

1-1-1984

Seeking medical care for a breast cancer symptom : predicting intentions to engage in prompt or delay behavior.

Christine D. Timko
University of Massachusetts Amherst

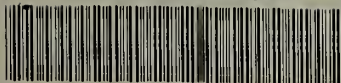
Follow this and additional works at: https://scholarworks.umass.edu/dissertations_1

Recommended Citation

Timko, Christine D., "Seeking medical care for a breast cancer symptom : predicting intentions to engage in prompt or delay behavior." (1984). *Doctoral Dissertations 1896 - February 2014*. 1593.
<https://doi.org/10.7275/xgqq-np74> https://scholarworks.umass.edu/dissertations_1/1593

This Open Access Dissertation is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Doctoral Dissertations 1896 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

UMASS/AMHERST



312066013548048

SEEKING MEDICAL CARE FOR A BREAST CANCER SYMPTOM:
PREDICTING INTENTIONS TO ENGAGE IN PROMPT
OR DELAY BEHAVIOR

A Dissertation Presented

By

CHRISTINE TIMKO

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 1984

Psychology



Christine Timko

All Rights Reserved

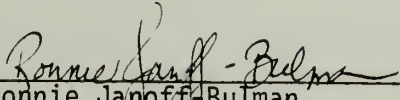
SEEKING MEDICAL CARE FOR A BREAST CANCER SYMPTOM:
PREDICTING INTENTIONS TO ENGAGE IN
PROMPT OR DELAY BEHAVIOR

A Dissertation Presented

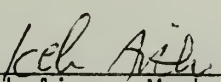
By

CHRISTINE TIMKO

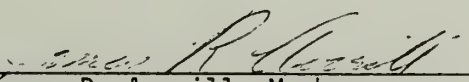
Approved as to style and content by:



Ronnie Janoff-Bulman
Chairperson of Committee

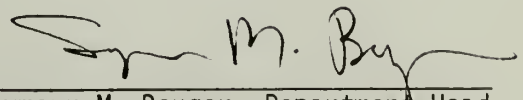


Icek Ajzen, Member



James R. Averill, Member

Kathleen E. Grady, Member



Seymour M. Berger, Department Head
Department of Psychology

To Ronnie Janoff-Bulman

ACKNOWLEDGEMENTS

I want to give special thanks to the following people:

To Ronnie Janoff-Bulman, not only for chairing this dissertation, but for being my mentor throughout my graduate career. Ronnie's sincere enthusiasm for social psychological theory and research, and her ability to apply them to "real world" people and situations, in large part inspired my great appreciation for the value and fun of practicing social psychology.

To Icek Ajzen, Jim Averill, and Kathy Grady, for their help on this dissertation. During my time at UMass I have worked with Icek on several projects, and under his guidance have gained invaluable experience in carrying out basic social psychological research. Jim has contributed to my interest in health psychology, and has shown me the utility of trying to answer questions that are probably unanswerable. Kathy, whose own research is very closely tied to the topic of this dissertation, offered many practical suggestions that greatly benefited all phases of the project.

And to James Howard, my parents, and the rest of my family for their tremendous support and encouragement. I have no doubt that without them I would not have completed my Ph.D.

ABSTRACT

Seeking Medical Care for a Breast Cancer Symptom: Predicting Intentions to Engage in Prompt or Delay Behavior

September 1984

Christine Timko, B.A., University of Pennsylvania

M.S., Ph.D., University of Massachusetts

Directed by: Professor Ronnie Janoff-Bulman

This study examined the cognitive structures underlying women's intentions to delay or not delay seeking medical care for a breast cancer symptom. Middle-aged women completed a questionnaire that first asked them to imagine that they had just discovered a particular change in their breast. Assessed were the variables specified by Ajzen and Fishbein's Theory of Reasoned Action (i.e., intention, attitude and its determinants, and subjective norm and its determinants) with respect to immediately calling the doctor (i.e., prompt behavior) and monitoring the breast change on one's own (i.e., delay behavior). Also assessed were variables external to the theory that were drawn from research on cancer delay, medical sociology, and cognitive social psychology. Results showed that intentions to engage in delay rather than prompt behavior were accurately predicted from corresponding attitude and subjective norm measures. Intentions to delay were positively associated with having favorable attitudes toward delay and perceived social pressure to delay; however, the attitudinal factor was a more influential determinant of intentions than the social factor. Underlying favorable

attitudes toward delay were beliefs that delay would be likely to result in a variety of positive outcomes, but would be unlikely to result in various negative consequences. Three external variables were found to directly and indirectly contribute to intentions to delay: having little anxiety upon discovering the breast change, making non-cancer attributions for the change, and having a habit of delaying medical care for physical symptoms. The bases on which respondents made cancer or non-cancer attributions for the breast change, and the determinants of the extent to which respondents perceived themselves as vulnerable to getting breast cancer were also explored.

TABLE OF CONTENTS

| | |
|---|-----|
| ACKNOWLEDGEMENTS | v |
| ABSTRACT | vi |
| LIST OF TABLES | ix |
| Chapter | |
| I. INTRODUCTION | 1 |
| II. METHOD | 69 |
| III. RESULTS | 89 |
| IV. DISCUSSION | 139 |
| | |
| FOOTNOTES | 162 |
| REFERENCE NOTES | 165 |
| REFERENCES | 166 |
| APPENDIX A. PILOT STUDY QUESTIONNAIRE | 173 |
| APPENDIX B. RECRUITMENT MATERIALS | 182 |
| APPENDIX C. QUESTIONNAIRE PACKET | 185 |

LIST OF TABLES

| | |
|---|-----|
| 1. Modal Salient Outcomes, Referents, and Emotions | 72 |
| 2. Response Rates | 76 |
| 3. Correlations Among Intentions, Attitudes, and Subjective Norms | 93 |
| 4. Intentions, Attitudes, and Subjective Norms of Delayers and Non-delayers | 99 |
| 5. Mean Behavioral Beliefs and Outcome Evaluations for Delayers and Non-delayers and Correlations of Intentions to Monitor with Behavioral Beliefs and Outcome Evaluations | 101 |
| 6. Mean Normative Beliefs and Motivations to Comply for Delayers and Non-delayers, and Correlations of Intention to Monitor with Normative Beliefs and Motivations to Comply | 105 |
| 7. Likelihoods of Consulting with Referents: Means, Standard Deviations, and Correlations with Differential Intentions . . | 108 |
| 8. Correlations Between Differential Intentions and Emotional Reactions | 110 |
| 9. Conceptions of Breast Cancer: Means, Standard Deviations, and Correlations with Differential Intentions | 112 |
| 10. Correlations Between External Variables and Differential Attitude and Subjective Norm | 116 |
| 11. Regressions of Differential Intention on Differential Attitude, Differential Subjective Norm, and External Variables | 119 |
| 12. Correlations of External Variables with Behavioral Beliefs and Outcome Evaluations | 121 |
| 13. Correlations of External Variables with Normative Beliefs and Motivations to Comply | 123 |
| 14. Frequencies of Breast Cancer Symptoms: Means, Standard Deviations, and Correlations with Likelihood that Change is Breast Cancer | 127 |
| 15. Incidences of Breast Lumps, Breast Cancer, and Deaths from Breast Cancer | 129 |
| 16. Descriptions of the likely Breast Cancer Victim | 135 |

CHAPTER I

INTRODUCTION

Overview

The research presented here examined the cognitive structures that underlie women's intentions to obtain or not obtain medical care upon the discovery of a breast cancer symptom. The methods used to assess women's cognitive structures in regard to this situation drew on procedures developed by Ajzen and Fishbein (1980; Fishbein & Ajzen, 1975) to apply their "theory of reasoned action" to the prediction and understanding of particular behaviors. According to the theory of reasoned action, the performance of a behavior is preceded by the intention to perform that behavior. This intention is in turn a function of two factors: the attitude toward the behavior (i.e., the degree to which the individual has a favorable or unfavorable evaluation of the behavior), and the subjective norm concerning the behavior (i.e., the individual's perceived social pressure to perform the behavior). Attitude toward the behavior is the result of salient beliefs concerning the consequences of performing the behavior, termed behavioral beliefs. The subjective norm is determined by normative beliefs; that is, by the perceived prescriptions of relevant referent persons or groups. Ajzen and Fishbein have demonstrated that close examination of the behavioral and normative beliefs concerning a particular behavior enables the researcher to gain a good understanding of the factors that ultimately determine people's decisions to perform or not perform that behavior. They have

also demonstrated that "external variables," such as general attitudes towards institutions, people, or other targets, personality traits, or demographic characteristics, may influence intentions indirectly by affecting behavioral or normative beliefs people hold concerning a behavior, or by determining the relative importance attached to attitudinal and normative considerations. Thus a demonstration of the impact of external variables on beliefs underlying a given behavior can add to the understanding of that behavior.

In the study presented here, a sample of middle-aged women was given a questionnaire to complete that first asked them to imagine that they had just discovered a specific change in their breast. The variables specified by Ajzen and Fishbein were then assessed regarding the behaviors of immediately presenting the symptom to a physician and of delaying presentation of the symptom. Additional variables that were hypothesized to influence these behaviors were also assessed; these variables were drawn from past research in the areas of delay in obtaining a diagnosis of cancer symptoms, medical sociology, and cognitive social psychology. Basically, the sample was divided into those women who intended to immediately present their breast symptom to a physician and those who intended to delay presentation. The difference in intentions was then explained by examining patterns of differences in the other variables measured. The general purpose of the study was to gain a greater understanding of the decision to seek or not seek medical care for cancer symptoms.

Introduction

Presently, very few types of cancer are considered to be preventable by means of avoiding or eliminating their causes. Because primary prevention of most cancers is not yet possible, the focus of educational campaigns concerning cancer has been on early detection of the disease. Current evidence suggests that early case detection, along with adequate diagnosis and treatment, have value in controlling cancer and extending survival, although the value may differ with cancer of various sites. In the case of breast cancer, the American Cancer Society (Note 1) states that the value of early detection is well documented; the five year survival rate for localized breast cancer is 87%, but if the cancer has spread by the time of diagnosis and treatment the survival rate is only 47%. Unfortunately, delay in seeking medical attention for cancer symptoms is a severe problem. The American Cancer Society (Note 1) estimated that of the 430,000 people who were expected to die of cancer in 1982, 139,000 (32%) might have lived longer with earlier diagnosis and prompt treatment. It is not possible to arrive at a very precise generalization as to the extent of delay in seeking care for cancer symptoms, but there is a great deal of research that documents the very considerable delay which commonly occurs (for reviews, see Antonovsky & Hartman, 1974; Blackwell, 1963).

Although delay in seeking treatment for symptoms is well recognized as a major problem in controlling cancer, investigations of the problem have generally failed to provide a theoretical basis from which

to explain this behavior. Due to methodological problems and equivocal data, studies of delay are relatively uninformative as to the psychological processes involved in the decision to obtain or not obtain medical care for cancer symptoms. The present paper first briefly reviews the available literature on seeking care for symptoms of cancer, including the limitations of this research and the conclusions it offers. It then presents a broader approach to the problem of delay than that generally taken by researchers in this area. Specifically, information is presented that is aimed at providing answers to the following interrelated questions: (1) Under what conditions are physical symptoms noticed and attended to? (2) Once bodily symptoms are perceived, how are they interpreted; how does a symptom come to be defined as signifying an illness? (3) Once symptoms are interpreted as indicative of illness, what behavioral responses follow from this interpretation? Theory and research relevant to these questions have come mainly from medical sociologists, although psychologists have recently also begun to investigate health-relevant behavior. After these questions are discussed the Ajzen and Fishbein model of attitude-behavior relationships is presented. Finally, the differing research perspectives are integrated into the present study of the decision to seek professional medical care for a physical symptom suggesting breast cancer.

Studies of Delay in Seeking Diagnosis of Cancer Symptoms

Methodological Issues

Typically, studies of delay compare two groups of patients: those who sought treatment promptly for cancer symptoms, and those who delayed seeking treatment. Three major methodological problems run throughout this body of research. These problems concern the definition of delay, the methods used to determine the extent of delay, and the fact that the majority of the studies are retrospective.

The concept of patient delay (as distinguished from physician delay) refers to the time elapsing between the recognition of a symptom and the first presentation to a physician. The most frequently used definition of delay was initially provided by Pack and Gallo (1938), and specifies that delay occurs when the patient waits more than three months from the onset of symptoms before consulting a doctor. In studies of factors related to delay, this three month period has been used to differentiate delaying patients from prompt patients.

The consistent use of Pack and Gallo's definition of delay constitutes the only basis for comparison among studies in this area. Unfortunately, this definition is problematic. First of all, as Kutner and Gordan (1961) have stated, if three months is considered to be a reasonable time in which to seek medical care, this implies that no significant changes in health status occur during that interval; however, no such guarantees appear warranted. Secondly, cancer is actually a group of diseases, and the biological nature and rate of growth of different

types of neoplasms may vary, as may the resistance of the host. Therefore, a certain time period of delay may be deleterious delay for cancer of one site, but not delay at all for cancer of another site (Blackwell, 1963).

In response to the problem of defining delay, Makover (1963) suggested that delay should ideally be defined in terms of knowledge of specific pathogeneses of specific cancers, rather than using a broad, arbitrary unit of time which does not account for varying growth rates and danger periods for different cancers. The limitations of current knowledge, however, make such an ideal appear unattainable in the foreseeable future. Kutner and Gordan (1961) argue that promptness and delay should both be defined in terms of deviations from the norm of medical help seeking for a particular symptom in a particular sample. In this approach, delaying and prompt patients are defined in relation to the population from which they are sampled, and in relation to the specific symptom they did or did not neglect. If the goal of research is to compare delayers to nondelayers, Kutner and Gordan's method of empirically defining delay and nondelay, instead of relying on an arbitrary time criterion, seems preferable.

Antonovsky and Hartman (1974) have raised a second methodological problem that is present in studies of delay. They point out that investigators rarely state explicitly what question was asked of patients in order to determine the extent of delay. It is likely that the same individual would provide different answers concerning the extent of delay, depending on whether s/he was asked about a pain episode, a

persistent pain, an unusual physical sensation, or a physical symptom, and so on. The effects of particular questions on patients' self-reports of extent of delay can be determined only through further research. Until such research becomes available, investigators should provide the specific questions asked of respondents, along with the rationale underlying the choice of questions.

A less easily solved methodological problem concerns the retrospective nature of delay research. Most delay studies are based on the recollections of patients who have sought diagnosis and treatment for cancer symptoms. Although prospective studies of delay would be difficult to carry out, at the very least an attempt should be made to examine the reliability and validity of respondents' retrospective accounts.

Findings of Delay Research

Basically, studies of delay ask why people delay seeking care for cancer symptoms, and compare delaying patients and prompt patients on a variety of characteristics. Delay research has tended to be descriptive rather than explanatory. People who do or do not delay are described in terms of demographic and personality factors; their relationships with medical practitioners and their attitudes toward the health care system; their anxiety, knowledge, and previous experience in relation to cancer; and their habits of medical care seeking. There have been few attempts to specify in any detail the various processes--the stages and types of decisions--that enter into the seeking of professional medical care for cancer symptoms.

One of the first approaches taken in the study of why people delay was to compare delayers and nondelayers on demographic variables such as age, gender, occupation, income, and education. A consistent finding is that lower socioeconomic status and lower educational achievement tend to be associated with delay. Age is the third most powerful variable in predicting delay behavior, in that delayers tend to be older. Beyond these tendencies, no firm generalizations can be made regarding the relationship between demographic variables and delay. For instance, Marshall, Gregorio, and Walsh (1982) found that gender differences in care seeking among individuals with cancer were negligible. These findings were based on assessments of both the stage of disease at which patients reported for treatment and the duration of delay between their reported first notice of symptoms and the diagnosis. There is only one situation in which background characteristics might directly explain delay: when the procurement of medical care necessarily requires financial outlay, low socioeconomic status would possibly account for delay behavior. In all other cases, demographic variables can be operative solely through other variables. For example, it may be that older people delay more because they are overrepresented in groups of lower socioeconomic status. For reviews of research examining the relationship between general background factors and delay, see Antonovsky and Hartman (1974); Kasl and Cobb (1966); and Rosenstock and Kirscht (1979).

