W. (1949) rather than a "call-back" procedure.

Interviews were conducted by experienced women interviewers. Each interviewer's work was validated and evaluated for completeness and accuracy. Gallup's work seems to be carefully done in an organized manner.

And, finally, it seems that the questionnaire items used in the Gallup study refer to experience and feelings that are common to most women. Furthermore, women's attitudes, beliefs, and actions are included in the present study's theoretical model, and the relationships that are found to exist between these realms lend confirmation to each, when these relationships make logical sense. For example, the belief that one is susceptible to breast cancer is related to awareness of breast self-examination a priori is plausible. Further confirmation of the validity of the

items are shown to be related to other variables in ways that are similar to relationships found in earlier research (in this vein we shall later see parallels between these data and those reported, e.g., in Becker and associates (1975 and 1977); Haefner and Kirscht (1970); Heinzelmann (1975); and Fabrega and Robert (1972)). Naturally, the attitudes are likely to change over time as different events or circumstances occur. This must be recognized and the findings interpreted accordingly.*

*While it is quite possible that attitudes and opinions used in this analysis may have changed over this period of time, the confirmation of the theoretical model used here to explain certain relationships gives us some basis for believing that relationships may be maintained for the most part.

CHAPTER III

TECHNIQUES OF DATA ANALYSIS

The technique used in this study is tabular analysis, done in the tradition of survey analysis by means of percents and stratified tables. In the results and discussion chapters (Chapters IV and V), the findings produced are described in some detail. In order to reduce the number of variables, some were combined into indices.

Index Construction: The "Health Influence" Variables

Three indices were needed: susceptibility, general knowledge, and specific knowledge to tap beliefs used as constituents of hypothesized predispositions to awareness or practice of breast self-examination. Construction of each of the three indices began with inspection of the distribution of responses to each item for the purpose of determining whether that item discriminated between respondents who differ on the dependent variables (and whether it presents missing data problems). Then, each item was crosstabulated with the dependent variables to determine whether there is a relationship and its direction, and, finally, each of the items was crosstabulated with each other items to be used for the same index.

The major purpose of this study is to examine how awareness and practice of breast examination are affected by various health beliefs and to do so in the context of a theoretical causal model.

Susceptibility

Two items were used to measure the respondent's belief about her susceptibility to breast cancer.

Item 47. Who is more likely to develop breast cancer, a woman who has been pregnant, a woman who has never been pregnant, or doesn't this make any difference?

Item 52. At what age is breast cancer most likely to develop, or is the chance of a woman developing breast cancer the same at all ages?

Respondents who chose their own age group or parity group (i.e., whether or not they had given birth) were coded "high susceptible," and those respondents who chose a specific group not their own were coded "low susceptible."

Item 52 contains a genuine knowledge element: there are age differences in susceptibility. Nonetheless, we are not concerned with the facts--only whether the respondent sees herself as more or less susceptible by virtue of her age and her opinion on this question. Item 47 does not contain a genuine knowledge element. Since pregnancy is not consistently reported as having any effect on the likelihood of getting breast cancer, this item has something of the

character of the auto-kinetic effect (Sherif, 1953). Because we may assume that no one knows the right answer to this question, it reflects purely the respondent's attitude--perhaps her worries, her optimism, her fears--at any rate, her feelings which support the belief about her susceptibility expressed in the item.

Belief About Seriousness of Breast Cancer

A belief about the seriousness of breast cancer was indicated by the respondent's perception of the impact that breast cancer, resulting in a mastectomy, would have upon her life, particularly in relation to her sense of being a woman. One item was used to measure respondent's belief about the seriousness of breast cancer:

> Item 63. If a woman like yourself has had a breast removed, to what extent do you think she loses her sense of being a woman--a great extent, somewhat, a little, or not at all, or don't know?

It was decided to dichotomize item 63, so the "low seriousness" category would be "pure" in the sense that "somewhat," "a little," and "not at all" were classified as low, and the questionable "don't know" was assigned to "high" together with "a great extent," on the assumption that the "don't know" response reflects a withdrawal under conditions of high anxiety (see the discussion of "cross-pressures" in Berelson, B., Lazarsfeld, P. F., and McPhee, W. N., "Voting," 1954).

Belief in the Benefits of Taking Action to Ameliorate the Effects of Breast Cancer

The belief in the benefits of breast self-examination is indicated by two items representing, respectively: (1) the value a woman believes early detection has in the cure of breast cancer and (2) the effectiveness of breast self-examination in early detection. One item was used to measure respondent's perception of the value of early detection:

> Item 54: What are the chances of breast cancer being cured if it is discovered early--excellent, good, fair, poor, or don't know?

The five categories to item 54 were collapsed into high (excellent and good), and low (fair, poor, and don't know).

The effectiveness of breast self-examination itself was measured by a single questionnaire item:

> Item 37. Suppose a woman has a small lump in her breast. How likely do you think it is that she will find it if she does breast self-examination--very likely, fairly likely, not too likely, not at all likely, or don't know?

The five categories were collapsed into high (very likely and fairly likely) and low (not too likely, not at all likely, and don't know).

Knowledge of Symptoms and Signs of Breast Cancer and Procedures of Breast Self-Examination

As previously mentioned, some signs of breast cancer are easy to detect. According to the American Cancer Society, 90 percent of breast lumps are discovered by women themselves. Two items were used to measure respondents' knowledge about signs of possible breast cancer:

Item 16a. To the best of your knowledge, which of these are signs of possible breast cancer?

16b. Which are early signs, that is, they can be seen or felt very early?

A. Dimpling

B Discharge from the nipple

C. Pain or soreness in the breast

D. Lump in the breast

E. Difference in size of the breast

F. Bleeding from the nipple

G. Thickening of breast tissue

H. Discoloration of the breast

None of the above

Don't know

For item 16a respondents who reported four or more signs were coded as possessing a high level of knowledge; while those who reported less than four signs or responded don't know" were coded as possessing a low level of

knowledge. For item 16b respondents who reported three or more early signs were coded as having high level of knowledge, while those who reported less than three signs were coded as having a low level of knowledge. It should be noted that very few respondents responded "none of them" or "don't know." The two items were converted into a single index. The sample was trichotomized into high, moderate, and low levels of general knowledge.

Respondents who were coded "high" on both items were coded as possessing a high level of general knowledge, those respondents who were coded "high" on one item and "low" on the other item were coded as possessing a moderate level, and those who were coded "low" on both items were coded as possessing a low level of knowledge.

Even though women may be informed about signs of breast cancer, it seems reasonable to assume that women must know the proper procedure of breast examination. The following items (open ended) were used to measure respondents' knowledge of procedure of breast self-examination.

Item 15a. First, are there any special ways a woman should position herself?

Item 15b. What would she look or feel for?

Item 15c. How would she go about doing this?

Responses to each indicator were assessed for correctness and then dichotomized into high and low levels of specific knowledge. The three indicators were then combined into a single

index, in terms of which respondents were classified as "high," "moderate," or "low."

Respondents who were coded high on two or more of the indicators were coded high on the measurement of specific knowledge; those who were coded high on one indicator and low on the others were coded moderate; and those who were coded low on all three indicators were coded low on the measurement of specific knowledge.

Anxiety About Breast Cancer

Even though women may believe in the usefulness of breast examination, it is reasonable to assume that breast examination itself may be a source of anxiety; and anxiety may function as a barrier to the practice of breast examination. To assess whether breast examination is a source of anxiety the following item was included in the analysis:

> Item 42. Some women feel they want monthly breast examination so that if they do have breast cancer they will find out as soon as possible. Other women feel that having monthly breast examinations would make them worry when it wasn't necessary. Whom do you agree with more--want monthly exams to find out, don't want because would worry or don't know?

Women who reported they wanted monthly exams were coded low on the measurement of anxiety, while those who reported don't want because would worry or don't know were coded high on the measurement of anxiety.

Interpersonal Influence

A woman's decision to examine or not to examine her breasts may be affected by her immediate personal environment, which may provide role models, advice, opportunities for learning, and social pressures. One item of interpersonal influence was included in the analysis. The following item was used in the first measurement:

> Item 58a. Do you know anyone personally who had had breast cancer--yes or no?

Women who did not know someone who had breast cancer were placed in the low category, while those women who knew someone who had had breast cancer were placed in the high group.

The second measure of interpersonal influence, physicians' influence, was operationally defined by the response to:

> Item 27. Has a doctor ever brought up the topic of breast self-examination with you--yes or no?

Respondents who reported "yes" were coded high on the measurement of physicians' influence, and those who reported "no" were coded low.

The rationale has already been described for the claim that "health influence" variables are causally related to awareness of and the practice of breast self-examination. In addition, it is assumed that personal characteristics of the respondents have direct and indirect effects on the dependent variables.

First, we assume that variables descriptive of a person's "position in life" are likely to have a bearing on what other factors will influence a person's health behavior: we expect age to have an influence because in many respects age affects what our bodies require for good health; we expect motherhood to change certain aspects of a woman's attitudes to her body and her health, and marital status may do the same. More indirectly we expect a general notion of social position to have a pervasive influence by mechanisms not always well specified--as when it is said that socio-economic status is at the root of almost all attitudes. But we do expect that education will have some influence on what people know, on the level of knowledge they are likely to maintain throughout their lives, and on the people they associate with, probably of similar educational level, who make expectations of them as to what they should know, or what is considered knowledge in their social circle. Income, no doubt through a similar mechanism, is likely to have a similar effect; besides it is one of the most clear-cut mechanisms that limits a person's opportunities for all kinds of action; and race is in a similar manner an indicator of various restrictions that people experience in our society.

These are the personal characteristics which we assume to be relevant to health practices and, in this particular study, to the practice of breast self-examination and

even to the awareness that this is a practice recommended as well.

The frequency of distribution of variables included in this study can be found in Appendix A.

CHAPTER IV

PRESENTATION AND DISCUSSION OF FACTORS THAT INFLUENCE AWARENESS OF BREAST SELF-EXAMINATION

In accordance with the theoretical model proposed, we present here a detailed analysis of awareness. The tendency of a woman to be aware of breast self-examination (BSE) will be studied in terms of four determinants: (1) her sense of susceptibility to breast cancer, (2) the seriousness of the disease as it appears to her, (3) interpersonal influence, and (4) her general knowledge. We expect such factors to occur with variable frequency in different social situations, so that the relation between these determinants of awareness must be considered in the context of socioeconomic variables and other background.

The Social Correlates of Awareness of Breast Self-Examination

In this section we shall discuss the relations between background variables and awareness of breast self-examination.

For women to practice breast self-examination, they must, of course, first know about it. A "yes" answer to the question:

> "Have you ever heard of breast self-examination where a woman examines her breast herself for possible signs of breast cancer?"

is here accepted as evidence for awareness of breast self-examination. Several factors are hypothesized as influencing women's tendency to be aware of breast self-examination. Before proceeding to the presentation and discussion of results for each of these factors, attention should be paid to the fact that breast self-examination was not a completely unknown matter to the respondents. By far the majority, 77 percent, of respondents had heard of breast self-examination.

When the sample was subdivided according to a number of demographic characteristics, the data fell into a pattern that parallels the findings of a number of earlier investigations on health practices. Younger women (i.e., women under 35) were more likely than older women to report having heard of breast self-examination (see Table 4-1, Section 1). There was a greater frequency of awareness among women who were married or divorced and among women who had borne a child (see Table 4-1, Sections 2 and 3).

A clear-cut relationship was found between the amount of formal education a woman had and awareness. Women with more formal education were more likely to report having heard of breast self-examination than women with less formal education. A similar relationship holds between income and

awareness. Women whose family income was high were more likely to be aware of breast self-examination than those whose family income was low (see Table 4-1, Sections 4 and 5). The data on the relationship between race and awareness also accord with the results of prior research (see Table 4-1, Section 6) in that a larger proportion of white women than of black women was aware of breast self-examination.

Table 4-1 shows the relationship between a number of demographic characteristics and awareness. These data are valuable from a purely descriptive standpoint, for they distinguish women in the population who are more likely to be aware of breast self-examination from those who are less likely to be aware of breast self-examination. Assuming that it is desirable to increase women's knowledge about breast self-examination, the table identifies the particular elements of the population which are appropriate target groups for intensified educational efforts.

But since differences have not been controlled by the introduction of additional variables, we do not know that the variables listed in Table 4-1 have anything more than a spurious relationship to awareness. For example, awareness of breast self-examination is very highly correlated with the number of years of school the respondent has completed. Thus, some of the other demographic differences

TABLE 4.1

PERCENTAGE OF 1,870 RESIDENTS' AWARENESS OF BSE BY AGE, RACIAL STATUS, EDUCATION, INCOME, MARITAL STATUS, AND MOTHERHOOD

	Percentage Base	Percentage Who are Aware of BSE
1		
Age		
18-34	680	82
35-54	620	84
55+	558	64
2		
Marital Status		
Single	173	69
Married	1,376	80
Divorced	99	82
Widowed	213	63
3		
Motherhood		
Has borne a child:		
Yes	1,475	79
No	393	72
4		
Education		
High Sch. and more	1,160	88
Less than High Sch.	694	59
5		
Income		
$7,000 and above	827	89
Under $7,000	940	68
6		
Race		
Black	214	52
White	1,563	82

which appear in Table 4-1 may reflect little more than the fact that the average educational attainment is different in different demographic categories, e.g., that on the average black women have enjoyed less education than white women.

Indeed, racial differences in Table 4-1 are spuriously inflated by differences in educational attainment. Fifty-eight percent of black women have not graduated from high school, whereas for white women this is true of only 34 percent. In part, therefore, educational attainment might account for the higher level of awareness among white women (Table 4-2).

Yet when we made due allowance for these educational differences, white women still are more likely than black women to be aware of breast self-examination. At each level of educational attainment, and especially among women with less formal education, black women are less aware of breast self-examination than white women (Table 4-3). At least two possible explanations come to mind for the lower level of awareness among black women. The first is that black women are less interested or motivated in acquiring information about breast cancer and breast self-examination. The second possible explanation which is not incompatible with the first is that black women have less opportunity to become exposed to such information. This will be discussed later on.