A second approach taken in the study of delay behavior has been to compare patients who delayed seeking care for cancer symptoms with prompt patients on their responses to personality tests and/or

psychological or psychiatric interviews. These investigations focus on four major issues: general emotional health (e.g., Cameron & Hinton, 1968; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Worden & Weisman, 1975), intellectual capacity (e.g., Aitken-Swan & Paterson, 1955), hypochondria and body image (e.g., Fisher, 1967; Gold, 1964; Hammerschlag, Fisher, DeCosse & Kaplan, 1964; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Sugar & Watkins, 1961), and styles of coping with fear (e.g., Aitken-Swan & Paterson, 1955; Cobb, Clark, McGuire & Howe, 1954; Hammerschlag et al., 1964; Henderson, Wittkower & Lougheed, 1958; Shands, Finesinger, Cobb & Abrams, 1951). There is very little consistency in the findings regarding these issues; for a review of this literature, see Antonovsky and Hartman (1974).

Studies of delay in seeking a cancer diagnosis have further examined the attitudinal and behavioral relationship of individuals to their doctors and to the medical care system. Findings regarding the influence of patients' perceptions of their relationship with doctors on medical help-seeking are equivocal. Some researchers have suggested that "good" doctor-patient relationships, or at least having a doctor one considers to be one's family physician, facilitates prompt help-seeking for cancer symptoms. The same investigators have reported that delayers tend to be unable to form satisfactory relationships with doctors, and to feel uncomfortable in these relationships (Cobb et al., 1954; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; King & Leach, 1950). On the other hand, subsequent studies have found no meaningful differences between delayers and non-delayers in terms of their

attitudes toward their doctors (Clements & Wakefield, 1972; Greer, 1974). The lack of consistency among studies as to how attitudes toward doctors are measured contributes greatly to the ambiguity surrounding this issue. Investigations of people's relationships to the health care system have focused on variables such as the expense of the health care facility, travel distance to the facility, and the type of health insurance coverage carried by respondents. In several studies, reasons given by delayers for why they delayed obtaining treatment for cancer symptoms did involve inadequate financial resources and lack of transportation to the doctor (Cobb et al., 1954; Gold, 1964; Henderson, Wittkower & Loughheed, 1958; Lynch & Krush, 1969). However, no attempts have been made to determine the extent to which these factors affect delay.

One of the most prevalent approaches taken in the study of delay has been to examine the variables of affective reactions to cancer, knowledge about cancer and cancer symptoms, and previous experience with cancer in oneself, relatives, and friends. Fear is by far the most frequently cited reason for delay in obtaining a diagnosis of cancer symptoms. Delay is attributed not only to fear of cancer itself--of its diagnosis, treatment, pain, incurability, and stigma--but also to fear of doctors, physical exams, hospitals, surgery, anesthesia, disfigurement, leaving home, losing one's job, dependency, embarrassment upon seeking care for a trivial symptom, and many other related factors (Aitken-Swan & Paterson, 1955; Burdick & Chanatry, 1954; Cameron & Hinton, 1968; Clements & Wakefield, 1972; Cobb et al., 1954; Gold, 1964;

Greer, 1974; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Lynch & Krush, 1968, 1969; Roberts, 1965).

Researchers investigating coping mechanisms in patients with cancer commonly state that if excessive fear is aroused by the discovery of cancer symptoms, the patient reacts by denying or avoiding the symptoms (Bard & Sutherland, 1955; Cameron & Hinton, 1968; Shands et al., 1951). These defensive reactions are thought to function to reduce anxiety, but also to delay medical care seeking. In this view, delay is due largely to the patient's unwillingness or inability to experience the distress aroused by the suspicion of cancer. Data from studies of delay are interpreted as supporting this view, in that delayers are often reported to have employed the repressive mechanisms of denial, avoidance, or fatalism (Aitken-Swan & Paterson, 1955; Cobb et al., 1954; Eardley, 1974; Greer, 1974; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Lynch & Krush, 1969; Worden & Weisman, 1975).

The absence of fear upon discovering symptoms of cancer is also believed by some researchers to deter early action in obtaining medical treatment for those symptoms. In almost all studies in which patients were interviewed about why they had delayed seeking care, a high percentage mentioned that they did not consider their symptoms to be serious, unusual, abnormal, or significant. Prompt patients, on the other hand, appeared to have a greater awareness that their symptoms were indeed serious (e.g., Cobb et al., 1954; Gold, 1964; Greer, 1974; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Worden & Weisman, 1975). Furthermore, studies by Cameron and Hinton (1968) and Sugar and Watkins

(1961) of women with breast cancer symptoms both suggested that concern or anxiety is a healthy response to the discovery of cancer symptoms, since these affective reactions were associated with early help seeking in their samples. Cameron and Hinton found that delayers were less likely than nondelayers to have been worried when they discovered a lump in their breast. Patients in the Sugar and Watkins study who sought care promptly reported feeling anxious about the possibility of having an operation; delayers, however, reported feeling depressed about the possibility of mastectomy. In this case, depression, rather than anxiety, was thought to promote delay through the avoidance or denial of symptoms.

In reviewing the literature on the relationship between anxiety and delay in procuring medical care for cancer symptoms, Antonovsky and Hartman (1974) and Kasl and Cobb (1966) have suggested that although it is not clear how anxiety influences delay, the true relationship may be curvilinear. A moderate degree of fear regarding the consequences of cancer may be conducive to nondelay, whereas both little and great fear may encourage delay. The suggestion of a curvilinear relation is said to follow from Janis' (1967; Janis & Feshbach, 1953) model of the extent to which fear arousing communications about the dangers of non-compliance to a particular course of action are effective in persuading people to adopt the recommended behavior. In fact, however, delay researchers have greatly oversimplified Janis' model in attempting to provide post-hoc explanations for findings concerning the relationship between anxiety and delay. Furthermore, the model Janis actually

proposed has been criticized on a number of grounds by Leventhal (1970), who concluded that its predictions are largely unsupported by empirical evidence.

The possession of knowledge relating to cancer has been viewed as particularly important with respect to the ability to define a given deviation as a possible symptom of cancer. It is often assumed that in order to seek care promptly for a cancer symptom, one must be knowledgeable enough about cancer to recognize the meaning of the abnormality. Part of the confusion surrounding studies of the relationship between knowledge and delay arises from the failure of investigators to explicitly distinguish knowledge about cancer symptoms in general from knowledge about cancer symptoms in relation to oneself. An individual may be familiar with the warning signs of cancer, and yet not "know" that his or her own symptom is a symptom of cancer. These different types of knowledge may differentially affect delay.

Knowledge of cancer in general--the ability to recognize the seven warning signals of cancer, or having been informed about cancer through the mass media--is believed by some researchers to be necessary but not sufficient to prevent delay in securing care for symptoms. For example, since both the delaying and nondelaying groups in the Henderson (1966; Henderson, Wittkower & Loughheed, 1958) and Sugar and Watkins (1961) studies were familiar with the seven warning signs, the authors concluded that knowledge of cancer symptoms fails to induce some patients to seek early medical assistance. Similarly, Hackett, Cassem and Raker (1973) found that patients who appeared to be fully informed about the

signs and symptoms of cancer still did not respond to their own symptoms with appropriate promptness.

Available evidence suggests that many patients think of cancer when they first notice symptoms of the disease, but there is no consistency among studies as to the proportion who do so. Several studies indicate that relating one's knowledge about cancer symptoms in general to one's own symptoms facilitates speedier help seeking. King and Leach (1950) stated that the aspect in which their delay patients differed most from nondelay patients was the interpretation of first symptoms of cancer. Nondelay patients most frequently interpreted their first symptoms as a cancerous or precancerous condition, or else had no specific idea as to what the symptoms might mean and "just realized that something was wrong." Delay patients tended to interpret their symptoms as a recurrence of a previous illness or as a common illness. Thus, in those cases in which the possibility of cancer was considered in relation to one's symptoms, this by itself was a reason for seeing a doctor promptly. In a similar way, Cameron and Hinton (1968), Eardley (1974), and Sugar and Watkins (1961) have all suggested that those patients who openly acknowledge that their symptoms may indicate cancer usually report to the physician early.

On the other hand, Aitken-Swan and Paterson (1955) speculated that, in general, there are two clear-cut groups of delayers: those who "know" they might have cancer, and those who are genuinely ignorant of the possible significance of their symptoms. In their sample, the average length of delay was higher among the "knowers" than the

"nonknowers," which suggested to the authors that the "knowers" were too fearful to seek a diagnosis. The authors concluded that two distinct processes of fear and ignorance operate to cause delay. Burdick and Chanatry (1954) also stated that fear and ignorance are the most common reasons for delay in securing care for cancer symptoms. Ignorance was ruled out by Greer (1974) as a possible explanation for the finding that the majority of delayers in his sample initially regarded their symptoms as "definitely not serious." Rather, the tendency for delayers to defend against stressful life events with denial was given in explanation for this finding. How one might go about distinguishing the defensive denial of cancer symptoms from genuine ignorance as to the meaning of symptoms is obviously problematic.

Currently, it is generally accepted that the relationship between knowledge about cancer--about cancer symptoms in general or in relation to oneself--and delay is not a simple one. Rather, it appears that knowledge interacts with affective orientations toward cancer, resulting in differential behavior outcomes. Goldsen, Gerhardt and Handy (1957) found, for example, that anxiety about cancer (i.e., worrying that one's symptoms signify cancer) did not increase the tendency to delay, nor was knowledge about cancer (i.e., the ability to recognize cancer warning signals) related to delay. However, "cancer worrying" and knowledge in combination did serve to increase delay. The authors concluded that individuals who recognize the danger signals of cancer will be most likely to seek early diagnosis of symptoms if they feel no general anxiety

about cancer. If people do feel such general anxiety, knowledge may increase the tendency to delay.

King and Leach (1950) distinguished two types of anxiety in relation to cancer symptoms that differentiated the nondelayers and delayers in their study. Prompt patients expressed great concern over the effect of their condition on themselves if neglected. In contrast, a typical reaction among delayers was fear of finding out the nature of their illness or fear of the effects of surgery or other treatments. In other words, nondelayers tended to feel anxious about the implications of not treating their symptoms, while delaying patients were anxious about the implications of treatment. Kutner and Gordan (1961) reported that delay in seeking care for symptoms of cancer was least for those patients having maximal knowledge regarding cancer symptoms, but greatest for those having minimal knowledge about cancer. However, the authors also suggested that in the maximal knowledge group, fear of the consequences of delay promoted prompt action, whereas in the minimal knowledge group, fear of the possible significance of their symptoms promoted delayed action.

These studies concerning the interaction of knowledge and anxiety in relation to cancer suggest that knowledge of cancer warning signals or knowledge that one's own symptoms may signify cancer are not the only types of knowledge that influence taking action to seek care. While one's ability to define a given symptom as a symptom of cancer most likely does play an important role in help seeking behavior, one's knowledge and beliefs concerning the risk factors, various treatments,

survival rates, and so on, for different types of cancer, are also likely to be important. Cobb et al. (1954) examined the relation between knowledge and delay, but looked at patients' knowledge concerning treatments for cancer and the desirability of early treatment, in addition to their knowledge of cancer symptoms per se. It was found that when knowledge was operationalized this way, the possession of knowledge was a trigger to prompt action. Similarly, Eardley (1974) reported that one of the main factors distinguishing delaying and prompt patients in her sample was that delayers were unconvinced of the value of early medical attention in contributing to survival from cancer. Research on the relationships among the variables of knowledge and affective and behavioral responses to symptoms of cancer would be more informative if knowledge were conceptualized more broadly than as the simple recognition of cancer symptoms.

There is a lack of consistency in the results of studies that have investigated the effect of prior experience with cancer on delay behavior. In several cases, previous contact with cancer, i.e., knowing a family member, friend, or acquaintance who had or died of the disease, was found to be unrelated to the time elapsed between the onset of symptoms and the first medical visit (Abrams & Finesinger, 1953; Cameron & Hinton, 1968; Greer, 1974; Hackett, Cassem & Raker, 1973; Worden & Weisman, 1975). Previous experience with others who died of cancer was, however, given as a reason for delayed action in the Henderson (1966; Henderson, Wittkower & Loughheed, 1958) studies. Aitken-Swan and Paterson (1955) stated that knowing a friend or relative who died of cancer

increased delay, although knowing a cancer victim with a successful outcome did not decrease delay. Cobb et al. (1954) found that having a prior cancer history in one's family was a motivational force toward delay, if the relative's outcome was poor; if the other's outcome was successful, this experience encouraged prompt behavior. It would seem reasonable to include the perception of the quality of others' outcomes from cancer as a variable in investigations of the influence of previous experience with the disease on obtaining a diagnosis of symptoms.

The final approach to be discussed that has been taken in studies of delay involves behavioral dispositions toward medical care. This approach asks if behavior that facilitates the early detection of cancer follows the same pattern that characterizes other medical habits of an individual. The literature concerning this question seems to indicate that the answer is yes.

King and Leach (1950) stated that the cancer patients in their sample responded to symptoms of cancer in very much the same way they had managed symptoms of past illnesses. Patients who had previously had a habit of seeing doctors only when in extreme discomfort or in emergencies delayed in securing care for cancer symptoms. Much less delay occurred among cancer patients who gave a history of consulting physicians for anything unusual or that they did not understand, regardless of severity or discomfort. The authors concluded that delay or nondelay in seeking care for cancer symptoms depends largely on the nature of reactions to illness that patients have previously established. Similarly, Goldsen, Gerhardt, and Handy (1957) suggested that delay is much less

related to the emergence of a specific symptom and its possible implications than to the cluster of long standing orientations to medical problems that people have built up during the course of a lifetime. Their respondents appeared to seek a prompt diagnosis of cancer symptoms to the extent that they would do so for any major or minor symptom. Clements and Wakefield (1972) also indicated that patients reporting promptly for cancer symptoms are more disposed than delaying patients to seek medical care for any symptom of illness. A greater proportion of nondelayers than delayers "had made a habit of consulting a doctor regularly" in the Henderson, Wittkower and Loughheed (1958) study, and Hackett, Cassem and Raker (1973) found a high positive correlation between responses to "do you tend to put off seeing your doctor" and "did you put it off this time."

The findings of Cameron and Hinton (1968) run counter to the results of studies on habits of medical care already cited, for in their sample, those patients who considered themselves generally slow to consult a doctor did not delay more for cancer symptoms. There is limited evidence that delay in seeking care for cancer symptoms is greater than that for seeking care for general medical symptoms. Kutner and Gordan (1961) compared delay in the presence of the seven danger signals of cancer to delay when other symptoms were reported, and found that a higher frequency of longer delays occurred in the presence of cancer symptoms. Aside from the latter two studies, the bulk of the evidence would seem to indicate that delay in seeking a diagnosis of possible cancer symptoms reflects a general pattern of medical delay.

Summary

Although a great number of studies have attempted to answer the question of why people delay obtaining treatment for symptoms of cancer, the research yields few definitive responses to the question. In terms of demographic factors, delayers tend to be of lower socioeconomic status, to have fewer years of formal education, and to be older. It may be that people's behavioral reactions to cancer symptoms are similar to their behavioral reactions to previously experienced physical symptoms, suggesting that people develop general habits in relation to medical help seeking. There is a growing acceptance of the idea that the relationship between anxiety regarding cancer symptoms and delay in seeking care for symptoms is curvilinear, but that knowledge of cancer interacts with anxiety to influence help seeking behavior. Evidence concerning the effects on delay of personality factors, attitudes toward doctors and the health care system, and previous experience with cancer is inconclusive at this time.

Perceiving, Interpreting, and Responding to Symptoms

The relative failure of research to provide answers to the question of why people delay seeing a doctor about cancer symptoms may stem from the fact that theoretical frameworks in which to explore delay have been absent from studies of the problem. The descriptive nature of delay research has not allowed investigators to get at the decision making processes people go through before they arrive at the doctor's office. Medical sociologists have approached the general issue of

people's responses to physical symptoms through the concept of illness behavior (cf. Kasl & Cobb, 1966; Mechanic, 1962a). According to Kasl and Cobb (1966), "the basic problem of illness behavior is: in the presence of symptoms, what will the individual do and why will he do it?" (p. 255). Although people's responses to symptoms of cancer in particular have not been a central focus of illness behavior research, this research does contribute theoretical bases from which to examine help-seeking for cancer symptoms. Several medical sociologists have suggested that people make decisions about physical symptoms through a series of stages (cf. Freidson, 1961; McKinlay, 1975; Suchman, 1965). Although different researchers specify different stages in regard to illness behavior, the stages fall into three broad categories: the perception of symptoms, the evaluation of symptoms, and acting (or not acting) upon symptoms. These categories are clearly interrelated and overlapping, and this creates some difficulty in separating the stages for purposes of discussion. In the discussion that follows, theory and empirical data from the field of medical sociology that bear on each of these stages will be examined. In addition, social psychological theories of motivation and cognition will be examined in light of their implications for the way people perceive, interpret, and respond to physical symptoms.

The Perception of Symptoms

Evidence indicates that physical symptoms of illness are commonly experienced by most people, although only a small proportion of physical

complaints is brought to a doctor's attention (Mechanic, 1972; Pennebaker & Skelton, 1978; Zola, 1973). Stoekle, Zola, and Davidson (1963) suggested that "so widespread, in fact, is the prevalence of both symptoms and signs of disease that these circumstances may, in fact, be regarded as the normal condition of the population. The absence of complaints and signs of disease may be exceptional even for the 'healthy' members of the population who do not attend the doctor" (p. 976). Robinson (1971) similarly stated that "the classification of symptoms and defining of behavior as either relevant or not relevant for reporting to professional medical authorities are facts of everyday life for most families" (p. 26). According to Mechanic (1972), many symptoms occur so commonly throughout life that they become part of ordinary expectations and so are experienced as normal variations or are regarded as trivial. People begin to notice bodily sensations only when they depart from more ordinary feelings. In the following section, an attempt will be made to outline the conditions under which physical symptoms are noticed and attended to. Factors that influence the perception of symptoms include demographic characteristics of the symptom-experiencer and the symptoms themselves.

Demographic Variables

Researchers in the area of health and illness have suggested that several demographic variables affect whether physical symptoms are noticed or not. One of these variables is social class. Koos (1954), for example, repeatedly interviewed families concerning their health, and

found that families of lower socioeconomic status showed a marked indifference to most symptoms, in direct contrast to respondents of higher social class. In a summary of results of national surveys on symptom reporting and its relation to demographic variables, Pennebaker (1982) stated that socioeconomic class, as indicated by income and education, is inversely related to number of symptom reports. In addition, racial differences in symptom reporting show that blacks report symptoms to a higher degree than do whites. Ethnicity has been found to be related to individuals' responses to pain (Zborowski, 1952), as well as decisions concerning when to seek medical aid (Zola, 1973). Age and gender are also believed to influence the perception of bodily states (Kasl & Cobb, 1966; Kosa & Robertson, 1975; Mechanic, 1968). Older individuals report more symptoms than younger people, and females experience more symptoms than males (cf. Pennebaker, 1982). Pennebaker suggests that females are more attentive to their internal states, and are also more likely to seek medical attention based on their perception of symptoms. National surveys summarized by Pennebaker further show that unmarried persons, especially formerly married persons, report more symptoms than those who are married. Individuals living with one, two or three other people report fewer symptoms than those living alone or with four or more others. Finally, employed individuals report a fewer number of symptoms than people who are not in the labor force.

The Symptoms

Little empirical data exists concerning how characteristics of symptoms affect the perception of symptoms. Pennebaker and Skelton (1978) have demonstrated that active involvement in the external environment decreases attentiveness to one's body, while reductions in situational demands permit somatic states to be monitored. These authors have also found that merely attending to bodily states often increases the salience of symptoms. Mechanic (1968) has suggested that symptoms that are perceptually salient are more readily perceived. Thus the more visible (to oneself and others) and painful the symptoms, the more likely it is that they will be noticed by the individual experiencing them. Suchman (1965) has also pointed out that people tend to trivialize symptoms that are not painful. More attention will be given to greater numbers of symptoms that appear more frequently and persist for longer periods of time than to few symptoms that rarely appear and last for a short duration. Freidson (1961) speculated that the duration of a symptom may be more influential in responses to it than the physical effects. When a symptom does not disappear shortly it becomes something to which special attention is directed. Finally, symptoms that were previously ignored by an individual may be noticed when they change in character.

Aside from perceptual salience, a second factor affecting the perception of symptoms is the extent to which they are incapacitating. Symptoms that entail physical and social disability by disrupting work, family, and other social activities are apt to be noticed (McKinlay,

1975; Mechanic, 1968; Zola, 1973). Suchman (1965) emphasized that symptoms are recognized in terms of their interference with normal functioning; people disregard symptoms that are not incapacitating. Furthermore, Twaddle (1972) has suggested that the greater the importance attached to an activity that is inhibited by a symptom, the more likely it is that the biological change will be attended to.

In the case of cancer, symptom characteristics vary depending on the site and type of cancer. No data are available concerning the extent to which various cancer symptoms are more readily noticed than others because of their perceptual salience or interference with activities. However, it is generally assumed that some cancer warning signals are more easily detected because they are more apparent and observable. For example, the American Cancer Society (Note 1) indicates that lung cancer and leukemia are difficult to detect early, while breast and uterine cancers are relatively easy to detect. Some studies of delay in seeking a diagnosis of cancer symptoms have examined delay in relation to cancer site, in accordance with the assumption that cancers of some sites are more easily observed than cancers of other sites. Robbins, MacDonald and Pack (1953) found that delay was greater for "superficial" cancers (i.e., cancers that can be detected by a superficial physical examination) than for "thorough" and "special" cancers (i.e., cancers that can be detected only by knowledge of the patient's medical history and/or by specialized physical exams and tests). On the other hand, Henderson, Wittkower and Loughheed (1958) found less delay in patients suffering a superficial cancer (i.e., breast cancer) than in those

suffering an internal cancer (i.e., cancer of the cervix or large bowel). Furthermore, Cobb et al. (1954) stated that classifying subjects according to whether their cancers were external or internal did not help to differentiate delayers from nondelayers. Goldsen, Gerhardt, and Handy (1957) asked respondents if they felt their cancer symptoms were noticeable to other people. The extent to which symptoms are observable to others involves impression management, and thus this variable could potentially exert an important influence on the decision to seek treatment for physical symptoms. Contrary to what might be expected, Goldsen et al. found that delay was greater for patients who had cancer symptoms that were noticeable to other people than for those who believed their symptoms were not apparent to others. These studies of the association between cancer site and delay do not allow any conclusions to be drawn as to the conditions under which cancer symptoms are perceived. At best they suggest that there is no direct relationship between the ease with which cancer symptoms are detected or observed and promptness in seeking a diagnosis.

The Interpretation of Symptoms

Symptoms reflect not only the perception of a bodily state, but an interpretation of that state. Pennebaker and Skelton (1978) view the experience of a symptom as having two components: one of sensation and one of interpretation. In this view, an individual perceives sensory stimulation from a bodily site that is then evaluated and encoded in some way. The interpretive component serves to explain and give meaning

to the symptom, and also to determine action. While symptoms are typically regarded as unexpected and unwelcome deviations from a subjective baseline, the way people evaluate symptoms varies widely and depends upon situational factors. Symptoms differ greatly in their clarity as cues, so that individuals have considerable latitude in their reactions to many physical signs. Furthermore, decisions concerning help seeking behavior for physical deviations are based on the individual's evaluation of symptoms rather than on the symptoms per se (Green & Roberts, 1974; Kasl & Cobb, 1964; Kirscht, 1974; Rodin, 1978). Generally, the determinants of whether or not a symptom is evaluated as requiring a doctor's attention involve the characteristics of the symptom, the nature of the individual's consultations with other people, and cognitive processes and biases that affect causal explanations.

The Symptoms

Many of the same characteristics of symptoms that influence their perception also influence their interpretation. For example, it was previously suggested that physical symptoms are more likely to be perceived and attended to if they are painful than if they are not. Pennebaker and Skelton (1978) point out that an important difference seems to exist between painful and nonpainful symptoms in terms of their evaluation as well. Painful symptoms, by their very definition as painful, have a built-in negative interpretation. Nonpainful symptoms, however, often have no clear interpretive component associated with them, and so they are susceptible to a variety of interpretations depending on their

context of occurrence. In fact, for painless symptoms, the interpretive context determines whether the physical sensations experienced are defined as symptomatic at all.

There is indirect evidence from cancer delay studies that suggests that painful symptoms are more likely than nonpainful symptoms to be interpreted as signifying illness and necessitating medical care. Several studies report that the absence of pain, bleeding, and discharge in relation to cancer symptoms was frequently given by patients as a reason for delaying diagnosis (Cameron & Hinton, 1968; Henderson, 1966; Henderson, Wittkower & Loughheed, 1958; Gold, 1964; Lynch & Krush, 1968, 1969). Lynch and Krush (1968) stated specifically that pain was believed to be an essential prerequisite for cancer by many patients. Aitken-Swan and Paterson (1955) found that patients thought it safe to delay seeking help for cancer symptoms that didn't hurt, and they also found that pain was the most frequent reason subjects gave for ending delay. Eardley (1974), Hackett, Cassem & Raker (1973), and Shands et al. (1951) all similarly stated that patients in their samples who delayed for long periods of time sought medical aid when pain occurred. Physical discomfort was a significantly more frequent reason for seeing the doctor among delayers than nondelayers in King and Leach's (1950) study; among delayers, a much larger proportion did not think it necessary to see a physician unless they were in pain. The studies mentioned here actually concern behavioral responses to painful symptoms as opposed to evaluative responses. However, it can be inferred that painful symptoms are more readily interpreted as worthy of medical attention than are

nonpainful ones. Contrary findings regarding people's tendency to more readily define painful symptoms as illness come from Cameron and Hinton (1968) and Worden and Weisman (1975), who found no relationship between the presence or absence of pain and delay in obtaining treatment for symptoms of cancer.

While symptoms of greater number, frequency, and persistence are assumed to be more easily perceived, they are also assumed to be more promptly defined as indicating illness (Freidson, 1961; Kosa & Robertson, 1975; Mechanic, 1968). In a similar way, symptoms that change in character are not only given special attention, but are more likely to be evaluated as significant than symptoms that remain unchanged. Twaddle (1969) interviewed elderly men who had reported a health condition within the past several years. Subjects reported that they began to redefine themselves as not well when changes in feeling states appeared; most important to the redefinition was the appearance of pain and weakness. In his study of polio victims, Davis (1963) found that parents were able to interpret their child's symptoms as relatively insignificant until certain dramatically incongruous symptoms were introduced (e.g., the child fell or was unable to walk).

Studies of delay in the presence of cancer warning signals indirectly support the contention that any change in symptoms, other than an alleviation of the symptoms, often leads to their redefinition. In her review of delay research, Roberts (1965) stated that perceptions of changes in symptoms of cancer frequently serve as a trigger to action in seeking medical care. Abrams and Finesinger (1953) found that the most

common reason for termination of delay was a change in the character or sensation of a symptom. Similarly, the delayers in Clements and Wakefield's (1972) sample typically sought help only when their first symptoms altered in type or severity. Although these studies again specify behavioral reactions, they do indicate that the perception of a symptom change often leads the individual to reevaluate the symptom as requiring diagnosis.

Studies of illness behavior have demonstrated that incapacitating symptoms are likely to be evaluated as serious in addition to being readily perceived. Suchman (1965) interviewed people who had recently experienced a relatively severe illness episode, and found that the more symptoms interfered with individuals' abilities to carry on their usual activities, the more the individuals became concerned about the symptoms and feared they signified the beginnings of an illness. According to Suchman, the success with which the "denial of illness" can take place depends largely on the degree of incapacitation or pain produced by symptoms. Respondents were apt to underemphasize symptoms which were neither severe nor incapacitating. Robinson (1971) began his study of families' illness behavior with the assumption that the performance of major social roles is everyone's first priority. He suggested that those people whose illness condition impairs normal roleplaying will be treated as ill so that they can be returned as quickly as possible to the position where they can play their full social repertoire. In his study of elderly males, Twaddle (1969) found that subjects began to consider themselves ill not only when changes in feeling states

occurred, but also when they became incapable of normal role performance because of debilitating symptoms. Twaddle emphasized that when the performance of central activities is disrupted by symptoms, the symptoms are more likely to be viewed as significant than when they are nondisruptive. Delay studies provide virtually no information as to whether treatment is sought more promptly for incapacitating vs. nonincapacitating cancer symptoms. Hackett, Cassem and Raker (1973) reported that some subjects gave incapacity as a reason for first seeing a doctor about a cancer warning signal. The lack of data regarding incapacitation in relation to delay probably reflects the fact that few types of cancer are accompanied by symptoms that would be considered disruptive to activity performance.

Social Inputs

It is well accepted that relatives and friends commonly exert a considerable influence on one's decisions surrounding physical symptoms. Sociological studies show that the symptomatic person usually consults some other people before seeking medical care, and that how others react to symptoms does much to determine whether care is sought at all. Individuals discuss with significant others the meaning of symptoms, what label to apply to symptoms, how severe the illness episode is, what form of help seeking behavior is appropriate, and at what point it should be undertaken (McKinlay, 1975). Researchers agree that while consultations take place at all phases of an illness episode, social inputs assume greatest importance at the stage of deciding whether one

is truly ill and in need of professional aid. Mechanic (1968) argued that the role of social factors in bringing a person to seek medical attention becomes less important as symptoms become less common, less familiar, and less predictable in their course. Although such may be the case, it is clear that, to a large extent, the definition and evaluation of symptoms are social in nature.

Freidson (1960) suggested that the process of seeking medical attention for symptoms involves a network of consultants, which he called "the lay referral structure." Symptom-experiencers casually explore possible diagnoses of their symptoms with others, and this exploration typically takes the form of referrals through a "hierarchy of authority." Diagnoses are first shared within the intimate and informal confines of the nuclear family, but may be subsequently shared with successively more distant, authoritative laymen until the professional medical practitioner is reached. Freidson speculated that the exploration of diagnoses is rarely deliberate; rather, it takes place in everyday, casual conversation.

In a study of subscribers to prepaid medical plans, Freidson (1961) found that consultation about a symptom often took place in the household before the doctor was called. Consultation with household members was most likely to occur when the individual's complaint was relatively severe. It appeared that discussion with immediate family members directly affected the individual's definition of the symptom. If the spouse agreed that the symptom was a sign of significant illness, the doctor was more likely to be consulted than if the spouse disagreed.

Furthermore, in the majority of instances, lay consultation did not take place outside of the home. A large variety of complaints seemed sufficiently self-evident or pressing to require that the doctor be contacted immediately following the household consultation. However, when the symptom's meaning or effect was more ambiguous, and household members could not decide what to do, consultation with laymen outside the home (e.g., relatives, neighbors, co-workers) tended to occur.

Suchman (1965) hypothesized that individuals experiencing symptoms seek "provisional validation" from the lay referral structure in addition to information and advice about possible diagnoses. Provisional validation involves the consent of one's friends and family to temporarily suspend one's normal obligations. In Suchman's study of people who had recently experienced a relatively severe illness, 74% of the subjects reported discussing their symptoms with someone else before seeking medical care. Most discussions were limited to one other person, usually the spouse. The discussion was apt to occur as soon as symptoms first appeared, and the subject actively sought out the discussant for his or her opinion. For most respondents, the consultation did result in provisional validation to seek professional help. Furthermore, in almost all cases, the individual followed the recommendations of the consultant. Suchman's findings regarding lay discussions of symptoms indicate the positive contribution of such discussion to the seeking of treatment.

That people define themselves as ill or not ill through their interactions with others was also taken up by Twaddle (1972). Twaddle

proposed that delay of the decision to contact a doctor about symptoms is a direct function of the time taken to have the decision "legitimated" by an authoritative layman. Support for this proposal was found in Twaddle's (1969) study of elderly males who had previously suffered an illness. Ambiguity surrounding the meaning of a symptom typically led to an exchange of information between the subject and his wife, which in turn usually resulted in the subject agreeing to see the doctor. Only when the husband and wife disagreed in their evaluation of the symptom were other people (e.g., children, friends) consulted. If one of these other people suggested seeing a doctor, and was considered by the subject to be authoritative because of some professional medical experience or personal experience with illness, a doctor was usually consulted. Otherwise, long delays occurred before treatment.