TABLE 4-2

EDUCATION BY RACE

	Race	
Education	Black	White
Less than High School	58	34
High School and More	42	66
%	100	100
Number	(213)	(1560)

TABLE 4-3

% AWARE OF BSE BY EDUCATION AND RACE

(cell figures are percent aware)

	Race		
Education	Black	White	Total
Less than High School	33 (123)	67 (524)	60 (647)
High School and More	79 (90)	89 (1036)	88 (1126)
Total	52 (213)	81 (1560)	(1773)

Income is highly correlated with education, which makes the isolation of their separate effects problematic. Indeed, these two variables are frequently thought of as mere indicators of a single underlying factor of "socio-economic status." Cantril and associates (1947) have shown that educational attainment is more closely related to knowledge of public affairs and to health information than other components of socioeconomic status. The same pattern of relationship occurs with respect to awareness of breast self-examination. Even though income and education each has an association with awareness when the other is controlled for, in the categories we are using education appears to make a bigger difference (see Table 4-4). This does not mean that a woman's family income has only little to do with her patterns of acquiring information. Income is integral to a woman's social position, and her social position substantally influences how much and what she is likely to learn.

The differences in awareness associated with age in Table 4-1 are also spuriously inflated by differences in educational attainment. Fifty-six percent of the women who are fifty-five years of age and older have less formal education, whereas in the 18 to 34 and 35 to 54 years age group this is true of only 21 and 35 percent, respectively. In part, educational attainment accounts for the higher

TABLE 4-4

% AWARE OF BSE BY EDUCATION AND INCOME

(cell figures are percent aware)

Education	Income: Below $7000	Income: $7000 and Above	Total
Less than High Sch.	54 (485)	77 (153)	59 (638)
High Sch. and More	83 (453)	92 (672)	89 (1125)
Total	63 (938)	88 (825)	74 (1763)

level of awareness among younger women (Table 4-5). Moreover, when the relationship between age and awareness is examined for educational influence it can be seen from Table 4-6 that women who have more formal education are more likely to be aware of breast self-examination regardless of their age. Age does, however, influence awareness among women with less formal education (Table 4-6).

We know at this point that the influence of education, in part, explains racial, income, and age differences in Table 4-1. Given that personal characteristics and especially education are associated with awareness, they do not explain awareness. We would not expect a woman's age, education, and racial status to wholly account for why she does not become aware of breast self-examination. Therefore, attention is turned to the "health influence" variables and their influence on awareness of breast self-examination.

As previously mentioned, our causal model stated that awareness is to be seen as having its value as the result of a woman's position on the "health influence" variables; and that these, of course, are influenced by a person's general status in society. It is expected that the influence of the background variables is likely to be largely absorbed by the health influence variables, i.e., that after the latter are taken into account, further effects of the background variables will be minor.

TABLE 4-5

EDUCATION BY AGE

	Age		
Education	18-34	35-44	55+
Less than High Sch.	21	35	56
High School and More	79	65	44
%	100	100	100
Number	(690)	(621)	(583)

TABLE 4-6

% AWARE OF BSE BY EDUCATION AND AGE

(cell figures are percent aware)

	Age			
Education	18-34	35-54	55+	Total
Less than High Sch.	60 (147)	71 (217)	51 (327)	58 (691)
High School and More	88 (533)	91 (404)	83 (258)	88 (165)
Total	81 (690)	84 (621)	61 (585)	(1856)

In the following section, the first "health influence" variables will be studied: (1) a woman's sense of being susceptible to breast cancer, and (2) the seriousness of the disease as it appears to her.

Awareness of Breast Self-Examination and Health Beliefs

The Health Belief Model postulates two sets of interacting factors: (1) the subjective state of readiness to take specific action against a particular disease, and (2) the belief in the effectiveness of action for avoiding or reducing the risk of the disease (a matter that will be addressed in Chapter VI). The subjective state of readiness is inferred from a person's sense of susceptibility to the disease and the extent a person feels that contracting that condition would have serious consequences for her. Readiness to take a preventive measure, breast self-examination, will be studied here in terms of a woman's sense of being susceptible to breast cancer, as measured by the susceptibility index (see page 64), and the seriousness of the disease as it appears to her, as measured by the seriousness indicator (see page 65).

It seems a reasonable hypothesis that women who believe that they are susceptible to breast cancer and that the consequences of breast cancer are very serious are more likely to be aware of breast self-examination than women who

believe that they are less susceptible to breast cancer and that the consequences of breast cancer are not too serious. We first ask whether the data are consistent with this hypothesis.

Distribution of the Health Beliefs in Terms of Susceptibility and Seriousness Measures

The susceptibility and seriousness measures classified few of the respondents as having a high sense of threat of developing breast cancer: Only 24 percent of the respondents scored high on the measure of susceptibility, and only 26 percent of the respondents scored high on the seriousness indicator.

We may now test our notion of readiness for preventive action against breast cancer, by studying whether the indicators for "readiness" are related to awareness of breast self-examination.

As expected, believing herself to be susceptible to breast cancer influences a woman's likelihood of being aware of breast self-examination. Women who score high on the measure of susceptibility are more likely than women who score low to be aware of breast self-examination (see the right margin of Table 4-7). The second component of the sense of threat of developing breast cancer is the estimate of the seriousness of the disease. Table 4-8 (the right margin, page 86) reveals that women who score low on the

TABLE 4-7

% AWARE OF BSE BY SUSCEPTIBILITY AND EDUCATION

(cell figures are percent aware)

	Education		
Susceptibility	High Sch. and More	Less than High Sch.	Total
High	92 (334)	76 (129)	87 (463)
Low	87 (823)	56 (565)	74 (1388)
Total	88 (1157)	60 (694)	77 (1851)

TABLE 4-8

% AWARE OF BSE BY SERIOUSNESS AND EDUCATION

(cell figures are percent aware)

	Education		
Seriousness	High Sch. and More	Less than High Sch.	Total
High	85 (293)	49 (195)	71 (488)
Low	89 (877)	63 (499)	80 (1376)
Total	88 (1170)	60 (694)	77 (1864)

measure of seriousness are more likely to be aware of breast self-examination than those who score high on the measure of seriousness. This relation is opposite to the direction hypothesized. As the reader may recall, it was hypothesized that women who believed that the consequences of breast cancer were very serious were more likely to be aware of breast self-examination than women who believed the consequences of breast cancer were not so serious. It might be argued that the question related to the seriousness of breast cancer rouses anxiety which may function as a barrier to awareness. Consequently, awareness becomes less frequent. Janis and Feshbach (1953) provide support for this assumption. In their study on the effects of fear-arousing communications they found high levels of fear/anxiety elicit responses (such as defensive avoidance) that interfered with compliance to recommended behavior. Thus we tentatively keep the seriousness indicator either to find other evidence related to this assumption, or to eliminate the indicator at a later point in the analysis.

Health Beliefs and Awareness of Breast Self-Examination: Testing Relationships in Different Demographic Groups

Since we know that respondents' personal characteristics such as socioeconomic status, age, marital status, and racial status have an influence on awareness, we might

ask whether these variables have these effects by influencing women's sense of their susceptibility to breast cancer, and the seriousness of the disease as it appears to them.

Education. It has been shown that women with more formal education are more likely to report that they have heard of breast self-examination than women with less formal education. Tables 4-7 and 4-8 (see page 85) indicate that the effects of susceptibility and of seriousness to awareness are great for women with less formal education but weak for women with more formal education. It is not surprising that neither susceptibility nor seriousness makes a great difference to the awareness of women with more formal education, since it is at least a plausible hypothesis that they expect themselves, as others expect them, to be reasonably well informed on a variety of topics including breast self-examination, and, indeed, with little variation, 88 percent are aware of breast self-examination. Demands to be well informed are not as great for women who have less formal education; their general level of awareness is lower, but the sense of being susceptible to breast cancer and the seriousness of the disease makes them more sensitive to information on this topic.

Age. A woman of high susceptibility increases the tendency to be aware of breast self-examination for women

35 years of age and older, yet more for women 35 years of age and older. For younger women, the relation between susceptibility and awareness is in the opposite direction. Young women who score low on the measure of susceptibility are more likely to be aware of breast self-examination than those who score high on the measure of susceptibility (see Table 4-9). For young women, it may be that the thought of breast cancer is more of a source of anxiety, thereby functioning as a barrier to awareness. In the minds of many women breast cancer is associated with mastectomy; for young women this thought may be particularly threatening since they are considerably more likely than older women to feel that losing a breast would greatly affect their sense of being a woman (see Table 4-10, as the reader may recall this is the indicator that is used to measure seriousness).

Marital status and motherhood. When the relationship of susceptibility to awareness was examined to see whether marital status or motherhood modified the relationship, it was found that susceptibility increased awareness for married or once married women and for women who had borne a child, but for single women and women who had not borne a child the relationship between susceptibility and awareness was in the opposite direction. Single women and women who had never borne a child who score low on the

TABLE 4-9

% AWARE OF BSE BY SUSCEPTIBILITY AND AGE

(cell figures are percent aware)

	Age			
Susceptibility	18-34	35-54	55+	Total
High	72 (112)	92 (325)	92 (25)	87 (462)
Low	84 (568)	74 (287)	63 (533)	74 (1388)
Total	82 (680)	84 (612)	64 (558)	1850

TABLE 4-10

SERIOUSNESS BY AGE

	Age			
	18-34	35-54	55+	
High	34	24	20	
%	100	100	100	100
Number	(680)	(620)	(558)	1858

measure of susceptibility were more likely to be aware of breast self-examination than those who score high on the measure of susceptibility (see Tables 4-11 and 4-12). Since marital status and motherhood are associated with age, it is reasonable to assume that these findings are influenced by age. This assumption is supported by the data. The majority of single women and women who have not borne a child are between the ages of 18 and 34 years, while the majority of married and once married women and women who have not borne a child are 35 years of age and older. Moreover, single women and women who have not borne a child are more likely than other marital status groups and women who have borne a child to feel losing a breast would greatly affect their sense of being a woman (see Tables 1 and 2 in Appendix C).

Race. Since we know that white women are more likely than black women to be aware of breast self-examination, we might ask whether this finding is, in part, due to a sense of being susceptible to breast cancer. As can be seen from Table 4-13, black women are just as likely as white women to feel susceptible to breast cancer. Moreover, when the relationship of susceptibility to awareness was examined for racial groups it was found that a sense of high susceptibility increases awareness for both racial groups and especially for black women (see Table 4-14).

TABLE 4-11

% AWARE OF BSE BY SUSCEPTIBILITY
AND MARITAL STATUS

(cell figures are percent aware)

	Marital Status				
Susceptibility	Sing.	Marr.	Wid.	Div.	Total
High	62 (45)	91 (351)	76 (29)	94 (32)	87 (457)
Low	72 (128)	76 (1012)	61 (184)	76 (67)	74 (1391)
Total	69 (173)	80 (1363)	75 (213)	85 (99)	81 (1848)

TABLE 4-12

% AWARE OF BSE BY SUSCEPTIBILITY
AND MOTHERHOOD

(cell figures are percent aware)

	Motherhood		
Susceptibility	Yes	No	Total
High	91)393)	66 (70)	87 (463)
Low	74 (1069)	73 (323)	74 (1392)
Total	79 (1462)	72 (393)	77 (1854)

TABLE 4-13

SUSCEPTIBILITY BY RACE

	Race		
Susceptibility	Black	White	
High	24	25	
%	100	100	
Number	(214)	(1550)	(1764)

TABLE 4-14

% AWARE OF BSE BY SUSCEPTIBILITY AND RACE

(cell figures are percent aware)

	Race		
Susceptibility	Black	White	Total
High	75 (52)	91 (390)	89 (442)
Low	45 (162)	78 (1160)	74 (1322)
Total	52 (214)	82 (1550)	82 (1764)

Awareness of Breast Self-Examination and Interpersonal Influence

We now know that health beliefs have a certain influence. It is generally recognized that interpersonal influence is important both for shaping people's attitudes and for their dispositions to act (Katz and Lazarsfeld, 1956). Therefore, in addition to the health beliefs, interpersonal influence has been included as one of the determinants of awareness in the theoretical model.

It is hypothesized that women who know someone personally who has had breast cancer are more likely to be aware of breast self-examination than women who do not know someone who has had breast cancer.

In terms of the interpersonal influence indicator, the majority of respondents are subjected to a high level of interpersonal influence. Seventy-seven percent of the respondents score high on the measure of interpersonal influence.

As expected, women who score high on the measure of interpersonal influence are more likely to be aware of breast self-examination than women who score low on the measure of interpersonal influence (see the right margin in Table 4-15). More important than the fact that a woman has had certain experiences with breast cancer, or breast examination, however, may be the particular meaning which

TABLE 4-15

% AWARE OF BSE BY INTERPERSONAL INFLUENCE AND SUSCEPTIBILITY

(cell figures are percent aware)

Interpersonal Influence	Susceptibility		
	High	Low	Total
High	93 (327)	85 (798)	87 (1125)
Low	74 (131)	60 (575)	69 (706)
Total	88 (458)	75 (1373)	78 (1831)

TABLE 4-16

% AWARE OF BSE BY INTERPERSONAL INFLUENCE AND SERIOUSNESS

(cell figures are percent aware)

Interpersonal Influence	Seriousness		
	High	Low	Total
High	81 (257)	89 (875)	87 (1132)
Low	59 (230)	64 (483)	63 (713)
Total	71 (487)	80 (1358)	75 (1845)

she ascribes to these experiences. Consequently, special consideration in this study was given to the personal significance of such experience.

Awareness, Interpersonal Influence and Health Beliefs

Since a woman's attitudes about breast cancer may reflect the personal significance of certain experiences with breast cancer and breast examination, a study was made of the association between interpersonal influence and personal readiness factors that were previously described. Interpersonal influence is related to perceived susceptibility and perceived seriousness, suggesting that interpersonal influence may be related to awareness by way of its effect upon a woman's beliefs summarized in the susceptibility index and seriousness indicator. If the influence of various experiences with breast cancer is affected by the perceived threat of breast cancer, it is reasonable to assume that women who have similar interpersonal experiences may behave differently with respect to breast self-examination because of the difference in the meaning which these events have for them.

When the relationship between the interpersonal influence indicator and awareness of breast self-examination was examined among women when susceptibility or seriousness was held constant the data showed that regardless of the

threat of developing breast cancer (as measured by susceptibility and seriousness), women who were subjected to a high level of interpersonal influence are more likely to be aware of breast self-examination than those who were not (see Tables 4-15 and 4-16).