Miller (1973) interviewed people who had symptoms of cancer of the head or neck regarding their choice of consultants prior to seeing a doctor, and their promptness in obtaining a professional diagnosis. The majority of respondents discussed their symptoms with at least one "medically uninformed" person, usually the spouse, before considering an exam from a professional. About a quarter of the subjects initially consulted a "medically informed" person. Approximately one-tenth of the respondents went directly to a professional without first seeking advice from any other source. In most cases, subjects followed the advice of the person(s) they questioned about possible medications and treatments for their symptoms. There were no significant differences between delayers and nondelayers in terms of their utilization of lay consultants.

However, those respondents who refrained from discussing their symptoms with others before visiting the doctor, delayed significantly longer than those respondents who did search out others' opinions. The subjects who failed to discuss their symptoms with other people often explained that they hadn't wanted to worry others by informing them of the symptoms, but that there had been considerable opportunity to share the information.

Goldsen, Gerhardt, and Handy (1957) asked people with symptoms of cancer of various sites whether they had discussed their symptoms with anyone besides their physician. Only 17% of a large sample said that they had not. Furthermore, the absence of communication with others about one's symptoms was positively related to delay in obtaining treatment. The authors suggested that some patients' reluctance to discuss their physical state was reflective of a general pattern of concealing symptoms, in addition to a simple lack of opportunity for conversing with other people.

Several studies of delay in response to cancer warning signals report that the advice and persuasion of friends and relatives were frequently given as reasons by patients for first seeing the doctor (Abrams & Finesinger, 1953; Aitken-Swan & Paterson, 1955; Eardley, 1974; Hackett, Cassem & Raker, 1973; Sugar & Watkins, 1961). Only one study, however, has taken a step towards suggesting that individual differences exist in people's willingness to accept social inputs when making decisions about symptoms. In King and Leach's (1950) investigation of the decision to seek treatment for cancer warning signals, it was found that

the perception of relatives' contributions differed between delayers and nondelayers. Prompt patients perceived their relatives as having shown a general interest in their need for a diagnosis, or as having provided specific help in arranging care. In contrast, delaying subjects described the inputs of their relatives as a pressure or "nagging" for care. These differences between nondelayers and delayers were viewed by the authors as reflecting variations in patients' sensitivity to group pressures to procure medical assistance. Some patients seemed to be sensitive and responsive to the mere expression of concern by others, whereas some appeared to require extreme pressure from others and acted only when such pressure became intolerable.

Cognitive Processes

Rodin (1978) points out that attributional processes are especially likely to be engaged in when a person feels ill. Most illnesses produce some degree of confusion, uncertainty, and fear, and ambiguity enhances individuals' desires to make causal attributions. Attributions for disease represent cognitive attempts to understand and explain its occurrence (Janoff-Bulman & Lang-Gunn, in press). Furthermore, causal attributions affect people's health-relevant behavior. For example, Rodin speculates that people may put off seeking proper medical attention while carrying out a search for explanation and causation.

Evidence suggests that upon the initial perception of symptoms, people usually explain their occurrence within a minimally threatening framework. Mechanic and Volkart (1960) stated that people have a

tendency to normalize symptoms, and Twaddle (1972) similarly indicated that individuals first try to cope with symptoms by interpreting them within a framework of normality. Freidson (1961) demonstrated that the perception of a physical disorder commonly leads to a purely personal and tentative self-diagnosis that stresses the temporary character of the symptom. In a study of polio victims and their families, Davis (1963) found that parents initially applied an everyday explanatory notion (e.g., virus, cold, upset stomach) to their child's apparent sickness.

The disposition to initially interpret physical symptoms as due to, at worst, a minor ailment, probably partially reflects information people have about their own and others' illness experiences: minor illnesses occur more frequently than major ones. There is also, however, a clear motivational basis for the tendency to normalize or trivialize symptoms of illness. By definition, illness is a negative event; it is generally unpredictable, involuntary, and undesirable. The undesirability of illness stems from the fact that it is a major source of pain and suffering, and that it can disrupt and threaten an individual's life. It seems obvious that most people want to avoid becoming a victim of illness most of the time. This desire is likely to contribute to the interpretation of symptoms as either normal or indicative of a minor ailment.

Our tendency to attribute physical disorders to minimally threatening causes probably rests not only on our desire to avoid negative outcomes, but also on our belief that misfortunes happen to other

people, not ourselves. We intellectually accept that bad things occur--that people get cancer, that assaults are common, and that individuals have serious car accidents--and yet we simultaneously seem to believe that "It won't happen to me." Janoff-Bulman, Madden, and Timko (Note 2) found, for example, that college students estimated the likelihood of misfortunes (e.g., crimes, accidents, natural disaster, cancer, heart disease) happening to them as significantly lower than the likelihood of the misfortunes happening to "the average person your age." Lang-Gunn (Note 3) similarly found that relative to their estimates of "the average person," college students underestimated their own chances of developing various illnesses, including kidney infection, pneumonia, gastroenteritis, diabetes, coronary heart disease, and leukemia. Weinstein (1980; Weinstein & Lachendro, 1982) had samples of college students estimate how their own chances of experiencing both desirable and undesirable life events differed from the chances of their classmates. Overall, subjects rated their chances to be above average for positive events, and below average for negative events.

This apparent belief in our relative safety and security has been labeled "the illusion of invulnerability" by Janoff-Bulman (Janoff-Bulman & Lang-Gunn, in press; Janoff-Bulman, Madden & Timko, 1983), and as "unrealistic optimism" by Weinstein (1980; Weinstein & Lachendro, 1982). Until recently, people's unrealistic optimism about the future was regarded largely as a defensive phenomenon--a distortion of reality motivated to reduce anxiety (e.g., Kirscht, Haefner, Kegeles & Rosenstock, 1966). In line with this reasoning, Parsons (1951) suggested

that people are motivated to underestimate the likelihood of their becoming ill, especially seriously ill.

Social psychologists investigating factors that underlie the perception of invulnerability have discovered, however, that this perception may be based on processes other than purely motivational ones. In one of his studies, Weinstein (1980) found, for instance, that the greater the perceived controllability of a negative event, the greater subjects' tendency to believe that their own chances were less than average of experiencing the event. The future occurrence of a negative event was also rated as unlikely if the subject had a stereotype of the particular kind of person to whom the misfortune was likely to happen. Previous personal experience with a negative outcome increased the likelihood that people would believe their own chances were greater than average of suffering the outcome. In a subsequent study, Weinstein and Lachendro (1982) forced subjects to pay more attention to the risk factors of their peers that would increase or decrease their chances of experiencing particular misfortunes. This manipulation reduced but did not eliminate subjects' optimism regarding the future possibility of negative events. Weinstein concluded that unrealistic optimism arises partially from egocentric tendencies that keep people from thinking carefully about others' risk decreasing characteristics that are similar to their own. The work of Weinstein in particular suggests that cognitive processes, in addition to motivational biases, contribute to our belief in our personal invulnerability to illness and other undesirable occurrences.

Rodin (1978) suggested that causal attributions for symptoms can have negative consequences for health care when people assign causes on the basis of limited or incorrect evidence. That is, the misattribution of the cause of particular symptoms influences the extent to which the symptoms are viewed as worthy of professional care, which in turn influences help seeking behavior. There are many examples from studies of delay in responding to cancer symptoms that demonstrate how misattribution processes might inhibit prompt behavior; only a relative few will be cited here. Abrams and Finesinger (1953) found that most of the cancer patients in their sample considered the disease to be their fault or the fault of others. These attributions, along with the belief that cancer is a disease of "unclean origin," caused patients to feel guilty, which led to their denial or avoidance of symptoms, and thus to delay in seeking treatment. Lynch and Krush (1968) stated generally that the misinterpretation of cancer symptoms frequently leads to delay. These authors provided the specific instance of patients with cancer of the penis who delayed obtaining care because they felt guilty about the suspicion that their symptoms were due to venereal disease. Several studies report that delaying patients commonly attributed their symptoms to a recurrence of a previous illness, or to an everyday, insignificant ailment (Cameron & Hinton, 1968; Gold, 1964; Greer, 1974; Henderson, 1966; Henderson, Wittkower & Loughheed, 1958; King & Leach, 1950). In particular, Greer found that some breast cancer patients delayed obtaining a diagnosis of a breast lump because they had a previous history of benign breast tumors. In Gold's study of breast cancer patients, delay

resulted for some women from the belief that their lump was caused by a condition much less serious than cancer (e.g., an injury to the breast, recent weight gain, a swollen muscle). These and many other findings from the delay literature support the notion that incorrect attributions of causality for cancer symptoms may contribute to delay. Delay may stem from guilt over the misattributed cause, or it may rest on the minimal threat presented by the misinterpretation. Because causal explanations for physical disorders appear to influence help seeking behavior, cognitive processes that influence people's attributions for physical symptoms will now be discussed.

Tversky and Kahneman (1974) investigated cognitive heuristics which determine probabilistic judgments in a variety of tasks. Although these heuristics are efficient, they are not always valid, and so they can lead to biases that are large, persistent, and serious in their implications for decision making. Here, two cognitive heuristics people use to assess the probability of an uncertain event--availability and representativeness--are applied to the situation in which an individual must make a judgment as to the meaning of physical symptoms.

When people use the availability heuristic, they estimate the frequency of a class or the probability of an event by the ease with which instances or occurrences of the event can be imagined or remembered. "For example, one may assess the risk of heart attack among middle aged people by recalling such occurrences among one's acquaintances" (Tversky & Kahneman, 1974, p. 1127). Instances of frequent events are typically easier to recall than instances of less frequent events, and

likely occurrences are usually easier to imagine than unlikely ones. Thus availability is often a valid cue for the assessment of frequency and probability (Slovic, Fischhoff & Lichtenstein, 1977). However, availability is sometimes poorly correlated with actual frequency or probability, and therefore can lead to systematic errors in prediction. Some objects or events may be more or less difficult to perceive, to retrieve from memory, to construct from imagination, or to associate with another event. Events that are more familiar, more emotionally salient, and more recent, are more easily retrieved from memory.

Utilization of the availability heuristic may bias causal analyses, in that the acceptability of causal candidates is affected by their degree of availability (Nisbett & Ross, 1980). That is, the relative salience of particular causal factors, or the ease of their retrieval from memory, seems to greatly influence the explanation process. Just as the relative frequency of highly available events is overestimated, so the causal significance of highly available antecedents is overestimated.

An example of how causal analyses of physical symptoms may be biased through use of the availability heuristic is provided by the phenomenon of "medical student's disease." Mechanic (1972) points out that medical students frequently experience symptoms that they ascribe to some pathologic process. Students notice in themselves an innocuous physiological dysfunction, and attach to this an incorrect causal attribution "of a fearful kind," which is usually modeled after a patient recently observed, a clinical anecdote casually overheard, or a family

member who has been ill. The medical student's exposure to specific knowledge about disease provides a new framework for perceiving, identifying, and giving meaning to previously neglected bodily feelings, and this contributes greatly to the attribution process. In Mechanic's view, the availability of detailed medical information facilitates the perception of physical symptoms and their interpretation as significant of illness.

The well known example of the medical student syndrome supports the view that use of the availability heuristic does bias people's causal attributions about physical symptoms. This bias has important implications for medical help seeking to the extent that misattributions encourage or inhibit help seeking behavior. In the case of cancer, it appears that people often have readily available explanations for their symptoms that do not include cancer as a possible cause. The fact that causal misattributions for cancer symptoms are not only common but frequently contribute to delay in seeking a diagnosis was pointed out earlier. Delay studies also highlight, however, that if new information relevant to cancer becomes available through the media or interactions with other people, this information can facilitate care seeking for previously ignored symptoms because it initiates a redefinition of the symptoms. Eardley (1974) found, for example, that considerable delay in caring for breast cancer symptoms often ended when a chance event (e.g., reading an article about breast lumps, finding out a co-worker recently had a lump diagnosed) altered hypotheses about the cause of the symptom. Some patients of Abrams and Finesinger (1953) terminated delay when they

heard that a friend or relative had died of cancer or had undergone surgery as treatment for the disease. Findings such as these indicate that whether cancer symptoms are attributed to the possible presence of cancer depends partly on the extent to which cues about cancer are available in the environment. Use of the availability heuristic may also bias people's estimates of the probability that they will be afflicted with a particular illness. According to the availability hypothesis, if occurrences of a specific illness among one's family, friends, or acquaintances are not easily recalled or imagined, people may underestimate the probability of experiencing the misfortune. However, personal experience with an illness makes it easier to recall instances of the misfortune, and so leads to greater perceived probability through the mechanism of availability. The availability hypothesis also implies that judgments about the probability of suffering any illness depend partly on the extent to which vivid images of that illness are available when people think about it. Janis and Rodin (1979) showed how the lack of vivid imagery associated with disease might affect preventive health behavior:

For example, in our daily lives we seldom encounter persons suffering from severe respiratory diseases such as emphysema or lung cancer and, consequently, vivid images of those diseases are not available to our imagination when we hear about the health consequences of smoking. We are likely, therefore, to underestimate the likelihood that those illnesses could befall us and to ignore the recommended preventive action of cutting down on smoking. (pp. 494-495)

It seems plausible that when use of the availability heuristic leads people to make incorrect judgments as to the probability of suffering particular illnesses, these errors would affect not only

preventive health behavior, but help-seeking behavior as well, because such probability judgments would influence people's explanations for physical symptoms when they occur. An individual experiencing cancer symptoms may well know that his or her symptoms are suggestive of cancer, and that immediate treatment for cancer symptoms is highly beneficial. But if the likelihood of oneself becoming a cancer victim is believed to be low because of an inability to remember or imagine other people victimized by the disease, the individual may decide that the symptoms could not be attributable to cancer after all and do not require medical attention. In the case of cancer, many victims are unwilling to admit to others that they have had the disease because of the stigma of cancer and the possibly realistic expectation of discrimination. Thus, while cancer is a major killer, the fact that its victims are not vocal may render victimization by the disease a relatively unavailable event. Use of the availability heuristic might facilitate help-seeking behavior when an illness has already hit close to home or when the mass media has made vivid images of the illness available, for in these cases the perceived probability of contracting the illness may increase. For example, though awareness of breast cancer seemed to be relatively high among women, it was not until Mrs. Ford's and Mrs. Rockefeller's well publicized mastectomies that unprecedented vigilance among women was shown through their use of breast cancer clinics and physicians. Two public figures with breast cancer probably made occurrences of the disease easy to envision, and women perceived themselves as more vulnerable than they otherwise would have.

The representativeness heuristic comes into play in problems of categorization. Categorization requires making judgments as to the probability that an object belongs in a given class, or that a certain process will generate a particular event. People make judgments such as these by assessing the degree to which the salient features of the object or process are similar to the features presumed to be characteristic of the class or event. When the features are very similar, as when an outcome is highly representative of the process from which it originates, then the probability that the process will produce the event is judged to be high.

Causal explanations are often influenced by a primitive version of the representativeness heuristic (Nisbett & Ross, 1980; Nisbett & Wilson, 1977). People tend to have strong a priori notions of the types of causes that ought to be linked to particular kinds of effects. Specifically, individuals use the "resemblance criterion" to look for causes whose principal features match or resemble those of the effect. Thus, people believe that great events ought to have great causes, and emotionally relevant events ought to have emotionally relevant causes. Causes and effects must resemble one another in their outward features.

The simple resemblance criterion might figure heavily in people's notions about the possible causes of cancer warning signs. The general conception of cancer is one of a horribly painful, and above all, incurable disease (McIntosh, 1974). People often view cancer as a necessarily incapacitating illness that entails long periods of extreme suffering and radical treatments, including mutilating surgery and noxious

therapies. Use of the resemblance criterion might lead people to assume that the symptoms of such a debilitating and painful disease must also be disruptive and severe. It was previously suggested that painful, persisting, and incapacitating symptoms are more likely to be evaluated as serious and as warranting professional attention than are nonpainful and intermittent symptoms that do not interfere with one's activity. In other words, symptoms that have significant effects may be attributed to a major illness, while symptoms that have innocuous effects may be attributed to a minor ailment. Initial cancer symptoms typically have a slow and insidious onset, and are rarely painful or incapacitating. For example, the most common warning signal of breast cancer is a small, painless lump or thickening in the breast that does not produce a discharge or any other alteration in the outward appearance of the breast (Kushner, 1975). If the resemblance criterion is used in evaluations of physical symptoms, the apparent triviality of cancer symptoms would lead individuals to fail to correctly consider that these symptoms might be linked to a serious, life threatening disease such as cancer. Rather, symptoms of cancer may be misattributed to a cause as unnoteworthy as the symptoms themselves seem to be. Several medical sociologists have recognized that the most common forms of cancer do not usually appear in a painful, alarming, or disruptive fashion, which mitigates against early medical consultations (Apple, 1960; Mechanic, 1968; Stoekle, Zola & Davidson, 1963; Suchman, 1965). Thus early detection of cancer may be hindered by the fact that the characteristics of initial cancer

symptoms do not match the salient features of people's conceptions of cancer and other serious health conditions.

Kahneman and Tversky (1973) have demonstrated that people's intuitive predictions often violate normative principles in ways that can be attributed to representativeness biases. For example, when judging the probability that an individual fits into a particular category, people tend to examine the extent to which the individual displays a few salient characteristics of category members, while ignoring base rates for the categories. Weinstein (1980) points out that for many events, including the negative event of cancer, people may have a stereotyped conception of the kind of person to whom the event happens. If individuals do not see themselves as fitting the stereotype, the representativeness hypothesis suggests they will conclude that the event will not happen to them, and they will overlook the possibility that few of the people who experience the event may actually fit the stereotype.

Weinstein also noted that stereotypes of victims of negative events may stem from both motivational and cognitive processes. Possibly, stereotypes of the victim serve an ego-defensive function, in which case people would seldom see themselves as representing the type of person who falls prey to misfortune. It is also possible that people are struck by superficial differences between themselves and the stereotype (differences such as gender, age, or appearance) and fail to see more fundamental similarities between themselves and the people to whom the event occurs. Both lines of reasoning would lead to the expectation that people would be apt to conclude that negative events will not

happen to them. As mentioned previously, Weinstein found that when a stereotype existed in college students' minds of the kind of person to whom a negative event generally occurred, subjects judged their own chances of suffering the negative event as less than average. There is no research that has examined the prevalence or nature of people's stereotypes about the type of individual who becomes a cancer victim. If people do have an overall picture of who is likely to get cancer, this might bolster perceptions of personal invulnerability to the disease. Such perceptions might in turn contribute to misattributions for cancer symptoms, and thus to delay in seeking medical assistance for those symptoms.

Behavioral Responses

When physical symptoms are perceived, alternatives for action do not consist solely of obtaining a doctor's care or not obtaining care. Rather, it appears that people engage in a variety of behaviors in response to a physical deviation, including self-medication, withdrawal from activities, and presenting the symptom to a physician in indirect ways. Furthermore, a number of situational variables may discourage the seeking of professional help, even when the desirability of such help is acknowledged by the individual experiencing symptoms. It is generally agreed that people who are in the early stages of an illness frequently attempt to restore their health through their own efforts prior to contacting a doctor. Unfortunately, very little empirical research has been published concerning the prevalence and nature of behavioral

strategies that are used in coping with symptoms, other than the utilization of medical facilities. The lack of information on this topic probably reflects the methodological difficulties involved in gathering data from symptomatic people who have not consulted a professional practitioner about their symptoms.

The evidence that is available indicates that a common strategy for dealing with the first appearance of symptoms is to do nothing at all. People refrain from taking any action, waiting "to see what happens" in regard to the symptoms. The self-prescription of delay often takes place in hopes that the symptoms will just disappear (Freidson, 1961; McKinlay, 1975). In the case of cancer symptoms, Gold (1964) and Lynch and Krush (1968) found that some patients who delayed getting treatment had done so because they hoped the tumor or lesion would heal and clear up without intervention. In a study of seeking care for general medical symptoms, Zola (1973) found that there was often a "temporalizing of symptomatology" on the part of patients. That is, subjects set external time criteria for the diagnosis of a symptom, saying, "If it isn't better in three days, or one week, or seven hours, or six months, then I'll take care of it." A variant of this strategy involved the setting of a different kind of temporal standard--the recurrence of the symptom. Some subjects reported that they had decided to disregard a physical disorder until it recurred a certain number of times.

When delay is prescribed and the symptoms persist, reoccur, or worsen, it becomes apparent that waiting is not an effective strategy

for getting rid of the symptoms, and more direct action may be necessary. It is at this point that home remedies or self-medications are tried, if a doctor is not contacted. In addition, the individual may decide to rest or stay in bed for a day or so, in order to restore his or her health (Davis, 1963; Freidson, 1961; McKinlay, 1975). There have been relatively few studies of self-medication. In fact, self-medication represents one of the least understood health-relevant behaviors, even though it is also one of the most prevalent (Zola, 1972). On a general level, self-medication reflects the treatment of conditions that the individual believes will not get better by themselves; or, the individual may consider the symptoms being treated as too minor to warrant a medical consultation. Research that has been carried out on self-medication shows that people who frequently self-medicate also frequently utilize medical facilities (e.g., Jefferys, Brotherson & Cartwright, 1960). Kessel and Shepard (1965), in a study of people who had seldom seen a doctor, found that the lowest rate of self-medication occurred among those subjects who had not sought a doctor's care for ten years. The decision to "take it easy" as a means of alleviating symptoms may involve a temporary withdrawal from everyday activities, including work, school, social, and leisure-time pursuits. An individual who tries a home remedy or interrupts his or her normal routine to rest is likely to attract the attention of household members. Once other people become aware of the individual's symptoms, lay consultations will probably take place.

If symptoms continue or recur despite the self-prescription of medication and/or idleness, it appears that most people will consider seeking professional help (Freidson, 1961; Suchman, 1965). However, situational factors substantially influence whether or not the physician is actually called. Mechanic (1968) noted that other needs of an individual compete with health needs, and may be viewed as more crucial to fulfill. McKinlay (1975) similarly stated that "the need to cope with symptoms, even though recognized, may be overridden by more pressing issues." In his study of illness behavior, Koos (1954) found that the question of when a symptom became noteworthy was tied to how important matters of health and illness were to the family when compared with its other needs and desires. It seemed that the choice of behavioral reactions to symptoms was dictated by the place of health in the value system of the family. Aside from exigencies that may interfere with help seeking for symptoms, another situational factor determining action concerns the availability of treatment resources (Koos, 1954; Mechanic, 1968; McKinlay, 1975). The extent to which treatment is viewed as accessible is related to the cost, payment arrangements, physical proximity, and schedule of particular medical facilities. Studies concerning responses to cancer symptoms support the proposal that delay often occurs because certain life problems take precedence over a recognized need for treating the symptoms. Domestic problems were given as a reason for delaying care by patients in several studies (Aitken-Swan & Paterson, 1955; Cameron & Hinton, 1968; Greer, 1974). Henderson, Wittkower, and Loughheed (1958) reported that some subjects put off

seeking treatment because they couldn't spare any time from their jobs. Some breast cancer patients who delayed diagnosis in Lynch and Krush's (1969) study stated that another family member's illness had prevented them from getting help sooner.

Individuals experiencing symptoms frequently seek professional advice through telephone consultations, or through indirectly presenting the symptoms to a doctor. Telephone consultations are regarded as a routine component of medical practice, but the prevalence of their use is unknown (Zola, 1972). Zola (1972) suggested that the perception of a physical disorder may prompt an individual to obtain a "regular check-up" as opposed to care for the symptom specifically. The check-up is a way of handling and presenting complaints that puts the burden on the physician. According to Zola, individuals may fail to verbalize even pressing complaints during the course of a physical exam, if the doctor indicates that "the appropriate body system is in good working order." The check-up is also a means for an individual to bring up a symptom in a casual, offhand manner; the patient may say, "Oh yes, by the way, while I'm here I wonder if you think this is serious . . ." Thus patients use general check-ups to indirectly seek help for particular symptoms. Another indirect method people use to secure care for physical problems is to consult about symptoms while accompanying another person to the doctor's office (Zola, 1972). In this case, the physician is actually treating someone else, but the individual asks for a diagnosis of symptoms since the opportunity to do so is readily available.

Abrams and Finesinger (1953) found that one reason for either prompt action or the termination of delay among cancer patients, was that the patients sought advice about their symptoms while escorting a friend or relative to the doctor. More frequently, however, studies of delay in diagnosing cancer report that a common situation prompting patients to initiate care for cancer symptoms was requiring contact with a doctor for some other abnormality or illness. Aitken-Swan and Paterson (1955), Greer (1974), Henderson, Wittkower and Loughheed (1958), and King and Leach (1950), all found that a significantly greater proportion of delayers than nondelayers presented themselves to the doctor with physical disorders that were totally unrelated to cancer. King and Leach stated that delayers were aware of having cancer symptoms, and yet the seeking of care depended greatly on whether or not there was some other disturbance to see the physician about. Henderson, Wittkower and Loughheed regarded the indirect presentation of cancer symptoms as a compromise between the patient's wish to seek medical help and his or her denial of the existence of a threat to life.

Several medical sociologists have suggested that people's decisions to obtain or not obtain professional care for physical symptoms are based on beliefs concerning the consequences of the behavioral options. Barker (1953), for example, focused on how the relative strength of perceived costs and benefits of seeking medical attention for symptoms of illness determines whether or not such attention is actually sought. He proposed that medical attention is likely to be viewed as unattractive because of the time, expense, and pain it may involve, and

because it may confirm the presence of a serious illness. Simultaneously, however, medical care is likely to be viewed as attractive, because it may produce a quick remission of symptoms and return to good health. Therefore, according to Barker, an individual experiencing signs of illness is inevitably in a state of psychological conflict, the resolution of which depends upon whether the consequences of seeing the doctor are more attractive than unattractive or vice versa.

More specifically, Barker posited that two sets of "psychological forces" operate concurrently in the situation of the individual suffering illness symptoms. One set of forces induces the individual to "move toward" the diagnosis and treatment of symptoms, and includes two components: the pain or discomfort caused by the symptoms, and the individual's expectation of returning to health if the illness is treated. The other set of forces induces "movement away from" medical help, and consists of three components: fear of diagnostic and treatment procedures, fear of discovery of serious illness, and a concept of self as always healthy. The primary implication of Barker's theory is that the symptom-experiencer will decide to see a professional only if the forces inducing movement toward diagnosis and treatment are greater than the forces inducing movement away from medical attention (Shontz, 1975).

Robinson (1971) stated that there are two major outcomes people consider when making decisions about how to respond to bodily disorders. These are "the danger of going sick," i.e., seeking and accepting treatment from a medical practitioner, and "the danger of non-

treatment," i.e., failing to seek professional advice. In Robinson's model, a person experiencing physical symptoms evaluates what s/he believes to be the short- and long-term physiological and social gains and costs of each outcome. The perceived consequences of nontreatment are presumed to be the reverse of those of treatment. The individual with symptoms will obtain medical care only if the gains of care are believed to exceed its costs. According to Robinson's analysis, beliefs regarding the costs and benefits of going and not going to the doctor must be independently assessed for each individual on each occasion symptoms are noticed.

In his theory of decision making about responses to symptoms, Fabrega (1974) hypothesized that everyone has available a set of "treatment plans" that may be implemented in order to alleviate the particular symptoms under consideration. A person suffering symptoms computes the potential benefits and costs entailed by each treatment plan, and then subtracts the costs from the benefits. In this way, each treatment plan becomes associated with a quantity that represents the amount of overall utility that can be derived from its use. The individual selects one treatment plan following a particular principle of choice; one may, for instance, choose the treatment plan having the highest benefits, the lowest costs, or the highest overall utility. The entire process of decision making is likely to be repeated some time after the selected treatment plan has been implemented. Fabrega suggested that empirical applications of his model would allow researchers to specify the types

of actions that are likely to be taken by different populations in response to symptoms of various types.

A comparison of these three theories of decision making about behavioral responses to symptoms of illness yields basic similarities and differences among the models. Most simply, all the theories imply that a person suffering symptoms will seek medical care if the positive consequences of care are perceived to outweigh the negative consequences, or if the results of obtaining diagnosis and treatment are viewed more positively than those of abstaining from treatment. The models differ, however, in their assumptions about the beliefs upon which action decisions are based. Barker's model puts forth a set of beliefs that are expected to influence help seeking by any individual for any sign of illness. Robinson's model assumes that beliefs about the consequences of treatment and non-treatment are not generalized within populations experiencing similar symptoms. In contrast, Fabrega proposes that it would be desirable to empirically assess beliefs about illnesses and treatments among different populations, on the assumption that such beliefs determine what behaviors are engaged in to remedy symptoms.

Fabrega's proposal resembles a methodology developed by Ajzen and Fishbein (1980; Fishbein & Ajzen, 1975) to measure attitudes in order to predict and understand behavior. Ajzen and Fishbein call their model of the attitude-behavior relation "the theory of reasoned action." The theory of reasoned action begins with the assumption that behavioral decisions are made in light of more or less careful deliberations, taking into account consequences and other factors that are believed to be

associated with the available options. In the theory, the immediate determinant of action is the individual's intention to perform (or not perform) the behavior under consideration. The theory holds that although a number of factors influence the strength of the intention-behavior relation, barring unforeseen events, people are expected to act in accordance with their intentions.

There are two immediate determinants of intentions. One is a personal factor, attitude toward the behavior, which consists of the individual's positive or negative evaluation of performing the behavior. The other determinant of intentions is a social factor, subjective norm. This is the individual's perception of social pressures to perform or not perform the behavior. Generally, individuals will intend to perform a behavior when they evaluate it positively and when they believe that important others think they should perform it. According to Ajzen and Fishbein, the relative importance of the attitudinal and normative factors in determining intentions depends partially on the intention under investigation, as well as on the population of interest. In addition, the relative weights of the factors may vary from one person to another. The theory of reasoned action, as presented thus far, can be summarized symbolically as follows:

$$\underline{B} \sim \underline{I} \propto [\underline{w}_1 \underline{A}_B + \underline{w}_2 \underline{SN}].$$

Here, \underline{B} is the behavior, \underline{I} is the intention to perform (or not perform) the behavior, \underline{A}_B is the attitude toward the behavior, and \underline{SN} is the subjective norm concerning the behavior. Further, \underline{w}_1 and \underline{w}_2 are

empirically determined weighting parameters that reflect the relative importance of $\underline{A_B}$ and \underline{SN} .

The immediate determinants of an individual's attitude toward the behavior are his or her salient beliefs about the consequences of performing the behavior, labeled behavioral beliefs. In general, an individual who believes that performing a given behavior will lead to mostly positive outcomes will hold a favorable attitude toward performing the behavior, whereas an individual who believes that performing the behavior will result in largely negative consequences will hold an unfavorable attitude. Furthermore, the greater the confidence with which a behavioral belief is held, and the more positive or negative the consequence is perceived to be, the greater will be the belief's impact on the attitude. This part of the theory of reasoned action is depicted symbolically by:

$$\underline{A_B} \propto \sum_{i=1}^n b_i e_i.$$

In this equation, b_i is the behavioral belief (or subjective probability) that performing \underline{B} will lead to outcome i , e_i is the evaluation of outcome i , and the sum is over the n salient behavioral beliefs.

The subjective norm is determined by the individual's normative beliefs, that is, by the beliefs that specific people or groups think one should or should not perform the behavior. Generally speaking, as the number of referents (e.g., one's spouse, friends, doctors) who are believed to approve of performing the behavior increases, so does the perceived social pressure to engage in the behavior. However, the

effect of any given normative belief on the subjective norm is moderated by the individual's motivation to comply with the referent in question. Symbolically, the subjective norm and its determinants are represented by:

$$\underline{SN} \propto \sum_{j=1}^n b_j m_j,$$

where b_j is a normative belief concerning referent j , m_j is the motivation to comply with referent j , and the sum is over n salient normative beliefs.