Interpersonal Influence and Awareness: Testing Relationships in Different Demographic Groups

Various background characteristics were studied because of the influence they might have upon respondents' interpersonal relations. Attention was focused upon socioeconomic status, age, marital status, and racial status. None of these variables, however, explained the relationship between interpersonal influence and awareness of breast self-examination. It was found that interpersonal influence continues to affect awareness even when socioeconomic status, age, marital status, and racial status were held constant.

Socioeconomic status. As can be seen from Table 4-17, Sections 1 and 2, the relationship of interpersonal influence to awareness is strong among women who have low socioeconomic status; it makes smaller difference for women of high socioeconomic status. It may be argued that interpersonal influence affects awareness more effectively

TABLE 4-17

% AWARE BY INTERPERSONAL INFLUENCE WITHIN VARIOUS BACKGROUND CATEGORIES

	Interpersonal Influence		
	High %	Low %	Total
Education			
high school and more	91 (967)	75 (200)	83 (1167)
less than high school	72 (459)	36 (231)	54 (690)
Total	82 (1426)	56 (431)	69 (1857)
Income			
$7000 and above	89 (997)	67 (192)	78 (1189)
below $7000	74 (432)	43 (240)	59 (672)
Total	82 (1429)	110 (432)	69 (1861)
Age			
18-34	87 (559)	59 (119)	73 (678)
35-54	89 (494)	62 (127)	76 (621)
55 +	75 (368)	45 (186)	60 (554)
Total	84 (1421)	55 (432)	70 (1853)
Marital Status			
single	83 (112)	45 (60)	64 (172)
married	87 (1102)	55 (271)	71 (1373)
widowed	70 (137)	52 (73)	61 (210)
divorced	89 (71)	64 (28)	77 (99)
Total	82 (1422)	54 (432)	68 (1854)

in the absence of other motivations to be aware of breast self-examination, while its influence wanes in the presence of other motivation.

Age and marital status. When the relationship between interpersonal influence and awareness was examined for different age groups, it was found that interpersonal influence increases awareness for each age category. It is noteworthy that knowing someone personally who has had breast cancer has a similar effect on each age group (see Table 4-17, Section 3). Interpersonal influence increases the tendency to be aware of breast self-examination for each marital status category and especially for married and single women (see Table 4-17, Section 4).

Race. In the previous section, it was asserted that the lower level of awareness among black women than among white women may, in part, be due to the fact that black women have less opportunity to become exposed to information on breast self-examination. As a consequence, awareness becomes less frequent.

Indeed racial differences are spuriously inflated by differences in interpersonal influence. Sixty-five percent of white women are subjected to a high level of interpersonal influence, while for black women this is true of only 41 percent. In part, therefore, interpersonal

influence accounts for the higher level of awareness among white women. Yet when we make due allowance for the interpersonal influence differences, white women still are more likely than black women to be aware of breast self-examination. At each level of interpersonal influence white women are more likely to be aware of breast self-examination than black women (see Table 4-18).

TABLE 4-18

% AWARE OF BSE BY INTERPERSONAL INFLUENCE AND RACE

(cell figures are percent aware)

Interpersonal Influence	Race	
	Black	White
High	63 (140)	88 (1218)
Low	32 (74)	60 (338)
	53 (214)	67 (1556)

Awareness of Breast Self-Examination and General Knowledge

A number of studies of health practices show considerable concern about the health education of the public. These studies (Beasley, 1966; Feldman, 1966; Samora, 1962; Seligman, 1957; and Swinehart, 1968) emphasize the individual's knowledge of illness as a factor in health maintenance. However, the role of knowledge about illness in explaining health practices remains to be clarified.

Studies indicating that knowledge of illness plays a role in the initial decision to seek medical care suggest that knowledge is also a factor in the propensity to engage in preventive health behavior after the initial medical contacts. It is to be tested whether knowledge of the symptoms and signs of breast cancer can be construed to be a prerequisite for breast self-examination.

The general knowledge index (see page 67) divides the sample into 59 percent of the respondents who are scored as having a "low level" of general knowledge; 30 percent of the respondents who are scored as having a "moderate level" of general knowledge; and 11 percent of the respondents who are scored as having a "high level" of general knowledge.

The hypothesis that knowledge of breast cancer symptoms and signs should be directly related to awareness is

supported by the data. The right margin of Table 4-19 shows a relationship between the general knowledge index and awareness. As the level of general knowledge increases, so does the probability of awareness.

There are logical and empirical grounds for arguing that knowledge may affect awareness. Knowledge about breast cancer may be acquired in many ways, not all of which assure the coexistence of attitudes generally conducive to awareness. For example, women who are predisposed to examine their breasts are not inevitably among those who are knowledgeable about signs and symptoms of breast self-examination. Conversely, the negative effect of low knowledge may be compensated for by attitudes toward breast cancer, or a high educational level, or by interpersonal relations that facilitate the acceptance of breast self-examination. Therefore, one would suspect that knowledge of signs and symptoms of breast cancer will explain awareness more effectively in the absence of other motivations to become aware of breast self-examination, while its effects will wane in the presence of other motivations.

Cross tabulations reveal strong associations of knowledge with education, the sense of susceptibility to breast cancer, the seriousness of the disease, and the index of interpersonal influence. However, none of these variables wholly explain the relationship between general

knowledge and awareness. General knowledge continues to have an effect when education is held constant. The relationship also is not explained by a woman's attitudes toward breast cancer. Similarly, the measure of interpersonal influence fails as an explanatory tool. Knowledge continues to increase awareness when these variables are held constant.

General Knowledge, Awareness and Health Beliefs

In the previous section, it was shown that the index of susceptibility to breast cancer and the indicator of seriousness of the disease are predictors of awareness. This might suggest that susceptibility and seriousness may explain the relationship between general knowledge and awareness. This hypothesis found no support in the data.

TABLE 4-19

% AWARE OF BSE BY GENERAL KNOWLEDGE AND SUSCEPTIBILITY

(cell figures are percent aware)

	Susceptibility		
General Knowledge	High	Low	Total
High	95 (73)	96 (180)	96 (253)
Moderate	97 (150)	79 (466)	86 (616)
Low	79 (239)	65 (744)	70 (983)
Total	88 (462)	75 (1390)	84 (1852)

The index of susceptibility failed to explain the relationship between general knowledge and awareness, though it made some difference. Specifically, it has a strong effect on awareness under conditions of low or moderate general knowledge, but it makes little difference among women at a high level of general knowledge. This may be seen in Table 4-19. When the relationship of general knowledge to awareness was stratified by seriousness, it was found that the combined effects of low seriousness and general knowledge increase the likelihood of awareness (see Table 4-20).

TABLE 4-20

% AWARE OF BSE BY GENERAL KNOWLEDGE AND SERIOUSNESS

(cell figures are percent aware)

	Seriousness		
General Knowledge	High	Low	Total
High	85 (52)	98 (192)	95 (244)
Moderate	81 (147)	84 (477)	83 (624)
Low	61 (278)	72 (709)	69 (987)
Total	70 (477)	80 (1378)	77 (1855)

General Knowledge, Awareness and Interpersonal Influence

Interpersonal influence has been described as a motivating force behind women's awareness of breast self-examination. Table 4-21 shows that the level of interpersonal influence affects awareness most for women who scored moderate or low on the measure of general knowledge, 81 percent of those with low general knowledge are aware of breast self-examination compared to 96 percent of those with high general knowledge. Those subjected to a high level of interpersonal influence, on the other hand, are more likely to be aware of breast self-examination than those having been exposed only to little interpersonal influence, especially if the level of their general knowledge is low.

TABLE 4-21

% AWARE OF BSE BY GENERAL KNOWLEDGE AND INTERPERSONAL INFLUENCE

(cell figures are percent aware)

	Interpersonal Influence		
General Knowledge	High	Low	Total
High	97 (215)	89 (38)	93 (253)
Moderate	90 (517)	54 (107)	72 (624)
Low	77 (695)	49 (286)	63 (981)
Total	88 (1427)	64 (431)	76 (1858)

Thus, the relation between general knowledge and awareness is again considerably modified, namely reduced, under conditions suggesting the presence of motivation to be aware of breast self-examination.

The significance of general knowledge under conditions that make awareness of breast self-examination less likely received further elucidation from the following datum; general knowledge makes a difference to awareness for women who have less than a high school education; it makes a smaller difference for women with a high school education or more (Table 4-22).

TABLE 4-22

% AWARE OF BSE BY GENERAL KNOWLEDGE AND EDUCATION

(cell figures are percent aware)

	Education		
General Knowledge	High Sch. and More	Less Than High Sch.	Total
High	99 (199)	84 (55)	92 (254)
Moderate	92 (368)	69 (223)	81 (591
Low	81 (1136)	51 (415)	66 (984
Total	91 (1136)	68 (693)	80 (1829)

As the reader may recall it was expected that the influence of background variables would be largely absorbed by the "health influence" variables. That is, after the latter were taken into account, further effects of the background variables were expected to be minimal or not observable. This assumption was not supported by the data. The influence of personal characteristics and especially education on awareness was pervasive.

We know at this point that information contained in the background variables is partially duplicated. The influence of education, in part, accounts for the higher level of awareness among white women, women whose family income is high, and among women who are under the age of 55 years.

When the "health influence variables" were considered, the data showed education and interpersonal influence each was related to awareness when the other was held constant. We asked the further question: Which has the greater effect? This question was answered by comparing the average percentage difference of each variable controlled on the other. It was found that the influence of education was no greater than that of interpersonal influence in influencing awareness of breast self-examination.

Given that both education and interpersonal influence are equally as likely to influence awareness, we asked a

second question: How strong is their combined effect? That is, if women have more formal education and are subjected to a high level of interpersonal influence, does this produce an effect greater than either considered individually? Table 4-17 shows that it does. Among women who have more formal education and are subjected to a high level of interpersonal influence, more than 91 percent are aware; of women low on both interpersonal influence and education, 36 percent are aware. Comparison of the undirectional categories--"consistent groups"--shows that education and interpersonal influence have a cumulative impact on awareness. This cumulative impact is greater than the effect of either independent variables considered alone.

Similarly, it was found that education and general knowledge (being informed about signs and symptoms of breast cancer) each has an effect on awareness separate from the other (Table 4-21). General knowledge appears to be somewhat more closely related to awareness when education is controlled than the other way around. The cumulative effect of general knowledge and education is greater than the effect of either considered alone.

Neither susceptibility nor seriousness was found to be independently related to awareness when general knowledge was held constant. Believing oneself susceptible to breast cancer makes no difference to awareness for women who are

informed about signs and symptoms of breast cancer. Susceptibility, however, makes a difference to awareness for women who are less informed about signs and symptoms of breast cancer.

Interpersonal influence and general knowledge each has an effect on awareness separate from the other. General knowledge appears to be somewhat more closely related to awareness when interpersonal influence is controlled than the other way around. The combined effects of knowing someone personally who has had breast cancer and being informed about signs and symptoms of breast cancer increase the tendency to be aware of breast self-examination.

CHAPTER V

PRESENTATION AND DISCUSSION OF FACTORS THAT INFLUENCE THE PRACTICE OF BREAST SELF-EXAMINATION

In the previous chapter we saw that the majority of respondents reported having heard of breast self-examination (BSE). However, mere awareness is not sufficient to guarantee that breast self-examination will be practiced. The extent to which there is awareness in different population segments is only a first influence on practice within each segment.

It is assumed that a woman's estimate about the efficacy of breast self-examination and the curability of breast cancer might be factors that motivate her to examine her breasts. In addition, it is assumed that interpersonal influence may motivate a woman to examine her breasts. But motivation is not enough, a woman must also know how to go about examining her breasts, know what signs and symptoms to look for. Such knowledge, accordingly, must also be taken into account. It is reasonable to assume that the idea of breast self-examination itself can indirectly or directly be a source of anxiety, thereby arousing

conflicting motives of avoidance. Therefore, anxiety associated with breast cancer will be considered as a potential barrier to breast self-examination. Ths chapter will only deal with women who are aware of breast self-examination.

The Correlates of the Practice of Breast Self-Examination

As we saw in the previous chapter, a little over three-fourths of the respondents are aware of breast self-examination, and, of these, 71 percent have practiced breast self-examination. Thus, more than a quarter of the respondents who are aware of breast self-examination have never practiced it. That is to say, while 77 percent of all respondents have heard of breast self-examination, only 71 percent of these, or 55 percent of the total sample, have ever practiced it. A "Yes" answer to the question "Have you ever practiced breast self-examination?" is here accepted as evidence for having practiced breast self-examination.

When the aware subsample is subdivided according to various demographic characteristics, the frequency of practice is found to vary between major population segments. Women between the ages of 35 and 54 years are somewhat more likely to practice breast self-examination than younger or older women (see Table 5-1, Section 1). Women in mid-life

(35 to 54 years) are the particular target group of informational programs related to breast cancer. This age differential may, in part, be due to the result of these special efforts to reach this age group. It is noteworthy that women in mid-life are more likely to feel susceptible to breast cancer than younger or older women (see Table 3 in Appendix C), which may also reflect the effect, direct or indirect, of the informational programs to reach this age group.

Also, women who are married, widowed, or divorced are more likely to practice breast self-examination than women who are single (see Table 5-1, Section 2). Since age and marital status are associated, it is reasonable to assume that these differences between marital status groups are, in part, due to age. This contention was supported by the data. Indeed, the majority of single women are in the 18 to 34 years age group and the majority of widows are 55 years of age and older, thus less in the 35 to 54 years age category than women who are married or divorced.

Another variable, motherhood, closely associated with age and marital status, also was examined. Women who had borne a child were more likely to have examined their breasts than women who had not borne a child (see Table 5-1, Section 3). Women who were under the age of 55 years and

TABLE 5-1

PRACTICE BSE BY AGE, RACIAL STATUS, EDUCATION, INCOME, MARITAL STATUS, AND MOTHERHOOD: AWARE RESPONDENTS N = 1434

		Percentage Who Practice BSE			Percentage Who Practice BSE
1 Age			4 Income		
18-34	550	69	$7,000 and above	945	75
35-54	517	78	Under $7,000	423	68
55+	357	66			
2 Marital Status			5 Education		
Single	120	58	High Sch. and above	1,022	73
Married	1,092	73	Less than High Sch.	409	72
Widowed	134	68			
Divorced	81	78			
3 Motherhood			6 Race		
Yes	1,152	74	Black	112	62
No	279	64	White	1,262	73

had borne a child were more likely to practice breast self-examination than women in the same age range who had not borne a child; it makes no difference for women who are 55 years of age and older.

The higher a woman's family income the more likely she is to have practiced breast self-examination. Seventy-five percent of the women whose family income is $7,000 and over have examined their breasts compared to 68 percent of those whose family income is under $7,000 (see Table 5-1, Section 4). With regard to education, no relationship seems to exist. Women with less formal education are just as likely as women with more formal education to practice breast self-examination (see Table 5-1, Section 5). The mere fact that a woman of lower educational attainment is aware of breast self-examination suggests that she is different from others in her educational bracket who are unaware, perhaps it is a difference in motivation and interest. These findings are the first hint that the practice of breast self-examination may have a quite different relationship to other variables than awareness does. As shown above, educational attainment influenced awareness of breast self-examination. That is, women who had more formal education were more likely to report having heard of breast self-examination than those who had less formal education.

White women are more likely to practice breast self-examination than black women. Seventy-three percent of white women have examined their breasts and 62 percent of black women have examined their breasts (Table 5-1, Section 6).

As with awareness, it was expected that demographic characteristics will not wholly account for why women do or do not examine their breasts. Therefore, attention is turned to the "health influence" variables and their influence on the practice of breast self-examination. As previously mentioned, our causal model states that practice is to be seen as having its value as the result of a woman's position on the "health influence" variables; and that these are influenced by a woman's general status in society. It was expected that the influence of the background variables would be largely absorbed by the "health influence" variables.

In the following section, the first "health influence" variables will be studied: (1) a belief in the cure of breast cancer and (2) a belief in the role that breast examination can play.

The Practice of Breast Self-Examination and Health Beliefs

According to our world, two health beliefs were studied as variables bearing upon women's awareness of breast self-examination: (a) the sense of being susceptible to breast cancer, and (b) the belief that the consequences of breast cancer are very serious. Together, these variables are considered as representing the "threat of breast cancer." It is not assumed, however, that this sense of threat would necessarily lead to the practice of breast self-examination. The practice of breast self-examination is rather assumed to include other beliefs, namely the extent to which respondents believe in the curability of breast cancer, and in the role that breast examination, as a preventive measure, can play.

"Benefit" of taking action against breast cancer will be studied here in terms of the value of early detection of breast cancer (page 66), and believing in the efficacy of breast self-examination for finding a lump, if it is there (see page 66).

We shall investigate the hypothesis that the proportion of women who practice breast self-examination will be greater among those who believe that if breast cancer is detected early the chances of cure are better, and that

breast self-examination is effective in detecting signs of breast cancer in its early stage.

There is widespread recognition of the value of early detection. Sixty percent of the women who are aware of breast self-examination believe that if breast cancer is detected early the chances of cure are better. But the majority of women exhibited little confidence in the value of breast self-examination in detection. Thirty-five percent of the respondents score high while 65 percent score low on the measure of efficacy of breast self-examination. From the measures of perceived "benefits" we infer that respondents are optimistic about the cure of breast cancer if it is discovered early but have little confidence in the role breast self-examination plays in early detection.

We may now test our notion of the "benefits" of taking action to reduce the threat of breast cancer, by studying whether the indicators for "benefits" are related to the practice of breast self-examination.

Contrary to expectation, the indicators for the "benefits" of taking action to reduce the threat of breast cancer have no relationship to the practice of breast self-examination. Table 5-2 reveals little differences in the behavior of women who expressed confidence from those who expressed little confidence in the efficacy of breast self-examination. Moreover, there is little difference in the

behavior of women who are considered high from those who are considered low on the measure of early detection of breast cancer (see Table 5-3). It seemed improbable that efficacy of breast self-examination and the value of early detection in the cure of breast cancer would have so little effect. Rather, it directed attention to the possibility that the relationships are being suppressed by other variables.

TABLE 5-2

PRACTICE BSE BY THE EFFICACY OF BSE

	Efficacy of BSE	
	High	Low
	(Percent Practicing BSE)	
	74	71
Number	(493)	(914)

TABLE 5-3

PRACTICE BSE BY THE VALUATION OF EARLY DETECTION OF BREAST CANCER

	Early Detection	
	High	Low
	(Percent Practicing BSE)	
	73	71
Number	(845)	(571)

It was expected that the relationship between efficacy and practice was being masked by age. As can be seen from Table 5-4, among young women (18 to 34 years), those who score low on the measure of efficacy are more likely to practice breast self-examination than those who score high, whereas among older women, the reverse is true, those who score high on the measure of efficacy are more likely to practice breast self-examination. These opposite relationships, when combined, produced a negligible correlation between efficacy of breast self-examination and the practice of breast self-examination. Thus, in this instance, it appears that the spurious noncorrelation (see Hyman, 1955) derived from a positive association in one contingent relationship, and a negative association in the others.

TABLE 5-4

PRACTICE BSE BY EFFICACY OF BSE AND AGE

(cell figures are percent practice)

	Age			
Efficacy of BSE	18-34	35-54	55+	Total
High	60 (183)	85 (169)	79 (139)	74 (491)
Low	74 (367)	75 (338)	61 (203)	71 (908)
Total	69 (550)	78 (507)	66 (342)	73 (1399)

Further analysis reveals that respondents' marital status and motherhood status affect the relationship of efficacy to practice. Belief in efficacy of breast self-examination increases the tendency to practice breast self-examination for women who are divorced or widowed, and for women who have borne a child. For single and married women, and for women who have not borne a child, the relationship between efficacy and practice either does not exist or is in the opposite direction (see Tables 5-5 and 5-6).

The above findings are interesting since young women and women who have not borne a child expressed at least as much confidence as older women and women who have borne a child in the efficacy of breast self-examination. For young women, single women, and women who have not borne a child it is assumed that the thought of breast cancer is more of a source of anxiety, thereby functioning as a barrier to practice. As asserted earlier (see page 88), breast cancer is commonly associated in the minds of women with mastectomy. For women who are young, single, and have not borne a child, this thought may be particularly threatening since they are more likely than women who are older, married or once married, and have borne a child to feel that losing a breast would greatly affect

TABLE 5-5

PRACTICE BSE BY EFFICACY OF BSE AND MARITAL STATUS

(cell figures are percent practice)

Efficacy of BSE	Marital Status				
	Sing.	Marr.	Div.	Wid.	Total
High	59 (46)	73 (373)	81 (16)	95 (57)	74 (492)
Low	58 (74)	74 (702)	79 (62)	51 (70)	71 (912)
Total	58 (120)	73 (1075)	80 (78)	71 (127)	73 (1404)

TABLE 5-6

PRACTICE BSE BY EFFICACY OF BSE AND MOTHERHOOD

(cell figures are percent practice)

Efficacy of BSE	Motherhood: Has Borne a Child		
	Yes	No	Total
High	79 (391)	56 (104)	74 (495)
Low	72 (740)	68 (174)	71 (914)
Total	74 (1131)	64 (278)	73 (1409)

their sense of being women (see Tables 1, 2, and 4 in Appendix C). Moreover, women who are young, single, and have not borne a child are considerably more concerned than women who are older, married or once married, and have borne a child about having their breast removed, whereas women who are older, married or once married, and have borne a child are considerably more concerned about contracting breast cancer than having a breast removed.

The significance of marital status and motherhood is supported by the following observation: young women who are married and have borne a child are just as likely to practice breast self-examination as those who are between the ages of 35 and 54 years who are married and have borne a child. Again, these findings suggest that marriage and having borne a child make breast self-examination a more acceptable practice. An argument can be made that a more pragmatic, less anxious, attitude results in less denial of the threat of breast cancer on the part of those who are married and have had a child.

With regard to the estimate of the value of early detection in the cure of breast cancer, results from preliminary analyses reveal that this indicator should not be included in the analysis. As a consequence, it was dropped as a predictor of the practice of breast self-examination.

The Practice of Breast Self-Examination and Anxiety

Even though the majority of women believe in the efficacy of breast self-examination, we assume that the idea of breast cancer may be a source of anxiety and therefore prevent a woman from examining her breasts. To gauge the levels of anxiety about breast cancer, we investigated the relevance of "wanting monthly examination so if one has breast cancer one will find out as soon as possible." It is hypothesized that the proportion of women who practice breast self-examination will be greater among those who want monthly examination than among those who do not want monthly examination because it "would make them worry when it wasn't necessary."

When the latter "worry" item just mentioned is used as an indicator of anxiety, the majority of women, 59 percent, are scored as having a high level of anxiety. As expected, women who are anxious about breast self-examination are less likely to practice breast self-examination than those who are less anxious (see the right margin in Table 5-7).

It is reasonable to assume that there are women who believe in the efficacy of breast self-examination but, at the same time, see this action itself as a source of

anxiety. We might ask how this conflict can be resolved. Logical and empirical evidence suggests several resolutions. Let us assume narrowing the outcome somewhat, that if the predisposition to act is high and the negative aspect is seen as relatively weak the action in question is likely to be taken, whereas if the predisposition to act is low while the potential negative aspect is strong it will function as a barrier to prevent action. That is to say, we might expect women who believe in the efficacy of breast self-examination who are less anxious about breast self-examination to be more likely to examine their breasts than those who do not believe in the efficacy of breast self-examination. The data do not support this contention. Women who expressed confidence in the efficacy of breast self-examination and were less anxious about breast cancer were no more likely to practice breast self-examination than those who expressed little confidence in the efficacy of breast self-examination (Table 5-7).

The Practice of Breast Self-Examination, Anxiety and Demographic Characteristics

Given that women's personal characteristics (such as age, motherhood, marital status, income, and racial status) influence the practice of breast self-examination, we might ask whether these variables have their effects by

influencing women's feeling of anxiety about breast self-examination.

When the relationship of anxiety of breast self-examination to the practice of breast self-examination was examined for different population segments, it was found that within all income groups (see Table 5-8, Section 1), age groups (see table 5-8, Section 2), motherhood groups (see Table 5-8, Section 3), marital status groups (see Table 5-8, Section 4), and racial groups (see Table 5-8, Section 5), women who are anxious about breast self-examination are less likely than those who are less anxious to practice breast self-examination.

TABLE 5-7

PRACTICE BSE BY ANXIETY AND EFFICACY OF BREAST SELF-EXAMINATION

(cell figures are percent practice)

	Efficacy of BSE		
Anxiety	High	Low	Total
Low	80 (223)	83 (350)	82 (573)
High	69 (270)	65 (564)	67 (834)
Total	74 (493)	71 (914)	75 (1407)

TABLE 5-8

PRACTICE BY ANXIETY WITHIN
VARIOUS BACKGROUND CATEGORIES

	Anxiety		
	High %	Low %	Total
Income			
under $7,000	61 (242)	77 (181)	69 (423)
$7,000 and above	65 (565)	84 (380)	75 (945)
Total	63 (807)	81 (561)	72 (1368)
Age			
18-34	63 (311)	78 (241)	71 (552)
35-54	77 (293)	84 (224)	81 (517)
55+	59 (245)	82 (112)	71 (357)
Total	66 (849)	81 (577)	74 (1426)
Motherhood: Has Borne a Child			
yes	70 (694)	83 (461)	77 (1155)
no	54 (158)	75 (121)	65 (279)
Total	62 (852)	81 (582)	71 (1434)
Marital Status			
single	39 (71)	79 (49)	59 (120)
married	70 (635)	81 (457)	76 (1092)
divorced	69 (42)	95 (39)	82 (81)
widowed	64 (98)	83 (36)	74 (134)
Total	62 (846)	85 (581)	73 (1427)
Race			
black	53 (73)	74 (39)	64 (112)
white	67 (744)	83 (518)	75 (1262)
Total	60 (817)	79 (557)	70 (1374)

The Practice of Breast Self-Examination And Physician's Influence

As we saw in the previous chapter, interpersonal influence affected women's awareness of breast self-examination. Here we attempt to demonstrate the role that physicians' influence plays on women's behavior. Physicians' influence in this chapter is indicated by a "yes" response to the question, "Has a doctor ever brought up the topic of breast self-examination with you?"

It is hypothesized that women who have discussed breast self-examination with a physician are more likely than women who have not to practice breast self-examination. The right margin of Table 5-9 shows that women who have discussed breast self-examination with a physician are more likely than those who have not to practice breast self-examination.

The Practice of Breast Self Examination, Physicians' Influence and Health Beliefs

It is reasonable to assume that a woman's attitude toward the efficacy of breast self-examination is influenced by a discussion on the topic of breast self-examination with her physician. Therefore, it is reasonable to assume that physicians' influence may be related to the practice of breast self-examination by way of its effects upon a woman's

belief about the role breast self-examination plays in the cure of breast cancer.

As can be seen from Table 5-9, regardless of a woman's attitude toward the efficacy of breast self-examination, those who have discussed breast self-examination with a physician are more likely to examine their breasts than those who have not discussed breast self-examination.

TABLE 5-9

PRACTICE BSE BY PHYSICIAN DISCUSSED BSE AND EFFICACY OF BREAST SELF-EXAMINATION

(cell figures are percent practice)

Physician Discussed BSE	Efficacy of BSE: High	Low	Total
Yes	88 (228)	88 (416)	88 (644)
No	62 (263)	58 (487)	60 (750)
Total	74 (491)	71 (903)	74 (1394)

One can argue that a physician may lessen a woman's anxiety about breast cancer and breast self-examination by discussing these topics with her. As a consequence, breast self-examination may become more frequent. Tables 5-10 and 5-11 lend support to this contention. As can be seen from Table 5-10, women who have not discussed breast self-examination with a physician are more likely than women who have, to feel anxious about breast self-examination. Moreover, when the relationship between anxiety and the practice of breast self-examination is examined for physicians' influence, it can be seen from Table 5-11 that women who have discussed breast self-examination with a physician and are less anxious about breast cancer are more likely to practice breast self-examination than those who have not discussed with their physician and are less anxious about breast cancer.