In order to apply the theory of reasoned action to a specific behavioral domain, it is necessary to first elicit salient behavioral and normative beliefs in a pilot study from individuals who are representative of the population of interest. These beliefs are then used to construct a standard questionnaire containing measures of intention, attitude toward the behavior, subjective norm, behavioral beliefs and their evaluations, and normative beliefs and motivations to comply. Because the theory of reasoned action maintains strict correspondence between behavior and explanatory constructs, all measures must correspond to one another in their action, target, context, and time elements.

Ajzen and Fishbein (1980) have demonstrated that application of the theory of reasoned action permits highly accurate prediction of behavior in a wide variety of behavioral domains, including weight loss, use of birth control, voting, and consumer behavior. They have shown that these varied types of behaviors can be predicted with a great degree of accuracy from intentions to perform those behaviors. Ajzen and

Fishbein point out, however, that their theory can be applied to situations in which the prediction and explanation of intentions, rather than behaviors per se, are at issue. In such cases, a sample of respondents can be divided into those who intend to perform a given behavior and those who do not. Differences in intentions can be explained by examining patterns of differences in behavioral beliefs, outcome evaluations, normative beliefs, and motivations to comply. Thus, by examining closely the underlying belief structures, the researcher can gain a good understanding of the factors that ultimately determine a person's decision to perform or not perform a given behavior.

According to the theory of reasoned action, external variables, including attitudes towards targets (people and institutions), personality traits, and demographic characteristics, will be related to behavior only if they are related to one or more of the variables specified by the theory. More precisely, the relation between external variables and behavior may be mediated by the determinants of attitude toward the behavior, the determinants of subjective norm, and/or by the relative weights of the attitudinal and normative factors. In the case of attitude toward the behavior, differences among individuals on demographic characteristics, for example, may produce differences in salient beliefs about the consequences of performing the behavior. Alternatively, the same salient beliefs may be held by individuals possessing different background characteristics, but the strength with which the beliefs are held may vary systematically. Finally, external variables may affect individuals' evaluations of behavioral outcomes. The determinants of

the normative component may be influenced by external variables in similar ways. That is, individuals' salient referents, the normative beliefs they attribute to given referents, and their motivation to comply with those referents, may each be affected by individual difference variables. The impact that external variables may have on the determinants of the attitudinal and normative components may in turn influence the attitude toward the behavior and subjective norm, both of which may then have an impact on intention and behavior. However, even when external factors affect the determinants of any particular variable in the Ajzen and Fishbein model, it does not follow that they will necessarily also affect the variable itself. For instance, even if an external variable is shown to be related to the subjective norm, the variable will not be related to intention should intention be primarily dependent on attitudinal considerations. In spite of the fact that there is no necessary relation between any external variable and intentions or behavior, Ajzen and Fishbein do suggest that when external variables are related to beliefs underlying a given behavior, demonstration of these relationships can add to understanding that behavior.

When cancer delay research is viewed from within the framework of the theory of reasoned action, it is not surprising that the research has accomplished little by way of explaining delay behavior. As previously discussed, the types of variables that have been examined in studies of delay in seeking a diagnosis of cancer symptoms include demographic and personality characteristics, attitudes towards doctors and the health care system, habits of medical care seeking, and previous

experience, knowledge, and affective reactions in relation to cancer symptoms and cancer itself. From the perspective of the theory of reasoned action, it is because these types of variables can have an effect on help seeking behavior only through their impact on mediating variables, that delay research has failed to provide an adequate explanation of the process whereby people reach a decision to present or not present their cancer symptoms to a doctor. However, since these types of variables have been found in some studies to be related to medical help seeking for cancer symptoms, this does suggest that they might indeed contribute to an understanding of prompt and delay behavior, if their indirect effects on behavior via mediating variables can be demonstrated.

The research reported in the present dissertation sought to understand and explain women's decisions to delay or obtain immediate professional medical care for a breast cancer symptom, in accordance with this line of reasoning. Middle-aged women were asked to imagine that they had just discovered a specific change in one of their breasts, and completed a questionnaire that assessed what they believed their emotional, cognitive, and behavioral responses would be to this situation. The methodology of asking people to predict their responses to an imaginary situation has the potential problem that the individuals may be unable to make accurate predictions. It is possible that responses to actually discovering a breast symptom are quite different from the responses women believe they would have to this situation when it is hypothetical. Ideally, studies of delay in seeking care for breast

cancer symptoms would collect data from symptomatic women in the time intervening between their discovery of the breast abnormality and their contacting a doctor. Unfortunately, this ideal is not a practical possibility. An alternative methodology would be to follow the example of cancer delay studies and obtain retrospective data from women who had breast cancer symptoms and sought a doctor's advice. This methodology has the potential problem of biased retrospective accounts, particularly if the doctor's diagnosis of the symptom is known to the respondent. In addition, this methodology necessarily excludes subjects who are symptomatic but choose not to contact a doctor.

In the present study, attempts were made to enable respondents to easily and realistically imagine themselves in the situation of finding a breast cancer symptom. Respondents read a scenario about a woman who discovered a breast symptom, in which the circumstances of the discovery, especially the nature of the symptom, were described in detail. Thus the respondents were provided with concrete mental images of the situation. Furthermore, respondents were required to be between the ages of 35 and 65 years old. The rationale for the age requirement was that women over age 35 are considered to be at high risk of getting breast cancer, and the risk of getting the disease increases with age (American Cancer Society, Note 1). Therefore, the sample consisted of women who, according to one key indicator, were relatively likely to develop symptoms of breast cancer. It was expected that a substantial proportion of respondents would have actually discovered a breast lump at some time prior to participating in the study, and that these women,

by drawing on their past experience, would be able to both readily imagine themselves in the hypothetical situation and accurately predict their responses to it. As expected, there was a sizeable number of respondents in the sample who did have a history of breast lumps. Comparisons of respondents who had such a history to those who did not provided an indication of the extent to which responses to the questionnaire items were affected by actual experience with breast cancer symptoms.

The questionnaire respondents completed assessed two general sets of variables. First, the variables specified by Ajzen and Fishbein's theory of reasoned action were measured, so that the cognitive structures that determined respondents' intentions to engage in prompt or delay behavior in seeking medical care could be examined. A second set of variables was also measured, and the variables were tested for whether or not they indirectly influenced intentions, through their impact on the other components of the Ajzen and Fishbein model. These variables fell into ten categories: respondents' emotional reactions to finding the breast change, and their perceptions of what their emotional reactions would be if the change turned out to be breast cancer; respondents' personal diagnoses of the change (i.e., causal attributions); respondents' actual medical history of breast symptoms and cancer; respondents' beliefs about the incidences of breast lumps, breast cancer, and deaths from breast cancer (i.e., variables invoking use of the availability heuristic); respondents' perceived vulnerability to breast cancer; respondents' beliefs about the symptoms and nature of

breast cancer (i.e., variables invoking use of the representativeness heuristic); respondents' attitudes toward their relationships with doctors; respondents' general habits of seeking medical care; personality factors; and respondents' demographic characteristics.

Two personality factors were assessed in the study, one of which was health locus of control expectancies. An increasing number of health researchers have measured locus of control beliefs and have attempted to relate these expectancies to a wide variety of health-relevant behaviors (for reviews of this research, see Strickland, 1978; Wallston & Wallston, 1982). Simply stated, the generalized expectancy that one's outcomes are the direct result of one's behavior or relatively enduring characteristics is termed an internal locus of control orientation. This is opposed to believing that one's outcomes are under the control of powerful other people or are randomly determined by such forces as fate, luck, or chance; these beliefs are indicative of an external locus of control orientation (cf. Rotter, 1966). In her review of research on the locus of control construct and its relation to health behavior, Strickland (1978) wrote, "Results of research conducted with various instruments suggest that beliefs about internal versus external control are related in significant and even dramatic ways to health-related behaviors" (p. 1192). However, in a more recent review, Wallston and Wallston (1982) stated that some of the apparently strong relationships discussed by Strickland have not been supported by the findings of additional research in this area.

Although locus of control beliefs have been studied in relation to a host of health-relevant behaviors, they have not been examined for their possible influence on promptness and delay in seeking medical care for physical symptoms. People differing in health locus of control expectancies have been found to utilize health systems differently. For example, Krantz, Baum and Wideman (1980) found that internal college students reported fewer clinic visits, and that a second sample of internals was more likely to self-diagnose symptoms than were externals.

Among the many health-specific measures of the locus of control construct that have been developed, the one that is currently used most widely, and was used in the present study, is Wallston, Wallston, and DeVellis' (1978) Multidimensional Health Locus of Control (MHLC) Scales. In addition to measuring internality, the MHLC Scales split externality into two distinct components and measure each separately. These components of externality involve the belief that powerful other people control one's health, and the belief that chance, fate, or luck determines whether one is healthy or ill. The three dimensions that are tapped by the MHLC Scales (i.e., one of internality and two of externality) are statistically independent.

The second personality factor that was assessed in the present study was self-esteem. Specifically, Rosenberg's (1965) Self-esteem Scale was included in the questionnaire. This measure was included on the basis of cancer delay researchers' suggestion that general emotional health contributes to prompt action in responding to cancer symptoms, rather than to the maladaptive response of denying or avoiding the

symptoms (cf. Cameron & Hinton, 1968; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; Worden & Weisman, 1975).

CHAPTER II

METHOD

Pilot Study

The pilot study was administered to a sample of women that was recruited in an informal manner; friends and colleagues of the author distributed the pilot questionnaire to their friends and colleagues. The only selection criteria for respondents were that the women be at least 35 years old, and had not heard of the study prior to receiving the questionnaire. Fifty women were asked to complete the questionnaire and mail it back anonymously in an accompanying stamped, addressed envelope. A total of 34 completed questionnaires was returned (64.0%); however, one was returned too late for inclusion. Therefore, 33 questionnaires were used in the pilot study. The respondents ranged in age from 36 to 77 years old, with a mean age of 53.19 years.

The questionnaire was self-contained, and was described as part of a study of decisions people make about seeking medical help, particularly the different decisions women make when they discover a lump in their breast (the pilot questionnaire is contained in Appendix A). Respondents read two brief scenarios. One described a woman, Ann, who immediately sought medical care after discovering a lump in her breast; the second scenario described Susan, who delayed seeking medical care for the identical symptom. Both scenarios began by describing that the woman (Ann or Susan) woke up one morning, took a shower, and while showering felt "a hard, tiny lump on the edge of her left nipple. The

lump was so small, smaller than the size of a pea, that Ann/Susan wasn't sure it was anything unusual. Aside from the lump, Ann/Susan hadn't noticed anything about her physical condition that was different from normal. Ann/Susan thought about how small the lump was and that she was feeling as well as she usually did."

At this point, the first scenario read, "She thought that, even though the lump was tiny and she felt fine, she should find out if the lump was something serious. Ann got out of the shower and decided she would immediately call her doctor. She made an appointment to have an examination." In contrast, at the same point, the second scenario stated, "She thought that, because the lump was tiny and she felt fine, she should watch the lump to find out if it would change or go away. Susan got out of the shower and decided she would watch the lump for a while. She could always make an appointment to have an examination at a later time."

Following the scenarios, the questionnaire instructed respondents to imagine that what happened to Ann and Susan had just happened to them. Respondents were told to imagine that they had just found a lump in their breast while taking a morning shower, and the details of the size and nature of the lump were repeated. The instructions asked the respondent to answer the questionnaire items as if she had actually experienced the situation described.

The questionnaire followed the methodology of Ajzen and Fishbein to elicit salient outcomes. In separate questions, respondents were asked to list what they saw as the advantages and disadvantages of

"immediately calling the doctor, as Ann did." They were then asked to list anything else they associated with immediately calling the doctor. To elicit salient referents, respondents were asked to list any people or groups who would approve of them immediately calling the doctor, and any people or groups who would disapprove of this behavior. The same set of questions was repeated with regard to "watching the lump for a while, as Susan did," in order to elicit salient outcomes and referents for this behavioral decision. The pilot questionnaire was also used to elicit salient emotions women would experience in reaction to discovering a breast lump. Specifically, respondents were asked to list the emotions they felt when they found the lump in their breast. Additional items on the pilot questionnaire concerned respondents' behavioral intentions and demographic characteristics.

The advantages and disadvantages that were listed by respondents for the behaviors of immediately calling the doctor and watching the lump for a while were used to obtain the modal salient outcomes that appeared on the final questionnaire. For each of the two behaviors, responses that referred to similar outcomes were grouped together into outcome categories. All outcome categories that were listed by at least 10% of the sample were chosen for inclusion in the final questionnaire. This procedure resulted in the nineteen outcomes that are listed in Table 1. Although the outcomes chosen were elicited in response to the behaviors of immediately seeking care and delaying medical care, the table shows that in the final questionnaire, all outcomes were worded to be appropriate to the behavior of delaying medical care (i.e.,

Table 1

Modal Salient Outcomes, Referents, and Emotions

Modal Salient Outcomes

- I would be controlling my own health and would feel confidence in myself
- I would avoid unpleasant medical procedures
- I would feel anxious, fearful, and worried
- I would be able to convince myself that the change in my breast is nothing serious
- I would be handling my problems and decisions on my own instead of turning them over to someone else
- My condition would become more serious or get worse
- I would avoid being inconvenienced by taking time away from my daily routine
- This would give me time to find a doctor I trust
- I would be more likely to need major surgery and/or other disabling treatments
- I would avoid wasting the doctor's time
- I would avoid appearing as a silly and foolish alarmist
- Cancer would have time to grow or spread
- If and when I did call the doctor I would be able to provide enough information about the lump for him/her to make an accurate diagnosis
- I would save money
- I would be decreasing my chances for a complete cure
- The lump would go away
- I would avoid upsetting my family
- It would be too late for treatment and I might die
- I would not know what the change in my breast means

Modal Salient Referents

- | | |
|---------------|-----------------------------|
| My co-workers | My husband |
| My friends | My in-laws |
| Doctors | My siblings |
| My children | My relatives |
| My parents | The American Cancer Society |
| My doctor | |

Modal Salient Emotions

- | | |
|--------------------------|--------------------------|
| Embarrassed and ashamed | Disbelieving and shocked |
| Fearful and apprehensive | Pessimistic and hopeless |
| Anxious and panicky | Concerned and worried |
| Angry and annoyed | Sad and depressed |
| Surprised and curious | |

monitoring the breast change for a while rather than immediately calling the doctor).

Respondents' lists of the people or groups who would approve and disapprove of both behaviors were used to obtain modal salient referents. All referents that were listed by at least 10% of the sample were chosen for inclusion in the final questionnaire, which resulted in the 11 referents that are listed in Table 1. Lastly, respondents' lists of emotions they felt after finding the breast symptom were categorized, to yield the nine emotional reactions that are shown at the bottom of the same table.

The Study

Recruitmen of Respondents

Respondents were recruited for the study in the following manner. Street lists were obtained for two neighboring towns in western Massachusetts. The street lists provided the name, address, and year of birth of every person who was at least seventeen years of age, and was considered a town resident, as of January 1, 1983. Every fifth woman who was recorded on the street lists as having been born between 1918 and 1948 (i.e., was between 35 and 65 years old) was sent a letter that briefly described the study and requested her participation. (The letter is contained in Appendix B.)

The letter introduced the author as a doctoral student in social psychology who needed help with her dissertation research on how women make decisions about seeking medical care. It asked potential

respondents if they would be willing to fill out a questionnaire in which they would read a story about a woman who notices a particular change in her body, and then answer questions concerning what they would think, feel, and do if they were in the same situation as the woman in the story. The confidentiality of all responses was assured, and an offer was made to send participants results of the study after its completion.

A stamped, addressed postcard was enclosed with each letter. The women were asked to return the postcard after marking the appropriate response option as to whether or not they would cooperate with the study (the postcard is contained in Appendix B). If they did choose to participate, the women provided their name, telephone number, and best time to be called about the research. Each woman who returned the postcard indicating that she would be willing to complete the questionnaire was telephoned, so that she could ask any questions she may have had about her participation. All women who agreed on the telephone to participate in the study were sent a questionnaire, along with a stamped, addressed envelope for its return. The questionnaire included the author's telephone number, so that respondents were able to ask about any questions or problems they had in filling out the form. Table 2 presents the response rates for all stages of the recruitment process. Not shown in Table 2 is that, of the 164 women who were sent a questionnaire, 134 respondents (81.7%) returned completed questionnaires.