TABLE 5-10

PHYSICIAN DISCUSSED BSE BY ANXIETY

	Physician Discussed BSE	
Anxiety	Yes	No
Low	47%	36%
High	53%	64%
Number	(654)	(765)

TABLE 5-11

PRACTICE BSE BY PHYSICIAN DISCUSSED BSE AND ANXIETY

(cell figures are percent practice)

Anxiety	Physician Discussed BSE: Yes	No	Total
Low	92 (306)	70 (273)	88 (579)
High	84 (348)	56 (492)	67 (840)
Total	88 (654)	60 (765)	78 (1419)

The Practice of Breast Self-Examination and Physicians' Influence: Testing Relationships in Different Demographic Groups

It is common knowledge that various segments of the population have different patterns of visiting a physician for illness and for preventive services. Therefore, it is assumed that the relationship between the measure of interpersonal influence and the practice of breast self-examination will vary among subgroups of the sample.

While there are some variations between population segments in the proportion who have discussed breast self-examination with a physician these, however, tend to be small. An analysis by age, marital status, motherhood,

income, and racial status shows that those who have discussed breast self-examination with a physician are considerably more likely to practice breast self-examination than those who have not discussed breast self-examination with a physician (see Table 5-12, Sections 1-5).

The Practice of Breast Self-Examination and Knowledge of Breast Self-Examination Procedure

Even though a woman may practice breast self-examination, its usefulness may be minimal if she doesn't know how to go about examining her breasts. The early detection of signs indicative of breast cancer is dependent upon such knowledge. Therefore, it is hypothesized that women who are more informed about breast self-examination procedure are more likely to practice breast self-examination than women who are less informed about such procedure.

The majority of the practitioners are scored as having a high level of knowledge about breast self-examination procedure. In terms of the specific knowledge index (see page 69), 62 percent of the aware practitioners are scored as having a high level of specific knowledge. However, it should be noted that the criteria for scoring a response as correct are relatively lenient on individual items comprising the specific knowledge index.

TABLE 5-12

PRACTICE BSE BY PHYSICIAN DISCUSSED BSE WITHIN VARIOUS BACKGROUND CATEGORIES

	Physician Discussed		
	Yes %	No %	Total
Race			
black	81 (53)	45 (55)	(108)
white	89 (567)	60 (684)	(1251)
Total	85 (620)	53 (739)	1359
Age			
18-34	86 (250)	55 (300)	(550)
35-54	93 (260)	65 (251)	(511)
55+	83 (139)	55 (211)	(350)
Total	86 (649)	58 (762)	1411
Marital Status			
single	65 (52)	52 (67)	(119)
married	90 (527)	58 (554)	(1081)
divorced	95 (40)	60 (40)	(80)
widowed	77 (31)	64 (101)	(132)
Total	80 (650)	59 (762)	1412
Motherhood: Has Borne a Child			
yes	90 (544)	60 (596)	(1140)
no	79 (107)	54 (169)	(276)
Total	85 (651)	57 (765)	1416
Income			
under $7,000	82 (175)	59 (241)	(416)
$7,000 and above	91 (453)	58 (484)	(937)
Total	87 (628)	59 (725)	1353

For example, when respondents are asked whether there are any special ways that a woman should position herself, 24 percent said they did not know. Also, 7 percent said there is no special position that should be assumed (the respondents with either of these responses were scored low on this particular item).

Those women who do know that a special position should be assumed think primarily in terms of lying down, though a number also said she should sit. A sizable proportion also made reference to raising one's arms, though most were not that specific. Thus 51 percent made a reference to lying down and 17 percent to raising one's arms.

When respondents are asked what a woman would look or feel for, 93 percent named "lumps, knots, or bumps." Since many had no knowledge beyond this, it seems that for many women "awareness" means only a generalized perception that there is such a thing as breast self-examination rather than having specific information about it.

The hypothesis that knowledge of breast self-examination procedure would be directly related to the practice of breast self-examination has been supported by the data. The right margin of Table 5-13 reveals a relationship between specific knowledge and the practice of breast self-examination. As the levels of knowledge increase so does the frequency of practicing breast self-examination.

TABLE 5-13

PRACTICE BSE BY SPECIFIC KNOWLEDGE AND EFFICACY OF BSE

(cell figures are percent aware)

Specific Knowledge	Efficacy of BSE: High	Low	Total
High	83 (269)	81 (541)	82 (810)
Low	58 (190)	53 (337)	57 (527)
Total	74 (459)	71 (878)	70 (1337)

There are logical and empirical grounds for arguing that knowledge of breast self-examination procedure may affect the practice of breast self-examination. Knowledge of breast self-examination procedure may be acquired in many ways not all of which assure the coexistence of attitudes generally conducive to the practice of breast self-examination. For example, women who are predisposed to examine their breasts are thus not inevitably among those who are informed about breast self-examination procedure in ways considered correct by those competent to judge. Conversely, the negative effect of little knowledge may be cancelled by attitudes toward the efficacy of breast

self-examination or by interpersonal relations that facilitate the practice of breast self-examination. Therefore, one would suspect that knowledge of breast self-examination predicts more effectively in the absence of other motivations to practice breast self-examination while its predictive value will wane in the presence of other motivations.

Cross tabulations reveal an association of knowledge with the efficacy of breast self-examination, the indicator of physician's influence, and anxiety. However, none of these serves to explain the relationship between specific knowledge and the practice of breast self-examination. Specific knowledge continues to have an effect when the measure of anxiety is held constant. The relationship is also not explained by respondents' feelings about the efficacy of breast self-examination. Similarly, the measure of physicians' influence fails as an explanatory tool. Specific knowledge continues to predict when these variables are held constant.

In the previous section, the belief of efficacy of breast self-examination has been described as a motivating force behind women examining their breasts. It can be seen from Table 5-13 that regardless of women's attitudes toward the efficacy of breast self-examination, those who are informed about procedure of breast self-examination are more likely to examine their breasts than those who have little knowledge about the procedure of breast self-examination.

Physicians' influence. Interpersonal influence also has been described as a motivating force behind women practicing breast self-examination. Table 5-14 shows that level of knowledge affects the practice of breast self-examination most for women who score low on the measure of physicians' influence; 45 percent of those with low specific knowledge practice breast self-examination compared to 71 percent of those with high level of specific knowledge. Regardless of the level of specific knowledge, those subjected to high physicians' influence are more likely to practice breast self-examination. Thus the relationship between specific knowledge and the practice of breast self-examination is considerably modified, namely reduced, under conditions suggesting the presence of motivation to practice breast self-examination.

TABLE 5-14

PRACTICE BSE BY SPECIFIC KNOWLEDGE AND PHYSICIAN DISCUSSED BSE

(cell figures are percent practice)

	Physician Discussed BSE		
Specific Knowledge	High	Low	Total
High	91 (460)	71 (392)	82 (852)
Low	78 (161)	45 (356)	55 (517)
Total	88 (621)	60 (748)	73 (1369)

Anxiety. Anxiety has been described as a barrier to women practicing breast self-examination. Table 5-15 shows those who are informed about procedure of breast self-examination are more likely to practice breast self-examination regardless of their level of anxiety. Nonetheless, women who are less anxious about breast self-examination and informed about the procedure of breast examination are considerably more likely to practice breast self-examination than other women. As it was with awareness, the influence of personal characteristics on the practice of breast self-examination was pervasive. Racial status, however, was the only personal characteristic to have an effect independently of the "health influence" variables.*

TABLE 5-15

PRACTICE BSE BY SPECIFIC KNOWLEDGE AND ANXIETY

(cell figures are percent practice)

	Anxiety		
Specific Knowledge	High	Low	Total
High	74 (495)	93 (362)	82 (857)
Low	58 (161)	56 (356)	57 (517)
Total	82 (656)	82 (718)	70 (1374)

*"Health influence" variables are physicians' influence, anxiety about breast cancer, efficacy of breast self-examination, and specific knowledge.

When the "health influence" variables were considered, the data showed racial status and physicians' influence each was related to practice when the other was held constant. It was found that the effect of physicians' influence independent of race was much greater than the effect of race independent of physicians' influence. Moreover, racial status and physicians' influence produced an effect greater than either considered individually.

Contrary to expectation, the relationship between efficacy of breast self-examination and practice disappear when physicians' influence, or anxiety about breast cancer, or knowledge of proper procedures of breast self-examination was held constant.

The effect of anxiety about breast cancer does not exist independently of specific knowledge (being informed about proper procedures of breast self-examination). Being anxious about breast cancer makes no difference to practice for women who are less informed about the proper procedures of breast self-examination. It makes a difference to practice for women who are informed about procedures of breast self-examination.

Physicians' influence and specific knowledge each has an effect on practice separate from the other. Physicians' influence appears to be somewhat more closely related to practice when specific knowledge is controlled than the

other way around. The cumulative effect of physicians' influence and specific knowledge is greater than the effect of either considered alone.

Given knowledge of a woman's racial status, the level of physicians' influence and her level of information about the proper procedures of breast self-examination, family income, age, motherhood status, efficacy of breast self-examination, and anxiety about breast cancer provide no additional contribution to the prediction of a woman's tendency to practice breast self-examination in these data.

SUMMARY AND CONCLUSIONS

GENERAL OBSERVATION ON WOMEN WHO DO AND DO NOT EXAMINE THEIR BREASTS

The study of compliance and of preventive health behavior is complex. No single factor explanation is likely to give a satisfactory solution to a question such as "Why do some people and why do others not engage in a particular health activity?" A decision to act or not to act reflects attitudes and beliefs which occur within and are shaped by social, cultural, economic, and historical circumstances. Thus it seems necessary to employ a multiple factor approach for studying compliance behavior, recognizing that no set of available data is likely to include all relevant variables, and that every selection of variables that an investigator decides to study is necessarily chosen on the basis of a theory, even if it is not entirely explicit. The approach employed in this study may be viewed as a synthesis of different approaches, each of which has itself proved useful in explaining compliance.

The central objective of this study is to examine the influence of psychological and social determinants upon

a specific type of widely publicized preventive health medicine, self-examination for breast cancer. Breast self-examination (BSE) does not prevent breast cancer, but it can detect the disease while it is localized to the breast. The early detection of breast cancer has taken on a new importance. That is, early detection of breast cancer may do more than increase a woman's chance of survival. It could also save her from the disfiguring removal of the entire breast (Fisher, 1985).

For women to practice breast examination they must, of course, first know about it. Thus the study begins by attempting to determine the differences between women who have heard of breast self-examination and those who have not: we refer to this as awareness. Moreover, among those who are aware, we attempt to differentiate those who examine their breasts from those who do not examine their breasts. Because we see awareness of and the practice of breast self-examination as distinct but interdependent phenonema, we studied the two separately. First, we turn to the major findings from our study of awareness.

Awareness of breast self-examination. Approximately three-fourths of the respondents have heard of breast self-examination. These women who are aware of breast self-examination are more likely to be under the age of 35 years,

have graduated from high school and/or attended college, have a family income of $7,000 and above, and white, whereas those who have not heard of breast self-examination are more likely to be 55 years of age or above, have not graduated from high school, have a family income below $7,000, and black.

We expected the differences found in age, income, and racial groups reflect little more than the fact that average educational attainment is different in different groups. For example, on the average, black women have enjoyed less education than white women. Indeed, the data reveal that age, income, and racial differences are inflated by differences in educational attainment. The majority of women who are 55 years of age and over, whose family income is below $7,000, and black have not graduated from high school. Conversely, the majority of women under 55 years of age, women whose family income is above $7,000 and are white have graduated from high school and/or attended college. Therefore, educational attainment, in part, accounts for the high level of awareness among young, white women whose family income is high.

However, such background characteristics do not fully explain awareness of breast self-examination. Therefore, attention was turned to a woman's attitudes. We examined

the influence of a woman's sense of being susceptible to breast cancer and perceived seriousness of the disease. As expected, we found that women who have heard of breast self-examination are more likely to believe that they themselves can contract breast cancer. However, contrary to our expectation, women who have heard of breast self-examination tend not to believe that the consequences of breast cancer would have a serious impact on their lives.

It is reasonable to assume that a woman's immediate personal environment would affect her likelihood of having heard of breast self-examination. Therefore, in addition to attitudes, knowing someone personally who had breast cancer was believed to be a determinant of awareness. This was called interpersonal influence. It was found that, in fact, such interpersonal influence increases awareness.

Does such interpersonal influence also influence attitudes about cancer susceptibility and the seriousness of the disease? The answer is in the affirmative. Indeed, interpersonal influence did prove to be related to perceived susceptibility, and to the perceived seriousness of the disease. However, these three variables are not equally significant for awareness. Interpersonal influence is the most powerful indicator.

Studies have indicated that knowlegde of illness plays a role in the initial decision to seek medical care, suggesting that knowledge is also a factor in the propensity to engage in preventive health behavior. We tested whether knowledge of the signs and symptoms of breast cancer can be construed to be a prerequisite for awareness of breast self-examination.

Being informed about signs and symptoms of breast cancer was found to be related to awareness. Women who have heard of breast self-examination are more likely than those who have not heard of breast self-examination to be informed about signs and symptoms of breast cancer.

When the relationship of knowledge to awareness was stratified by interpersonal influence, it was found that interpersonal influence and knowledge each has an effect on awareness separate from the other. The combined effects of knowing someone personally who had breast cancer and being informed about signs and symptoms of breast cancer increase the tendency to be aware of breast self-examination.

We now turn to the question of what influences the practice of breast self-examination. We only studied women who are aware of BSE, assuming, as in the original study, a lack of awareness precluded practice.

The practice of breast self-examination. As we saw in the previous section, a little over three-fourths of the respondents are aware of breast self-examination, and of these approximately three-fourths, or 55 percent, of the total sample have practiced breast self-examination. A "Yes" answer to the question "Have you ever practiced breast self-examination?" is here accepted as evidence for having practiced it.

When the aware subsample is subdivided according to various demographic characteristics, the frequency of practice is found to vary between major population segments. Women between the ages of 35 and 54 years are somewhat more likely to practice breast self-examination than younger or older women. Women in mid-life (35 to 54 years) are the particular target group of informational programs related to breast cancer; this age differential may, in part, be due to the result of these special efforts to reach this age group. It is noteworthy that women in mid-life are more likely to feel susceptible to breast cancer than younger or older women, which may also reflect the effect, direct or indirect, of the informational programs to reach this age group.