Table 2

Response Rates

| | % of letters sent (n=576) | % of postcards returned (n=232) | % of those who agreed to participate on postcard (n=175) |
|---|------------------------------|------------------------------------|--|
| Letters sent (n=576) | | | |
| Returned postcard (n=232) | 40.3 | | |
| Declined to participate on postcard (n=57) | 9.9 | 24.6 | |
| Agreed to participate on postcard, and was called (n=175) | 30.4 | 75.4 | |
| Returned postcard too late for inclusion (n=8) | 1.4 | 3.4 | 4.6 |
| Declined to participate when called (n=3) | .5 | 1.3 | 1.7 |
| Agreed to participate when called, and was sent questionnaire (n=164) | | | |
| Did not return questionnaire (n=30) | 28.5 | 70.7 | 93.7 |
| Returned questionnaire (n=134) | 5.2 | 12.9 | 17.1 |
| Did not return postcard (n=338) | 23.3 | 57.8 | 76.6 |
| Letter could not be delivered (n=6) | 58.7 | | |
| | 1.0 | | |

The Questionnaire

Introduction

The entire questionnaire packet respondents received is in Appendix C. Respondents first read and signed an informed consent form, and then read instructions on how to use the rating scales that were contained in the questionnaire. The questionnaire was described as part of a study of the different decisions people make about seeking medical help, particularly the decisions women make about what to do when they notice a change in their breast. After these introductory comments, the following scenario was presented for respondents to read:

One morning, Ann woke up and took a shower before getting dressed to leave the house. As Ann was showering, she happened to feel a hard, tiny thickening on the edge of her left nipple. The bump was quite small, smaller than the size of a pea. Ann wasn't sure there was anything unusual about the spot. Aside from this change, she hadn't noticed anything about her physical condition that was different from normal.

Ann got out of the shower and thought about what she should do. She considered immediately calling the doctor for an appointment, but she thought that in this case it might be best to monitor the change herself for a while. The thickening was tiny and Ann was feeling as well as she usually did. Ann knew that women sometimes get lumps in their breasts that soon disappear by themselves. She was not an alarmist, and she would closely watch the bump on her own. Ann decided she would call the doctor if the thickening persisted, grew, or changed. She felt that, for the time being, there was no risk in not calling the doctor.

At this point, respondents were instructed to imagine that what happened to Ann had just happened to them. They were told to imagine that they had "just felt a hard, tiny thickening on the edge of your left nipple while taking a morning shower. The bump is so small, smaller than the size of a pea, that you aren't sure there is really

anything different about the spot. Other than this change, you haven't noticed anything out of the ordinary about your physical condition." Respondents were then asked to answer the questionnaire items as if they had actually experienced this situation.

The Ajzen and Fishbein Model

In the first half of the questionnaire, the components of Ajzen and Fishbein's theory of reasoned action were assessed. In particular, the first two items on the questionnaire measured respondents' behavioral intentions. Respondents answered, "How likely is it that you would decide to monitor the change in your breast for a while, as Ann decided to do, rather than immediately call the doctor?" and, "How likely is it that you would decide to immediately call the doctor?" on seven-point scales, with "unlikely" (scored as -3) and "likely" (scored as +3) at the endpoints. The next three questions that appeared on the questionnaire are not a part of the Ajzen and Fishbein model. Respondents were asked how long they would wait to call the doctor if the lump disappeared, if the lump did not change in any way, and if the lump did grow or change. There were 13 labeled response options for these questions, which ranged from "less than one day" to "would never call the doctor."

Attitudes towards the behaviors of monitoring the breast change and immediately calling the doctor were obtained in two separate measures. Specifically, the concept "For you to decide to monitor the change in your breast for a while, rather than immediately call the doctor" was rated on 20 seven-point scales, most of which were taken

from the evaluation, potency, and activity factors of the semantic differential (Osgood, Suci & Tannenbaum, 1957). The concept "For you to decide to immediately call the doctor" was rated on the same 20 scales (see Appendix C for a complete listing of the scales). All ratings were scored from -3 to +3. Responses to each set of scales were submitted to a principal components factor analysis, followed by orthogonal factor rotation. For both analyses, the same 11 scales had the highest loadings (all exceeding .65) on the first, evaluative factor. These scales were: foolish-wise, weak-strong, aimless-motivated, useless-useful, passive-active, sick-healthy, bad-good, harmful-beneficial, impractical-practical, objectionable-acceptable, and impossible-manageable. Scores representing attitude toward monitoring the breast change were computed by summing ratings of this concept on the 11 scales, so that higher scores indicated more favorable attitudes. Scores representing attitude toward immediately calling the doctor were also computed by summing responses to the appropriate 11 scales, and again, favorable attitudes were indicated by higher scores.

Inserted after the attitude measures was an open-ended question that is not a variable in the theory of reasoned action. The respondent was told to "Suppose you did decide to immediately call the doctor for advice about the change in your breast," and was asked to write in what advice she thought the doctor would give her.

The next two questionnaire items were measures of subjective norms. Respondents answered, "How likely is it that most people who are important to you would think you ought to monitor the change in your

breast for a while, rather than immediately call the doctor?" and, "How likely is it that most people who are important to you would think you ought to immediately call the doctor?" on seven-point scales, with the endpoints labeled "unlikely" (scored as -3) and "likely" (scored as +3). Although not a part of the Ajzen and Fishbein model, the question "How likely is it that you would talk to people who are important to you to find out what they think you ought to do about the change in your breast?" was asked at this point. Responses were made on a seven-point scale labeled "unlikely" (scored as 1) and "likely" (scored as 7) at the endpoints.

The next section of the questionnaire assessed outcome evaluations for nine of the 19 outcomes that were constructed from the pilot study. Each of the following nine statements was rated on a seven-point scale, with the endpoints labeled "bad" (scored as -3) and "good" (scored as +3).

- For me to control my own health and feel confidence in myself is:
- For me to avoid unpleasant medical procedures is:
- For me to be able to convince myself that a change in my breast is nothing serious is:
- For me to handle my problems and decisions on my own, instead of turning them over to someone else is:
- For me to avoid being inconvenienced by taking time away from my daily routine is:
- For me to take time to find a doctor I trust is:
- For me to avoid appearing as a silly and foolish alarmist is:
- For me to be able to provide enough information about a lump in my breast for the doctor to make an accurate diagnosis is:
- For me to not know what a change in my breast means is:

Because six of the 19 consequences were obviously undesirable, it seemed that asking respondents to evaluate these outcomes might cause the women to no longer give serious consideration to the questionnaire. Therefore,

these six consequences were assigned an unfavorable outcome evaluation of -3.

I would feel anxious, fearful, and worried
 My condition would become more serious or get worse
 I would be more likely to need major surgery and/or other disabling treatments
 Cancer would have time to grow or spread
 I would be decreasing my chances for a complete cure
 It would be too late for treatment and I might die

Four consequences were assigned a favorable outcome evaluation of +3.

I would avoid wasting the doctor's time
 I would save money
 The lump would go away
 I would avoid upsetting my family

Again, values for these evaluations were assigned rather than assessed, to preclude the possibility that respondents would doubt the seriousness of the study if they were asked to rate the favorableness of clearly desirable outcomes.

The outcome evaluations were directly followed by items measuring behavioral beliefs. Behavioral beliefs were assessed with regard to all of the 19 outcomes. Respondents rated the likelihood that each outcome would result from monitoring the breast change rather than immediately calling the doctor. These ratings were made on seven-point scales that had "unlikely" (scored as -3) and "likely" (scored as +3) at the end-points. The behavioral belief items were worded in the first person, e.g., "If I monitored the change in my breast for a while rather than called the doctor immediately, I would feel anxious, fearful, and worried."

The next set of items on the questionnaire assessed normative beliefs. On seven-point scales labeled "unlikely" (scored as -3) and

"likely" (scored as +3) at the endpoints, respondents rated their subjective probabilities that 11 referents (obtained from the pilot study) would recommend monitoring the breast change instead of calling the doctor. The normative belief items were also worded in the first person, e.g., "Most of my friends would think I ought to monitor the change in my breast for a while rather than call the doctor immediately." After the normative beliefs, respondents rated their motivation to comply with each referent by responding to the statement, "Generally speaking, I want to do what my [referent] think(s) I ought to do." These ratings were made on seven-point scales, where the "unlikely" endpoint was scored as 1, and the "likely" endpoint was scored as 7. In another set of items, each referent was rated in terms of how likely the respondent would be to talk to that referent about the decision to seek medical care or not. Specifically, the statement, "I would talk to my [referent] to find out what they (s/he) think(s) I ought to do about the change in my breast" was rated on the same response scales used for motivations to comply. This latter set of items is not a component of the Ajzen and Fishbein model.

Variables External to the Ajzen and Fishbein Model

Emotional reactions. Respondents provided their emotional reactions to finding the breast change. The phrase, "Discovering the change in my breast made me feel" was followed by nine scales; each scale corresponded to one of the nine emotions that was obtained from the pilot study. Subjects rated the extent to which discovering the change

made them feel each of the nine emotions, on seven-point scales labeled "not at all" (scored as 1) and "extremely" (scored as 7) at the endpoints. Respondents also indicated what their emotional reactions would be if the breast change proved to be breast cancer. They rated, "If the change turned out to be breast cancer, I would feel" on the same nine scales that measured emotional reactions to finding the breast change.

Personal diagnoses. In between the two sets of emotional response measures were three questions that concerned respondents' personal diagnoses of the breast symptom. In an open-ended question, respondents were asked to provide their own diagnosis of the change in their breast. A scaled question asked the women to indicate the extent to which their personal diagnosis represented a life-threatening condition. Responses to this question were made on a seven-point scale, where one endpoint, "not life-threatening," was scored as 1, and the other endpoint, "life-threatening," was scored as 7. On the third item respondents provided their subjective probability that the change in their breast was a symptom of breast cancer; ratings were made on a seven-point scale with "unlikely" (scored as 1) and "likely" (scored as 7) at the endpoints.

At this stage in the questionnaire, respondents were given further instructions. The instructions stated that the remainder of the questionnaire contained items that did not require the women to respond as if they had discovered a change in their breast. The respondents were asked to stop imagining that they had found the change, and to answer the rest of the questions as they normally would.

Medical history. Several questions were asked concerning respondents' actual history of breast symptoms and cancer. The first question asked the women if they had ever discovered a lump in their breast. If the respondent answered yes, she was asked to report how many times she had discovered a breast lump, and whether or not she had had the lump(s) examined by a doctor. If the respondent reported that a doctor had examined the lump, she was asked to indicate how much time went by between her discovery of the lump and contacting the doctor (responses were coded as number of days); she was also asked to provide the doctor's diagnosis of the lump. All respondents were asked if they had ever had any breast symptoms other than a lump, and if so, to briefly describe the symptoms. Each woman marked whether or not she had ever had breast cancer, whether or not she had ever had any type of cancer other than breast cancer, and whether or not her mother or sister(s) had ever had breast cancer. Those respondents whose mother or sister had ever had breast cancer were asked to rate, "On the whole, how successful was her outcome from breast cancer?" on a seven-point scale labeled "unsuccessful" (scored as 1) and "successful" (scored as 7) at the endpoints.

Availability. Five questions assessed respondents' beliefs about the incidences of breast lumps, breast cancer, and deaths from breast cancer. Respondents were asked to provide their opinions as to the percentage of: women that discovers a breast lump at some time in their lives, breast lumps that is diagnosed as breast cancer, and women that gets breast cancer. Respondents were further asked, "What percentage of

women who have breast cancer, but are not treated for the disease, die of it?" Similarly, an additional item asked for what percentage of women who have breast cancer, and are treated for the disease, die of it. Two separate questions asked respondents to write in the number of women they knew who had discovered a breast lump that was not diagnosed as breast cancer, and how many women they knew who had discovered a lump that was diagnosed as cancerous.

Vulnerability. Perceived vulnerability to getting breast cancer was assessed by one item that asked, "How likely is it that you will one day get breast cancer?" on a seven-point scale, labeled "unlikely" (scored as 1) and "likely" (scored as 7) at the endpoints. Subjects rated the extent to which they had personal control over not getting breast cancer, and the extent to which they believed there was a particular type of woman who had a high chance of getting breast cancer. These ratings were made on seven-point scales, where the endpoints "not at all" and "completely" were scored as 1 and 7, respectively. An open-ended question asked respondents to provide a description of the type of woman who has a high chance of getting breast cancer. In a scaled response, subjects rated the extent to which they matched their description. This was also a seven-point scale that had "not at all" (scored as 1) and "completely" (scored as 7) at the endpoints.

Representativeness. The next section of the questionnaire assessed respondents' beliefs about the symptoms of breast cancer. Respondents were presented with a list of 30 physical symptoms that was drawn from the Pennebaker Inventory of Limbic Languidness (Pennebaker,

1982), and the American Cancer Society's (Note 1) description of breast cancer symptoms. They were asked to rate each symptom as to how frequently it is a symptom of breast cancer, when breast cancer is in its early, initial stages. Ratings were made on the following scale.

- 1 = early, initial breast cancer never produces this symptom
- 2 = early, initial breast cancer rarely produces this symptom
- 3 = early, initial breast cancer sometimes produces this symptom
- 4 = early, initial breast cancer usually produces this symptom
- 5 = early, initial breast cancer always produces this symptom

Of the 30 symptoms presented, five are described by the American Cancer Society (Note 1) as symptoms of breast cancer: pain or tenderness in breast, nipple; lump or thickening in breast; change in retraction or scaliness of nipple; bleeding or discharge from nipple; and, change in size, shape, or skin of breast. The other 25 symptoms are not symptoms of breast cancer, but some are symptoms of other types of cancer: convulsions; sore or stiff muscles, back; hot flashes; shortness of breath, coughing; weight loss; hair loss; change in appearance of wart or mole; fever; numbness, tingling in any part of body; headaches; blurred vision; weight gain; a sore that doesn't heal; upset stomach, stomachache; faintness, dizziness; heartburn, indigestion; ringing in ears; constant thirst; abnormal Pap smear; chills; chest pains; running, congested, or bleeding nose; weakness, tiredness; abnormal vaginal bleeding; and sore throat, hoarseness, difficulty swallowing.

The next set of items assessed respondents' beliefs about the disease of breast cancer. Specifically, respondents rated, "Breast cancer is" on 23 seven-point, bipolar scales. The scales were drawn from studies that have examined what dimensions lay persons use to classify

illnesses, and where specific illnesses are judged to fall on these dimensions (D'Andrade, Quinn, Nerlove & Romney, 1972; Fabrega, 1974; Fabrega & Manning, 1972; Herzlich, 1973; Jenkins & Zyanski, 1968; Jones, Wiese, Moore & Haley, 1981; Linz, Penrod, Siverhus & Leventhal, 1982). The 23 scales were scored from -3 to +3, and were labeled by the following endpoints: permanent--temporary; incurable--curable; disabling--empowering; dangerous--safe; painful--painless; serious--mild; life-threatening--not life-threatening; recurring--not recurring; unpredictable--predictable; contagious--not contagious; inheritable--not inheritable; unpreventable--preventable; uncontrollable--controllable; dirty--clean; mysterious--well-understood; unfair--fair; bad--good; punishing--rewarding; unpleasant--pleasant; undeserved--deserved; a disease that results in permanent bodily changes--a disease that results in no bodily changes; a disease that results in permanent personality changes--a disease that results in no personality changes; and, a disease that requires long treatment--a disease that requires short treatment.

Relationships with doctors. Respondents rated the concept, "In general, my relationships with doctors have been" on five bipolar, seven-point scales: bad--good; harmful--beneficial; unsatisfactory--satisfactory; uncomfortable--comfortable; and unfriendly--friendly. The scales were scored from 1 to 7. Responses to these five scales were found to have a high internal consistency (Cronbach's $\alpha = .97$). Therefore, responses to the scales were summed, to yield a general

measure of respondents' attitudes toward their past relationships with doctors. Higher scores represented more favorable attitudes.