White women are more likely to examine their breasts than black women. The higher a woman's family income the more likely she is to have practiced breast

self-examination. With regard to education, no relationship seems to exist. Women with less formal education are just as likely as women with more formal education to practice breast self-examination. This finding is the first hint that the practice of breast self-examination may have a quite different relationship to other variables than awareness does. Such personal characteristics, however, do not fully explain the practice of BSE. Therefore, attention was turned to a woman's attitude.

Contrary to our expectation, neither the value of early detection in the cure of breast cancer nor a belief in the efficacy of BSE had an effect on the practice of breast self-examination. This result, however, does not necessarily refute the relevance of these variables to other diseases or preventive measures. Perceived efficacy of a preventive health action (including the benefits of early detection) may well be important when the preventing or detecting capacity of an action is generally accepted by the population, with particular reference to a disease such as polio (Rosenstock, 1966).

The present data show the majority of respondents expressed little confidence in the efficacy of BSE for finding a lump. On the other hand, the data show that the majority of respondents are optimistic about the cure of

breast cancer if it is discovered early. This reflects what is reported as medical opinion. Perhaps, if the optimism about the cure of breast cancer can be effectively linked to a better understanding about the efficacy of BSE, it would increase the practice of BSE.

As mentioned earlier, anxiety about breast cancer and BSE may lead to avoidance. Indeed, women who are less anxious about breast cancer and breast self-examination are more likely to examine their breasts than women who are more anxious. Janis and Feshback (1953) provide support for this interpretation. In their study on the effects of fear arousing communication, they found high levels of fear/anxiety elicit responses (such as defensive avoidance) that interfered with compliance to recommended behavior.

Studies have shown that information overall reduces anxiety. The present data show that women who are better informed about how to examine their breasts are less likely to be anxious about breast cancer and BSE. Conversely, women who are less informed about how to examine the breasts are more likely to be anxious. Moreover, women who are informed about BSE and are less anxious about breast cancer and BSE are considerably more likely to examine their breasts than other women.

It is reasonable to assume that a physician would affect a woman's likelihood of examining her breasts.

Therefore, physicians' influence was believed to be a determinant of BSE. As expected, physicians' influence considerably increases BSE.

We argued that a physician may lessen a woman's anxiety about breast cancer and BSE by discussing these topics with her as well as providing instruction on how to examine the breasts. Indeed, women who have discussed BSE with a physician are less likely to feel anxious about breast cancer and are better informed about how to examine their breasts than women who have not. When the relationship of physician's influence to practice was stratified by anxiety or information, physicians' influence proved to be the most powerful indicator of practice.

In Chapter I we drew attention to some of the approaches that have been prominent in sociopsychological literature in explaining compliance, particularly in relation to preventive health action. One of the approaches explored was the Health Belief Model (HBM).

The HBM postulates that a person is not likely to take a health action unless: (1) she believes herself susceptible to the disease in question, (2) she believes that the disease in question would have serious consequences upon her life if she contracts it, (3) she is aware of certain actions that can be taken and believes that these actions will reduce her likelihood of contracting the

disease or ameliorate the severity of the disease should she contract it. The presence of these beliefs are proposed to account for observed preventive behavior.

Breast cancer cannot be prevented, but early detection increases a woman's chance of survival. BSE is a method of detecting the disease in its early stage. We studied the influence of the belief in the valuation of BSE. We found, however, no relationship between these beliefs and practice.

Our findings support previous conclusions that physicians' influence is an important determinant of compliance. However, physicians are an important link between patient's compliance and other factors (such as anxiety and information) that can affect it. Much of the influence of the physician on patients is nonspecific and emanates from the patient's belief in the doctor's superior body of knowledge and skill, position of authority, suggestive power, and high status (Parson, 1951; Bloom, 1963). Like other face-to-face communication contact, the face-to-face contact between physicians and their patients provides an opportunity for physicians to inform, to instruct, to create interest, to influence judgment, to monitor, to give or withhold approval, and to evaluate patient compliance.

Studies have shown, as this one has, that opportunities for health education is heavily invested in physicians.* Yet physicians are not taking advantage of the opportunities to educate their patients. Why physicians fail to offer explanations and information to patients is surely related to many factors. Among these are physicians' attitudes toward the advocated action.

A physician-patient relationship is not static. Physicians respond to the behavior of their patients, and patients respond to the behavior of their physicians. The present data show that women of high socioeconomic status are more likely than those of low socioeconomic status to receive explanations and instructions about the recommended regimen. Perhaps women of high socioeconomic status request explanations and instructions. People of high socioeconomic status are more likely to expect more information from their physicians; they perceive it as their right to receive explanations and the physician's obligation to provide explanations, whereas people of low socioeconomic status are more likely to be unassertive, passive, and demand little in terms of explanations from their physician.

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*Health education is defined here not as mere transmission of information but involve efforts at behavioral changes where needed, and advocate changes in the environment that facilitate health conditions and healthful behavior.

In this connection, the writer asked her physician whether he discussed breast self-examination with his patients, and whether he instructs them. He replied that he discussed breast self-examination with all and instructed those who asked for instruction. Those who did not ask, he assumed, did not want to know. The writer then asked him how he arrived at this conclusion. He responded that breast cancer and breast self-examination provoke anxiety thereby inhibiting women from wanting to know about breast self-examination. The present data do show that women who are less anxious about breast cancer and BSE are more likely to examine their breasts than those who are more anxious. The data also suggest that physicians may lessen women's anxiety by providing advice and instruction.

The present data cannot tell us about the nature of the physician-patient exchange. For example, did the patient request information and instruction or did the physician give the information without the patient requesting it? It is clear that further research on this question should have high priority.

The second concern raised is physicians' attitudes toward the advocated regimen. As the writer's physician expressed it: if a woman has her breasts examined by a physician three times a year, there is no need for her to examine her breasts. This view is contrary to the view held

by educational and research organizations such as the American Cancer Society. According to the American Cancer Society, a woman should examine her breasts once a month for signs indicative of cancer. In addition to monthly breast self-examination, asymptomatic women 20 to 40 years of age should have a breast examination by a physician at three-year intervals and one baseline mammogram between the ages of 35 and 40 years. Women 40 and older should have a breast examination by their physician every year.

Now it seems appropriate to ask whether the opinion of the writer's physician is commonly held by physicians. The present data only deal with this question inferentially. For example, 60 percent of all respondents claimed that their last visit to a physician had been within the past six months. A total of 82 percent said that they had been to a physician within the past year, and 97 percent within the past five years. Yet among those who practice BSE, only half reported that a physician had mentioned BSE, and only 42 percent reported ever having been taught by a physician how to examine their breasts. Thus, it is suggested that physicians believe that it is not essential or desirable for a woman to examine her breasts. Further research is needed to capture more fully physicians' attitudes toward various health practices, and the conditions under which

physicians are more or less likely to facilitate or inhibit patients' compliance.

Despite the reluctance of physicians, for whatever reasons, to participate in patients' education, patients are no longer willing to be passive recipients of care and services. There is an increased interest and awareness among most Americans that their own actions can influence their health.

The results of this awareness are evident in the increased consumption of medical self-help health books, general and fasion magazines which carry regular sections on health, home medical kits to aid in self-diagnosis, commercial health spas, "health foods," the growth of self-help groups, and malpractice suits. These phenomena reflect consumers' interest in their health.

From such consumers' interest, motivations, and willingness to play an active role in their own health maintenance, physicians currently are experiencing increased pressure to adapt to a new type of relationship with their patients.

The new doctor-patient relationship should include explicit justification for the recommended therapeutic regimen, explicit verbal and written instructions, an openness to patients' points of view, and a willingness to entertain questions, reinforcing patients' sense of

competence and good feeling about themselves, eliciting and respecting the overt and covert issues on patients' agenda which differ from those of the physicians, and monitoring noncompliance.

For more efficient use of time, physicians must consider what part of patients' education can be transferred to other sources, such as nurse practitioner, physician assistant, written materials, audiovisual materials, and community self-help groups, and to be informed about and ready to seek their collaboration.

APPENDIX A

Frequency Distribution of Variables

All Women	Percent
1870	100.0
Race	
Black	11.0
White	77.0
Motherhood	
Borne children	79.0
Never borne children	21.0
Marital Status	
Single	9.0
Married	74.0
Widowed	5.0
Divorced	11.0
Age	
18 to 34	36.4
35 to 54	33.4
55+	29.8
Education	
College	21.0
High School Graduate	41.0
High School Incomplete	17.0
Grade School	20.0

Frequency Distribution
of Variables

All Women	Percent
1870	100.0
Family Income	
$15,000 and over	20.0
$10,000 to $14,999	26.0
$ 7,000 to $ 9,999	15.0
Under $7,000	36.0
Aware of BSE	
Yes	77.0
No	23.0
Seriousness	
High	26.0
Low	74.0
Susceptibility Index	
High	25.0
Low	75.0
General Knowledge Index	
High	13.0
Moderate	34.0
Low	53.0
Interpersonal Influence	
High	77.0
Low	23.0

Frequency Distribution
of Variables

All Women	Percent
1434	100.0
Efficacy of Breast Self-Examination	
High	35.0
Low	65.0
Anxiety	
High	59.0
Low	41.0
Physician Discussed Breast Self-Examination	
Yes	47.0
No	53.0
Specific Knowledge Index	
High	63.0
Moderate	32.0
Low	5.0
Valuation of Early Detection of Breast Cancer	
High	60.0
Low	40.0
Ever Practice BSE	
Yes	73.0
No	27.0

APPENDIX B

THE DESIGN OF THE SAMPLE

The Gallup Organization, Inc. maintains a national probability sample of interviewing areas that was used for this survey.

The sampling procedure is designed to produce an approximation of the adult female civilian population, eighteen years and older, living in the United States, except for those women in institutions such as prisons or hospitals.

The design of the sample is that of a replicated, probability sample down to the block level in the case of urban areas, and to segments of townships in the case of rural areas. One hundred fifty-nine sampling locations were used in this survey.

The sample design included stratification by these four size-of-community strata, using 1970 Census data: (a) cities of population 1,000,000 and over; (b) 250,000 to 999,999; (c) 50,000 to 249,999; (d) all other population. Each of these strata was further stratified into seven geographic regions: New England, Middle Atlantic, East Central, West Central, South, Mountain, and Pacific. Within each city size-regional stratum, the population was arrayed

in geographic order and zoned into equal sized groups of sampling units. Pairs of localities were selected in each zone, with probability of selection of each locality proportional to its population size in the 1970 Census, producing two replicated sample of localities.

Within localities so selected for which the requisite population data are reported, subdivisions were drawn with the probability of selection proportional to the size of the population. In all other localities, small definable geographic areas were selected with equal probability.

Within each subdivision so selected for which block statistics are available, a sample of blocks or block clusters was drawn with probability of selection proportional to the number of dwelling units. In all other subdivisions or areas, blocks or segments were drawn at random or with equal probability.

In each cluster of blocks and each segment so selected, a randomly selected starting point was designated on the interviewer's map of the area. Starting at this point, interviewers were required to follow a given direction in the selection of households until their assignment was completed.

Interviewing was conducted at times when women, in general, were most likely to be at home, which means on weekends, or if on weekdays, after 4:00 P.M.

Allowance for persons not at home was made by a "times-at-home" weighting procedure rather than by "call-backs."* This procedure is a standard method for reducing the sample bias that would otherwise result from under-representation in the sample of persons who are difficult to find at home.

The pre-stratification by regions was routinely supplemented by fitting the obtained sample to the latest available Census Bureau estimates of the regional distribution of the female population. Also minor adjustments of the sample were made by educational attainment, based on the annual estimates of the Census Bureau (derived from their Current Population Survey) and by age.

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*Politz, A and Simmons, W., "An Attempt to Get the 'Not at Homes' into the Sample Without Callbacks," Journal of the American Statistical Association, Volume 44 (March 1949), pp. 9-31.

APPENDIX C

TABLE 1

SERIOUSNESS BY MARITAL STATUS

	Marital Status			
Seriousness	Single	Married	Widowed	Divorced
High	36	25	29	29
Low	64	75	71	71
%	100	100	100	100
Number	173	1378	213	99

TABLE 2

SERIOUSNESS BY HAVING BORNE A CHILD

	Borne Child	
Seriousness	Yes	No
High	25	30
Low	75	70
%	100	100
Number	1477	393

TABLE 3

SUSCEPTIBILITY BY AGE

	Age		
	18-34	35-54	55+
High	16	53	4
Low	84	47	96
%	100	100	100
Number	680	612	558

TABLE 4

SERIOUSNESS* BY AGE

Seriousness	18-34	35-54	55+
High	33	24	20
Low	67	76	80
%	100	100	100
Number	680	624	558

*Seriousness--Effect of losing breast on sense of being a woman.

APPENDIX D

NATIONAL HEALTH SURVEY

The Gallup Organization, Inc.

INTRODUCTION: Hello, my name is _____. I'm doing a Gallup Survey among women regarding health problems that face women and I would like to get your opinions and feelings on this.

1. First, could you tell me when was the last time you, yourself, saw a doctor, either for a regular check-up or because something was bothering you? Please do not dentists or eye doctors.

   1( )Within six months (January 1973 or later)

   2( )Six months up to one year ago (July 1972 to December 1972)

   3( )One up to two years ago (July 1971 to June 1972)

   4( )Two up to five years ago (July 1968 to June 1971)

   5( )Five up to ten years ago (July 1963 to June 1968)

   6( )Ten years or more (June 1963 or earlier)

   X( )Has never been to doctor

   V( )Don't remember

IF CATEGORIES 1, 2, 3, or 4 CHECKED, ASK QUESTIONS 2 AND 3

2a. All told, in the past five years on how many different occasions have you, yourself, seen a doctor? (CIRCLE NUMBER)

   1 2 3 4 5 6 7 8 9 X=10 or more

   V=Don't remember

b. Of these, were any for pregnancy? (IF YES) How many? (CIRCLE NUMBER)

   0=No 1 2 3 4 5 6 7 8 9

   X=10 or more V=Don't remember

3. Other than for pregnancy, any for check-ups even though something wasn't bothering you? (IF YES) How many? (CRICLE N MBER)

   0=No 1 2 3 4 5 6 7 8 9

   X=10 or more V=Don't remember

---

4. Is there a doctor or clinic that you go to for check-ups even when something isn't bothering you?

1( )Yes 1( )No

5. On the next topic, in your opinion, what are the two or three most serious health problems that face women? (RECORD IN ORDER OF MENTION)

a._____

_____

b._____

_____

c._____

_____

6. Is there a gynecologist (doctor who specializes in women's health problems) that you know or of that you can go to if you wanted to?

1( )Yes 2( )No

7a. Is there a gynecologist that you see for periodic check-up?

1( )Yes 2( )No

IF YES, ASK b

---

b. How often do you see your gynecologist for periodic check-ups? (DO NOT INCLUDE PREGNANCY)

1( )Three or more times a year
2( )Twice a year
3( )Once a year
4( )Once every year and a half
5( )Once every two years
6( )Less often
V( )Don't remember

8a. If you had reason to go to a gynecologist, would you prefer one who is a man, one who is a woman, or wouldn't it make any difference to you?

1( )Man 2( )Woman 3( )No difference

V( )Don't know

b. Why do you feel that way?_____

_____

_____

_____

_____

9. Have you ever been to a woman gynecologist?

1( )Yes 2( )No

10a. During the past five years, has any doctor examined your breasts as part of a medical examination?

1( )Yes 2( )No

IF YES, ASK b, c, and d

---

b. Was that a gynecologist, or some other type of doctor (MULTIPLE RESPONSES POSSIBLE)

1( )Gynecologist 2( )Other V( )Dont remember

c. During the past five years, how many times has a doctor examined your breasts as part of a medical examination?

1( )Once
2( )Two times
3( )Three times
4( )Four times
5( )Five Times
6( )Six, seven, eight or nine times
7( )Ten times
8( )Eleven, twelve or thirteen times
9( )Fourteen, fifteen or sixteen times
X( )Seventeen times or more

V( )Don't remember

d. Is there any doctor that you see who examines your breast <u>every</u> time you see him, or not?

1( )Yes, every time 2( ) No, not every time

V( )Couldn't say

11. To the best of your knowledge, what is the specific purpose for a doctor examaning a woman's breast as part of a medical examination?_____

_____

_____

_____

_____

12. Based upon your usual experience, what are the steps that a doctor normally goes through when giving you a breast examination?

a. First, does the doctor normally ask you to sit, stand, or lie down while doing the breast examination? (MULTIPLE ANSWERS POSSIBLE)

1( )Sit 2( )Stand 3( )Lie down

V( )Don't know

b. Are there any specific ways he normally asks you to hold your arms?_____

_____

_____

_____

c. Are there any specific parts of the breast he normally examines?_____

_____

_____

d. How does he normally examine these specific parts of the breast?_____

_____

_____

13. The next question is about one health problem in particular, breast cancer. When you hear the words "breast cancer," what are the first thoughts that come to mind?_____

14. What are all the signs or symptoms of breast cancer that you can think of?_____

Any others?_____

15. To the best of your knowledge, if a woman wanted to examine her breasts herself for possible signs of breast cancer, what are all the different things she should do?

a. First, are there any special ways she should position herself?_____

b. What would she look or feel for?_____

c. How would she go about doing this?_____

_____

_____

_____

16a. (HAND RESPONDENT CARD A) To the best of your knowledge, which of these are signs of possible breast cancer? (RECORD BELOW) Just read off the letter.

b. Which are <u>early</u> signs, that is they can be seen or felt very early? (RECORD BELOW)

	Q.16a Signs		Q.16b Early Signs
A. Dimpling or puckering of skin on the breast	1( )	A	1( )
B. Discharge from the nipple	2( )	B	2( )
C. Pain or soreness in the breast	3( )	C	3( )
D. Lump in the breast	4( )	D	4( )
E. Difference in size of the breast	5( )	E	5( )
F. Bleeding from the nipple	6( )	F	6( )
G. Thickening of breast tissue	7( )	G	7( )
H. Discoloration of the breast	8( )	H	8( )
None of them	X( )	None of them	X( )
Don't know	V( )	Don't know	V( )

17a. Suppose you noticed or felt something about your breast that you thought might be a sign of possible breast cancer. What would you be more likely to do -- go to a doctor immediately, or, wait to see if it will go away before going to a doctor?

1( )Go immediately 2( )Wait 3( )Don't know

IF "WAIT," ASK b

b. What is the longest you think you would wait -- a few days, a few weeks, a few months, about half a year, or longer than that?

1( )A few days
2( )A few weeks
3( )A few months
4( )Half a year
5( )Longer
V( )Don't know

18a. Other than normal changes due to pregnancy, menstruation or getting older, have you or anyone else ever felt or noticed a change in your breast?

1( )Yes
2( )No

IF "YES," ASK b

b. Who first noticed it?

1( )Self
2( )Husband
3( )Doctor
4( )Other female
5( )Other male
V( )Don't remember

IF "SELF, HUSBAND, OR OTHER," ASK c, d, and e

c. Did you discover this change as the result of a breast examination or did you just happen to notice it?

1( )Breast examination
2( )Just happen
V( )Don't remember

d. Once you became aware of the change, did you do anything about it? If Yes, What?_____

X( )Did nothing
V( )Don't remember

e. How long after you first became aware of the change did you do that?

1( )Same, next day
2( )Within two or three days
3( )Same week
4( )Within two weeks
5( )Longer than that
V( )Don't remember

19. Some women have told us they feel embarrassed when a doctor gives them a breast examination. To what extent, if at all, is that true for you -- a great extent, somewhat, very little, or not at all?

1( )Great extent 2( )Somewhat

3( )Very little 4( )Not at all V( ) Don't know

20. What can a doctor do to make a woman feel less embarrassed when giving her a breast examination?

_____

_____

_____

_____

21. Would it be less embarrassing, or more embarrassing, if during the examination the doctor explained to you what he was doing and why?

1( )Less embarrassing 2( )More embarrassing

3( )No difference V( )Don't know

22a. Would it be less embarrassing for you to have a woman doctor examine your breasts, or would you feel just as comfortable for a man doctor to do the examination?

1( )Woman less embarrassing 2( )Man just as comfortable

V( ) Don't know

b. Some people have suggested that breast examination be given by specially trained nurses or women technicians. If that were available, how likely is it that you would go for breast examinations more frequently than you do now -- very likely, fairly likely, not too likely, or not at all likely?

1( )Very likely 2( )Fairly likely

3( )Not too likely 4( )Not at all likely

V( )Don't know

23. To the best of your knowledge, how often should a woman's breasts be examined for possible signs of breast cancer?

1( )Every month
2( )Every other month
3( )Four times a year
4( )Three times a year
5( )Twice a year
6( )Once a year
7( )Less often
X( )Other (specify _____)
V( )Don't know

24a. Have you ever heard of breast self-examination where a woman examines her breasts herself for possible signs of breast cancer?

1( )Yes 2( )No

IF "NO TO QUESTION 24a, ASK QUESTION 24b AND THEN SKIP TO QUESTION 37

---

b. How interested would you be in being taught how to examine your breasts for possible signs of breast cancer -- very interested, fairly interested, not too interested, or not at all interested?

1( )Very interested
2( )Fairly interested
3( )Not too interested
4( )Not at all interested
V( )Don't know

IF "YES" TO QUESTION 24a, ASK QUESTIONS 25 to 29.

25. How long ago did you first learn about breast self-examination?

1( )Within past year (July 1972 or later
2( )Two or three years ago (July 1970 to June 1972)
3( )Four or five years ago (July 1968 to June 1970)
4( )Five to ten years ago (July 1963 to June 1968)
5( )Ten years or more (June 1963 or earlier)
V( )Don't remember

26. (HAND RESPONDENT CARD B) Where or how did you first learn about breast self-examination?

1( )Personal conversation with doctor

2( )Pamphlet in doctor's office

3( )Pamphlet obtained elsewhere

4( )Lecture or movie sponsored by local club, church, etc.

5( )Personal conversation with friends

6( )Newspaper article or news story

7( )Magazine article or story

8( )Television

9( )Radio

X( )Other: (describe)_____

_____

V( )Don't remember

27. Has a doctor ever brought up the topic of breast self-examination with you?

1( )Yes 2( )No

28a. Has any person ever taught you how to do brease self-examination? (IF YES) Who?

1( )Doctor X( )Don't remember who

2( )Doctor's nurse V( )No, never taught

3( )Other: (specify)_____

b. Have you ever seen any pamphlet, films, or TV programs which described or showed how to do breast self-examination?

1( )Pamphlet X( )Other (specify)_____

2( )Film _____

3( )TV V( )No

29a. Have you ever done breast self-examination?

1( )Yes (ASK QUESTIONS 30-33)

2( )No (ASK QUESTION 29b)

IF "NO" IN QUESTION 29a, ASK QUESTION 29b AND THEN SKIP TO QUESTION 37

b. Why is that?_____

IF "YES" TO QUESTION 29a, ASK QUESTIONS 30-33

30. How old were you when you first started breast self-examination?

(RECORD ACTUAL AGE) _____

31a. During the past twelve months, have you done any breast self-examination? (IF YES) How often?

1( )Not in last 12 months
2( )Once
3( )Twice (every 6 months)
4( )Three times (every 4 months)
5( )Four times (every 3 months)
6( )Five times
7( )Six times (every other month)
8( )Seven or eight times
9( )Nine to eleven times
0( )Twelve times (once a month)
X( )13 times or more
V( )Don't remember

IF "NOT IN LAST 12 MONTHS", ASK b

b. Why is that?_____

32. How confident do you feel that you know the proper way to examine your breasts -- very confident, fairly confident, not too confident, or not at all confident?

1( )Very confident 2( )Fairly confident

3( )Not too confident 4( )Not at all confident

V( )Don't know

33. And how confident do you feel that you know what a lump would feel like -- very confident, fairly confident, not too confident, or not at all confident?

1( )Very confident 2( )Fairly confident

3( )Not too confident 4( )Not at all confident

V( )Don't know

IF BREAST CANCER SELF-EXAMINATION DONE ONE OR MORE TIMES IN PAST 12 MONTHS (See Question 31a) ASK QUESTIONS 34 TO 36

---

34. Is there any particular time of the month when you do breast self-examination?

1( )Just before menstruation

2( )During menstruation

3( )Just after menstruation

4( )Between menstruation (middle of "month")

5( )No one particular time

X( )Other (specify) _____

_____

V( )Don't remember

35. Do you do breast self-examination in the morning, sometime during the day, or at night?

1( )Morning 2( )During the day 3( )Night

4( )No one time V( )Don't remember

36. And do you do breast examination during a bath or shower, immediately after your bath or shower, while lying in bed, while getting dressed or undressed, or at some other time? (MULTIPLE ANSWERS POSSIBLE)

1( )During bath or shower
2( )After bath or shower
3( )Lying in bed
4( )Getting dressed or undressed
X( )Other (specify) _____
V( )Don't remember

ASK EVERYONE:

37. Suppose a woman has a small lump in her breast. How likely do you think it is that she will find it if she does breast self-examination -- very likely, fairly likely, not too likely, or not at all likely?

1( )Very likely 2( )Fairly likely 3( )Not too likely
4( )Not at all likely V( )Don't know

38. If she had a small lump in her breast who would be more likely to find it -- a woman with small breasts or a woman with large breasts, or doesn't it make any difference?

1( )Small breasts 2( )Large breasts
3( )No difference V( )Don't know

39. If she had a small lump in her breast, who would be more likely to find it -- a woman who has had cysts in her breast, or a woman who hasn't, or doesn't it make any difference?

1( )Had cysts 2( )Hasn't had cysts
3( )No difference V( )Don't know

40. Suppose a woman found a lump in her breast. What do you think the lump would feel like? (PROBE) Your best guess?_____

_____

_____

_____

Anything else?_____

_____

41. To the best of your knowledge, what proportion of lumps in the breast are cancerous -- most, more than half, about half, less than half, or very few?

1( )Most
2( )More than half
3( )About half
4( )Less than half
5( )Very few
V( )Don't know

42. Some women feel they want monthly breast examinations so that if they do have a breast cancer they will find out as soon as possible. Other women feel that having monthly breast examinations would make them worry when it wasn't necessary. Whom do you agree with more?

1( )Want monthly exams to find out
2( )Don't want because would worry
V( )Don't know

43. When would you feel more worried about possible breast cancer -- when examining your breasts yourself or when a doctor does the examination, or doesn't it make any difference?

1( )Self
2( )Doctor
3( )No difference
V( )Don't know

44. If a woman breast feeds her baby, do you think this increases or decreases the chance that she might develop a breast cancer, or doesn't it make any difference?

1( )Increase
2( )Decrease
3( )No difference
V( )Don't know

45. What if a woman uses a birth control pill -- do you think this increases or decreases the chance that she might develop a breast cancer, or doesn't it make any difference?

1( )Increase
2( )Decrease
3( )No difference
V( )Don't know

46. And what if a woman suffers a blow or injury to the breast -- can this produce a breast cancer, or doesn't it make any difference?

1( )Produce cancer 2( )No difference

V( )Don't know

47. Who is more likely to develop breast cancer, a woman who has been pregnant, a woman who has never been pregnant, or doesn't this make any difference?

1( )Never pregnant more likely 3( )No difference

2( )Been pregnant more likely V( )Don't know

48. After menopause (change of life), is a woman more likely, or less likely, to develop breast cancer, or doesn't it make any difference?

1( )More likely 3( )No difference

2( )Less likely V( )Don't know

49. If someone else in your family has had breast cancer, does this increase the chance that you might develop one, or doesn't this make any difference.

1( )Increase 2( )No difference

V( )Don't know

50. If you had to guess, out of every 1,000 women, how many would you say develop breast cancer sometime during their life? (PROBE) Your best guess?

NUMBER _____ V( )Don't know

51. Of those women who develop and are treated for breast cancer, what proportion would you guess survive -- most, more than half, about half, less than half, or very few?

1( )Most 4( )Less than half

2( )More than half 5( )Very few

3( )About half V( )Don't know

52. (HAND RESPONDENT CARD C) At what age is breast cancer most likely to develop, or is the chance of a woman developing breast cancer the same at all ages?

1( )Chance the same at all ages
2( )Under 25 years
3( )25 to 34 years
4( )35 to 44 years
5( )45 to 54 years
6( )55 to 64 years
7( )65 years or older
V( )Don't know

53. Suppose a woman discovers she has a breast cancer. Are the chances of her being cured better if she discovers it early, or doesn't it really make any difference?

1( )Better if early
2( )No difference
V( )Don't know

54. What are the chances of breast cancer being cured if it is discovered early -- excellent, good, fair, or poor?

1( )Excellent
2( )Good
3( )Fair
4( )Poor
V( )Don't know

55. Compared with twenty years ago, how much progress has been made in diagnosing breast cancer early -- a great deal, fair amount, little, or none?

1( )Great deal
2( )Fair amount
3( )Little
4( )None
V( )Don't know

56a. (HAND RESPONDENT CARD D) Which, if any, of these ways of detecting lumps in the breast have you heard of?

1( )Examination by hand
2( )Mammography (X-ray)
3( )Thermography (heat measurement)
V( )None of them

b. How many women do you know who have had breast cancer? (CIRCLE NUMBER)

1 2 3 4 5 6 7 8 9

X=10 or more

c. Were they friends or relatives?

1( )Friends only 2( )Relatives only

3( )Both friends and relatives

d. How many were saved? (CIRCLE NUMBER)

0=None 1 2 3 4 5 6 7 8 9

X=10 or more V(Don't know

59. One kind of treatment for breast cancer is surgery. (HAND RESPONDENT CARD E) Have you ever heard of any of these kinds of surgery? Which one? Just read off the letters.

1( )A Lumpectomy -- only the lump itself is removed

2( ) Simple mastectomy -- the entire breast is removed but nothing else

3( )C Radical mastectomy -- the entire breast is removed plus muscles on the chest walls and glands in the armpit

V( )None of them

60a. (RESPONDENT KEEPS CARD E) Which ONE of these procedures do you think is used most often?

1( )A 2( )B 3( )C V( )Don't know

b. Why do you think it is used most often?_____

61a. (RESPONDENT KEEPS CARD E) And which ONE do you think is used least often?

1( )A 2( )B 3( )C V( )Don't know

b. Why do you think it is used least often?_____

_____

_____

62. To the best of your knowledge, has sufficient progress been made in other forms of treatment for breast cancer so that extensive surgery is no longer needed as much as it used to be?

1( )Yes, enough progress made 2( )No

V( )Don't know

63. If a woman like yourself has had a breast removed, to what extent do you think she loses her sense of being a woman -- a great extent, somewhat, a little, or not at all?

1( )Great extent 2( )Somewhat 3() A little

4( )Not at all V( )Don't know

64. Do you think losing a breast would be easier on an older woman or on a younger woman or doesn't age make any difference?

1( )Easier on older 2( )Easier on younger

3( )Age no difference V( )Don't know

65. Do you think losing a breast is more of a loss for a woman with large breasts or for a woman with small breasts, or doesn't the size make any difference?

1( )Large breasts 2( )Small breasts

3( )No difference V( )Don't know

66. (HAND RESPONDENT CARD F) When it comes to one's sense of being a woman, which would be more of a loss -- a mastectomy or a hysterectomy to:

	Mastectomy	Hysterectomy	Both Same	Don't Know
a. A woman like yourself	1( )	2( )	3( )	V( )
b. An unmarried woman in her twenties?	1( )	2( )	3( )	V( )
c. An unmarried woman in her fifties?	1( )	2( )	3( )	V( )
d. A married woman who hasn't had any children?	1( )	2( )	3( )	V( )
e. An older woman who has had children?	1( )	2( )	3( )	V( )
f. An older woman who has not had children	1( )	2( )	3( )	V( )
g. A woman who has had her menopause (change of life)	1( )	2( )	3( )	V( )

67a. (RESPONDENT KEEPS CARD F) Which do you think a husband would have more difficulty adjusting to -- a mastectomy or a hysterectomy?

1( )Mastectomy 2( )Hysterectomy 3( )Both same
V( )Don't know

b. And which do you think a fiance would have more difficulty adjusting to -- a mastectomy or a hysterectomy?

1( )Mastectomy 2( )Hysterectomy 3( )Both same
V( )Don't know

68. If a woman like yourself has had a breast removed, how likely do you think it is that she could lead a normal life as she did before the removal -- very likely, fairly likely, not too likely, or not at all likely?

1( )Very likely 2( )Fairly likely 3( ) Not too likely
4( )Not at all likely V( )Don't know

69a. Some people think that many women put off having breast examinations because they want to avoid the possibility of finding out they have breast cancer so that breast removal might be necessary. Do you think this is the case, or not?

1( )Yes 2( )No V( )Don't know

b. Do you think this may be truer of younger women, or doesn't age make any difference?

1( )Truer of younger women 2( )Truer of older women

3( )No difference V( )Don't know

70. Some women have said that they would rather be dead than have a breast removed. Do you feel that way, or not?

1( )Yes 2( )No V( )Don't know

71. Do you think most men doctors really understand a woman's feelings about breast removal?

1( )Yes 2( )No V( )Don't know

72. In your opinion, are men doctors more likely than women doctors to remove the breast when a woman has breast cancer or, are women doctors more likely to do so?

1( )Men more likely 2( )Women more likely

3( )No difference V( )Don't know

73. Which do you think would be harder for a woman like yourself to adjust to -- the removal of a breast, or, the loss of an arm or leg?

1( )Breast 2( )Arm or leg 3( )No difference

V( )Don't know

74. Suppose a woman who is happily married has a breast removed because of breast cancer. How likely do you think it is that the loss of a breast would make her marriage less happy -- very likely, fairly likely, not too likely, or not at all likely?

1( )Very likely 2( )Fairly likely

3( )Not too likely 4( )Not at all likely

V( ) Don't know

75. To what extent do you think breast removal reduces the chances of a happy marriage for a young unmarried woman -- a great extent, somewhat, a little, or not all?

1( )Great extent 2( )Somewhat 3( )A little
4( )Not at all V( )Don't know

76. Suppose a woman has to undergo surgery for breast cancer. Which do you think would be more disturbing emotionally -- to remove the entire breast as a safety precaution, or, to remove only the cancerous lump with the hope that spread has not occurred?

1( )Remove entire breast as safety precaution
2( )Remove only cancerous lump V( )Don't know

77. If breast cancer is discovered <u>early</u> and <u>only</u> the cancerous lump is removed, what do you think are the chances that the cancer will <u>not</u> come back -- very good, good, fair, or poor?

1( )Very good 2( )Good 3( )Fair
4( )Poor V( )Don't know

78. If breast cancer is discovered <u>early</u> and the <u>entire</u> breast is removed, what do you think are the chances that the cancer will <u>not</u> come back -- very good, good, fair, or poor?

1( )Very good 2( )Good 3( )Fair
4( )Poor V( )Don't know

79. Suppose a woman has a lump in a breast and an operation is being performed to find out if it is a cancer. Do you think she should be required to sign a consent form for the doctor immediately to remove the breast if he feels it is necessary, or should this wait until the doctor has discussed the diagnosis with her?

1( )Sign release 2( )Wait until after discussion
V( )Undecided

80. Suppose a woman has signed a consent form permitting her doctor to remove the breast, provided the tests show the lump to be a cancer. And suppose that when she woke up she found that her breast had been removed. What do you think would be her first thoughts?

_____

_____

_____

_____

81. At that point, do you think she would feel sorry that she had signed the consent form, or not?

1( )Yes 2( )No V( )Don't know

82. At that point, which would she be more likely to worry about, that she had cancer, or, that her breast was removed?

1( )Had cancer 2( )Breast was removed

3( )Both equal V( )Don't know

83a. (HAND RESPONDENT CARD G) Which ONE of these procedures would you want your doctor to use? Just read off the letter.

1( )A Have the woman sign a consent form before the exploratory operation saying he can remove the breast immediately if the lab test shows there is a cancer

2( )B Have the woman sign a consent form only for the exploratory operation. Then if there is a cancer, discuss the diagnosis with the woman and remove the breast only after this discussion

3( )C If the exploratory operation shows there is a cancer, and the doctor recommends removal of the breast, allow the woman to leave the hospital to consult with another doctor as to whether removal of the breast is necessary

V( )Don't know

b. Why do you say that?_____

_____

_____

_____

Any other reasons?_____

_____

_____

84. Which do you think would be more frightening -- for a doctor to go ahead immediately and remove a breast if necessary, or, to discuss the diagnosis with the woman and then return to the operating room to have the breast removed?

1( )Remove immediately 2( )Discuss, return for operation

3( )Both equal V( )Don't know

85a. Have you ever heard or read about the "Reach To Recovery Program", which is sponsored by the American Cancer Society?

1( )Yes 2( )No

IF "YES", ASK b, c, and d

---

b. Where did you see or hear about this program?

1( )Doctor

2( )Pamphlets

3( )Women who have participated in it

4( )Community clubs, organizations

5( )TV

6( )Radio

X( )Other (specify)_____

V( )Don't remember

c. What can you tell me about the "Reach To Recovery Program?"_____

_____

_____

_____

Anything else?_____

_____

d. To the best of your knowledge, is there such a program in this community?

1( )Yes 2( )No V( )Don't know

---

86. The Reach To Recovery Program is a rehabilitation program for women who have had a breast removed. If the need ever would arise for you, which would you do -- participate in this program, or, do whatever is necessary at home by yourself?

1( )Participate 2( )At home by self V( )Don't know

87. Do you approve or disapprove of teaching teenage girls in the last two years of high school about breast self-examination?

1( )Approve 2( )Disapprove V( )Don't know

Before ending, I'd like to ask you a few questions about yourself . . .

88. (HAND RESPONDENT CARD H) On this card are pairs of phrases with opposite meanings. Considering <u>each</u> pair, which phrase best describes you? (INTERVIEWER: Be sure respondent considers each pair, and record answer for each. If respondent <u>volunteers</u> that neither pair fits her, record that in the space provided.) First, how about line A etc.?

A. 1( )Like to try new things 2( )Stick to what I'm sure of

3( )Neither 4( )Don't know

B. 1( )Like to have a few old friends 2( )Like to keep meeting new people

3( )Neither V( )Don't know

C. 1( )Calm and easy going 2( )Excitable
3( )Neither V( )Don't know

D. 1( )Prefer reading or watching TV by myself 2( )Prefer parties with lots of people
3( )Neither V( )Don't know

E. 1( )Most men find me attractive 2( )Only certain kinds of men find me attractive
3( )Neither V( )Don't know

F. 1( )My physical appearance and attractiveness is very important to me 2( )My physical appearance and attractiveness is not too important to me
3( )Neither V( )Don't know

89a. Are you now employed, either full-time or part-time?

1( )Yes, full-time 2( )Yes, part-time 3( )No

IF "YES, FULL-TIME or PART-TIME," ASK b

---

b. What kind of business or industry do you work in and what kind of work do you do there?

KIND OF BUSINESS_____

KIND OF WORK_____

90a. Are you the CHIEF WAGE EARNER in this household?

1( )Yes 2( )No

IF "NO", ASK b

---

b. Could you tell me the kind of business or industry the CHIEF WAGE EARNER (HEAD OF HOUSEHOLD) in your immediate family works in and the kinds of work he does there?

KIND OF BUSINESS_____

KIND OF WORK_____

---

91. What was the last grade or class you COMPLETED in school?

1( )None, or grades 1-4
2( )Grades 5, 6, 7
3( )Grade 8
4( )High School Incomplete (Grades 9-11)
5( )High School Graduate (Grade 12)
6( )Technical, Trade, or Business
7( )College, University Incomplete
8( )College, University Graduate

92a. Have you ever borne any children?

1( )Yes 2( )No

IF "YES", ASK b and c

---

b. How many children have you borne? (CIRCLE NUMBER)

1 2 3 4 5 6 7 8 9

X=10 or more

c. Did you breast feed any of them?

1( )Yes 2( )No

---

93. Have you gone through menopause (change of life) yet?

1( )Yes 2( )No

94. Have you ever had a hysterectomy?

1( )Yes 2( )No

95. Have you ever had a benign breast tumor (a lump that is not cancerous) removed?

96a. Have you ever had breast cancer?

1( )Yes 2( )No

IF YES, ASK b

---

b. How was it treated?

1( )Surgery 2( )X-ray 3( )Hormones
4( )Chemicals X( )Other V(Don't know)

96c. We are interested in finding out how often people are are at home to watch TV or listen to the radio. Would you mind telling me whether or not you happened to be at home yesterday (last night, last Saturday, last Sunday) at this particular time? (INTERVIEWER: SEE INTERVIEWER BULLETIN FOR HANDLING THIS QUESTION.)

1( )Yes, at home 2( )No, not at home

d. How about the day (night, Saturday, Sunday) before at this time?

1( )Yes, at home 2( )No, not at home

e. And how about the day (night, Saturday, Sunday) before at this time? That was _____.

1( )Yes, at home 2( )No, not at home

97. Are you single, married, widowed, or divorced?

1( )Single 2( )Married 3( )Widowed
4( )Divorced

98. What is your religious preference -- Protestant, Roman Catholic, or Jewish?

1( )Protestant 4( )Eastern Orthodox
2( )Roman Catholic 5( )Other
3( )Jewish 6( )None

99. (HAND RESPONDENT CARD Y) From what nationality group, or groups, are you mainly descended? That is, from what country or countries did your family come from before coming to America? Just read off the letter.

1( )A 2( )B 3( )C 4( )D 5( )E 6( )F
7( )G 8( )H 9( )I 0( )J V( )DK

100. SHOW CARD X AND ASK: Would you please give me the letter of the group which best represents the total annual income, before taxes, of all the members of your immediate family living in your household?

1( )A 2( )B 3( )C 4( )D 5( )E 6( )F
7( )G 8( )H 9( )I 0( )J X( )K

The answer is: 1( )Response 2( )Estimate

101. May I have your age: AGE_____

102. CHECK WHETHER:

1( )White 2( )Black 3( )Spanish speaking

4( )Other

So that my office can check my work in this interview, if it wants to, may I have your name, address and telephone number, please?

NAME_____

STREET ADDRESS_____

CITY & STATE_____

TELEPHONE: Area code_____ Phone number_____

V( )No telephone

I hereby attest that this is a true and honest interview.

Interviewer's Signature_____

Date_____ Time interview ended_____

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