Habits of medical care seeking. Two items that were drawn from studies of delay by Goldsen, Gerhardt, and Handy (1957) and King and Leach (1950) tapped respondents' general habits of seeking medical care. The first item asked, "In general, when you notice a physical symptom, do you usually go to the doctor right away or do you wait?" Responses were made on a seven-point scale; the endpoint "usually wait" was scored as 1, and the endpoint "usually go right away" was scored as 7. The second item asked, "In general, do you consult doctors on a regular basis or only in emergencies?" Again, responses were made on a seven-point scale, but in this case the endpoints were labeled "only in emergencies" (scored as 1) and "on a regular basis" (scored as 7).

Personality factors. The Multidimensional Health Locus of Control (MHLC) Scales (Wallston, Wallston & DeVellis, 1978) were described on the questionnaire as a measure of opinions about general health and illness issues. The MHLC Scales are comprised of three scales: the Internal Health Locus of Control (IHLC) Scale, the Powerful Others Health Locus of Control (PHLC) Scale, and the Chance Health Locus of Control (CHLC) Scale. Each of the scales consists of six items, making a total of 18 items. All of the items utilize a six-point scale, ranging from "strongly disagree" (scored as 1) to "strongly agree" (scored as 6). Responses to the six items within each scale were summed, as each scale proved to be internally consistent. Cronbach's alpha was .73 for the IHLC Scale, and higher scores indicated a belief that internal factors

are responsible for one's health. For the PHLC Scale, Cronbach's alpha was .70, and higher scores were indicative of a belief that one's health is determined by powerful other people. Lastly, Cronbach's alpha for the CHLC Scale was .68, and higher scores represented the belief that one's health is a matter of fate, luck, or chance.

Rosenberg's (1965) Self-esteem Scale was presented on the questionnaire as asking respondents for their general feelings about themselves. Ten items comprise the Self-esteem Scale. The items utilize a four-point scale, in which the score of 1 is labeled "strongly disagree," 2 is labeled "disagree," 3 is labeled "agree," and 4 is labeled "strongly agree." Appropriate items were reverse scored, and responses to all of the items were summed (Cronbach's alpha = .83). Higher scores indicated higher self-esteem.

Demographics. In the last section of the questionnaire, respondents provided background information. Specifically, they provided the following data: their marital status, the year they were born, their ethnic background, their religion, whether or not they were employed, their occupation (if employed), the last year of school they completed, the number of people they were living with, their household's annual income, and the number of people who were being supported by that income. Respondents who were married were asked to report the last year of school their husband completed, whether or not the husband was employed, and what their husband's occupation was, if he was employed.

CHAPTER III

RESULTS

Description of Respondents

The 134 respondents ranged in age from 35 to 65 years old, with a mean age of 46.55 years. Almost three-quarters of the women were married (73.1%, n=98); 22 respondents (16.4%) were separated or divorced, 10 (7.5%) had never been married, and three (2.2%) were widowed. Marital status was missing for one respondent. The number of people respondents were living with ranged from zero to seven, with a mean of 2.32. The great majority of the women were white (96.3%, n=129); two respondents (1.5%) were black, one (.7%) was Hispanic, and one (.7%) was Asian. One respondent did not report her ethnic background. Of the sample, 68 respondents (50.7%) indicated their religion was Protestant, 32 (23.9%) were Catholic, and nine (6.7%) were Jewish. Nine women (6.7%) marked their religion as "other," and 14 (10.4%) reported they had no religious preference. Two respondents did not provide their religious affiliation.

Most of the respondents (73.1%, n=98) were employed. Of the employed respondents, five (5.1%) performed janitorial duties; three (3.1%) were saleswomen; six (6.1%) were aides or clerks; 19 (19.4%) were secretaries; 17 (17.3%) were in health-related occupations (e.g., nurse, occupational therapist, X-ray technician); eight (8.2%) were self-employed; nine (9.2%) were teachers; 20 (20.4%) were administrators; and 11 (11.2%) were professionals (e.g., professor, social worker,

psychologist). As a whole the sample was unusually highly educated; 41 respondents (30.6%) had a graduate degree, 39 (29.1%) had a college degree, 27 (20.1%) had completed some college, and 15 (11.2%) had attended a trade school. Only 12 respondents (8.9%) did not have any formal education beyond high school.

Of the 127 women who reported their household's annual income, 10 (7.9%) reported it as \$10,000 or less; 15 (11.8%) as \$10,001-\$20,000; 29 (22.8%) as \$20,001-\$30,000; 36 (28.3%) as \$30,001-\$40,000; 17 (13.4%) as \$40,001-\$50,000; and 20 (15.7%) as \$50,001 or more. Seven women did not provide this information. The number of people supported by the household's annual income ranged from one to eight, with a mean of 3.24. An additional measure of economic status was computed in the following way: Each income category listed above was assigned the value of the category's midpoint, e.g., the category \$10,001-\$20,000 was assigned the value of \$15,000. Then, the assigned income was divided by the number of people supported by the income, to yield the average income available for each person supported. The average income per person supported ranged from \$1,250 to \$35,000, and had a mean of \$11,468.83.

A total of 100 respondents reported their husband's education. Sixty men had a graduate degree, 17 had a college degree, nine had completed some college, nine had a high school diploma, and five had not graduated from high school. Most of the husbands (91%) were working. Of the husbands who were employed, almost one-half (46.2%, $n=42$) were professionals (e.g., professor, physician, psychologist). Two men (2.2%) were custodians; two (2.2%) were salesmen; 10 (11.0%) were

skilled laborers (e.g., mechanic, mason, toolmaker); seven (7.7%) had miscellaneous jobs such as computer programmer, textbook editor, and research assistant; six (6.6%) were self-employed; 10 (11.0%) were business executives, and 12 (13.2%) were teachers or administrators.

Fully 41.8% of the respondents ($n=56$) reported that they had actually discovered a lump in their breast. Of these, 48 women indicated the number of times they had discovered a breast lump. (The other eight women gave such responses as "several" or "many" times.) The number of previous breast lumps ranged from one to six, with a mean of 1.67. The large majority of the 56 respondents did have the lump(s) examined by a doctor (85.7%, $n=48$). Six women (10.7%) reported that a doctor had found the lump, and only two women (3.6%) never had the lump examined. The 48 women who did ask a doctor to examine their lump indicated how much time went by between their discovery of the lump and their contacting the doctor. Responses ranged from less than 24 hours to one year; the mean number of days was 23.70, and the median number of days was four.

One-fifth of the respondents (20.1%, $n=27$) had experienced breast symptoms other than a lump. Two women (1.5%) had previously had breast cancer, and five women (3.7%) had previously had a type of cancer other than breast cancer. Twenty respondents (14.9%) had a history of breast cancer in their immediate family.

The Ajzen and Fishbein Model

Predictors of Intentions

Two intentions were assessed: intention to monitor the breast change for a while rather than immediately call the doctor ($\bar{X} = -.45$, $SD = 2.41$), and intention to immediately call the doctor ($\bar{X} = .88$, $SD = 2.27$). As shown in Table 3, which displays correlations among intention, attitude, and subjective norm measures, these two intentions were highly negatively correlated ($r = -.825$, $p < .005$). For each respondent, a differential intention score was obtained by subtracting her intention to call the doctor from her intention to monitor the breast change. Differential intention scores ranged from -6 to +6, with negative scores indicating an intentional preference for immediately calling the doctor, and positive scores indicating an intentional preference for monitoring the breast change (i.e., delaying medical care). The mean differential intention score was -1.33 ($SD = 4.46$), indicating that the sample as a whole had a slight intentional preference for seeking medical care immediately.

Two separate measures assessed attitude toward the behavior of monitoring the breast change (possible range = -33 to +33, $\bar{X} = -6.71$, $SD = 16.44$) and attitude toward the behavior of immediately calling the doctor (possible range = -33 to +33, $\bar{X} = 18.26$, $SD = 12.41$). The correlation of intention to monitor with attitude toward monitoring was .733 ($p < .005$), and the correlation of intention to call the doctor with attitude toward calling the doctor was .618 ($p < .005$). A differential attitude score was obtained by subtracting attitude toward calling the

Table 3

Correlations Among Intentions, Attitudes, and Subjective Norms

| <u>Antecedent Variable:</u> | | <u>Monitor</u> | | | <u>Call Doctor</u> | | | <u>Differential</u> | | |
|-----------------------------|----------|----------------|-----------|-----------|--------------------|-----------|-----------|---------------------|-----------|-----------|
| | | <u>I</u> | <u>A</u> | <u>SN</u> | <u>I</u> | <u>A</u> | <u>SN</u> | <u>I</u> | <u>A</u> | <u>SN</u> |
| <u>Monitor</u> | | | | | | | | | | |
| Intention | | | | | | | | | | |
| Attitude | .733 | | | | | | | | | |
| Subjective Norm | .595 | | .518 | | | | | | | |
| <u>Call Doctor</u> | | | | | | | | | | |
| Intention | | | | | | | | | | |
| Attitude | -.825 | -.578 | -.500 | | | | | | | |
| Subjective Norm | -.690 | -.740 | -.509 | .618 | | | | | | |
| | -.407 | -.469 | -.636 | .385 | .464 | | | | | |
| <u>Differential</u> | | | | | | | | | | |
| Intention | | | | | | | | | | |
| Attitude | .958 | .689 | .575 | -.952 | -.686 | -.415 | | | | |
| Subjective Norm | .765 | .951 | .551 | -.637 | -.912 | -.500 | .736 | | | |
| | .566 | .548 | .928 | -.496 | -.540 | -.878 | .557 | .583 | | |
| | <u>I</u> | <u>A</u> | <u>SN</u> | <u>I</u> | <u>A</u> | <u>SN</u> | <u>I</u> | <u>A</u> | <u>SN</u> | |

Note: $p < .005$ for every r

doctor from attitude toward monitoring the breast change. Differential attitude scores had a possible range of -66 to +66, with negative scores indicating a favorable attitude toward immediately calling the doctor, and positive scores indicating a favorable attitude toward monitoring the breast change instead of calling the doctor. The mean differential attitude score was -24.97 ($SD=26.95$), indicating that the sample as a whole had a favorable attitude toward immediately seeking medical care. The correlation between differential intention and differential attitude was high and positive ($r=.736$, $p<.005$).

Subjective norm was also measured with respect to monitoring the breast change ($\bar{X}=-1.77$, $SD=1.87$) and immediately calling the doctor ($\bar{X}=2.11$, $SD=1.46$). The correlation of intention to monitor with the corresponding subjective norm was .595 ($p<.005$), while the correlation of intention to call the doctor with its corresponding subjective norm was somewhat lower, although significant ($r=.385$, $p<.005$). A differential subjective norm score was obtained by subtracting the subjective norm for calling the doctor from the subjective norm for monitoring the breast change. Differential subjective norm scores ranged from -6 to +6, with negative scores indicating a perceived likelihood that important referents would think the respondent ought to immediately call the doctor, and positive scores indicating perceived referential pressure to monitor the breast change. The mean differential subjective norm score was -3.88 ($SD=3.01$), indicating that, on the average, respondents believed that most people who were important to them would think they ought to immediately call the doctor for advice about the change in

their breast. The correlation between differential intention and differential subjective norm was .557 ($p < .005$).

Three separate regression equations were constructed in order to test the prediction of intention to monitor the breast change, intention to immediately call the doctor, and differential intention, from their corresponding attitude and subjective norm measures. The regression of intention to monitor on attitude toward monitoring and subjective norm for monitoring found that both predictors were significant, together accounting for 60% of the variance in intention ($R = .775$, $p < .001$). The regression coefficients were .580 ($p < .001$) and .294 ($p < .001$) for the attitudinal and normative components, respectively. The regression of intention to call the doctor on attitude and subjective norm scores for calling the doctor revealed that only attitude was a significant predictor ($b = .560$, $p < .001$), accounting for 39% of the variance in intention ($R = .628$, $p < .001$). The regression of differential intention on differential attitude and differential subjective norm showed that both predictors were significant, together accounting for 57% of the variance in intention ($R = .753$, $p < .001$). The regression coefficients were .623 ($p < .001$) for the attitudinal component, and .194 ($p < .05$) for the normative component. Prediction of each of the three intention scores was found to be highly accurate. However, it is apparent that attitudes toward the behaviors of delaying medical care and immediately seeking medical care were more important determinants of choice intentions than were subjective norms.

Predictors of Attitudes and Subjective Norms

In the theory of reasoned action, the immediate determinants of attitude are behavioral beliefs and outcome evaluations. In the present study, behavioral beliefs and outcome evaluations were obtained (or assigned) for 19 consequences of deciding to monitor the breast change for a while rather than call the doctor immediately (see Table 1). These behavioral beliefs and outcome evaluations were used to compute an estimate of attitude toward monitoring the breast change. For each of the 19 consequences, the behavioral belief was multiplied by the corresponding outcome evaluation, and then the products were summed. This estimate of attitude (possible range = -171 to +171, \bar{X} = -26.79, SD = 42.42) was found to predict the direct measure of attitude toward monitoring with a high degree of accuracy (r = .630, p < .005).

In the Ajzen and Fishbein model, the determinants of an individual's subjective norm are normative beliefs and motivations to comply. In the present study, respondents were asked to provide their normative beliefs and motivations to comply with respect to 11 referents. However, in the section of the questionnaire that obtained normative beliefs and motivations to comply, respondents were also asked to "leave blank any questions that do not apply to you (for example, if you do not have any children, leave blank all the questions that ask about 'my children')." This procedure resulted in missing data for some respondents. For all referents except "in-laws," missing data for normative beliefs were replaced with the respondent's own mean normative belief score, and missing data for motivations to comply were replaced with the

respondent's own mean motivation to comply score. The referent "in-laws" was dropped from analyses completely, because there was an especially large number of missing responses for this referent (38.8% of the sample had missing data).

Respondents' normative beliefs and motivations to comply were used to compute an estimate of their subjective norm for monitoring the breast change. For each referent, the normative belief was multiplied by the motivation to comply, and then the products were summed. This estimate of subjective norm (possible range = -210 to +210, \bar{X} =89.18, SD =63.14) significantly predicted the direct measure of subjective norm for monitoring (r =.491, p <.005).

Cognitive Foundations of Intentions to Monitor

This section begins a more detailed analysis of the beliefs that were found to constitute the underlying cognitive foundations of respondents' intentions to monitor the breast change for a while rather than immediately call the doctor, or not to do so. In order to examine the effects of beliefs on intentions to monitor, the sample was divided into two groups on the basis of responses to the item that assessed this intention. The first group, "non-delayers," consisted of 74 women (55.2%) whose responses to the intention scale fell below the midpoint (i.e., the "unlikely" side of the scale). The second group, "delayers," was made up of 60 women (44.8%) whose responses to the intention scale fell above the midpoint (i.e., the "likely" side of the scale). No respondent checked the midpoint of the intention scale. The utility of this

classification of respondents is evident in Table 4 which presents, for both non-delayers and delayers, the mean attitude, subjective norm, and intention scores.¹

Results for non-delayers show that this group had clear preferences against monitoring the breast change, and for calling the doctor immediately. The results concerning delayers are less straightforward. Although delayers had a positive differential intention score, a negative score for intention to call the doctor, and a positive attitude toward monitoring, they were also positive in their attitude and subjective norm regarding calling the doctor. In addition, delayers had a slightly negative attitude estimate and differential attitude, as well as negative subjective norm scores for monitoring (as assessed by both the direct and estimated measures) and a negative differential subjective norm. Those respondents who intended to monitor the breast change rather than immediately call the doctor, and had a favorable attitude toward doing so, also had a favorable attitude and perceived social pressure toward immediately calling the doctor. Despite the apparent ambivalence of the delayers, it is clear that their responses differed from those of the non-delayers, in the expected directions. On measures concerning monitoring, delayers were significantly more positive in their attitude, and less negative in their estimated attitude, subjective norm, and estimated subjective norm. On measures concerning calling the doctor, delayers had a negative intention score while non-delayers had a positive intention, and delayers had a less favorable attitude and a less positive subjective norm. On the differential

Table 4
Intentions, Attitudes, and Subjective Norms
of Delayers and Non-delayers

| <u>Antecedent Variable</u> | <u>Delayers</u> | | <u>Non-delayers</u> | |
|-------------------------------|-----------------------------|-----------|-----------------------------|-----------|
| | <u>\bar{X}</u> | <u>SD</u> | <u>\bar{X}</u> | <u>SD</u> |
| <u>Monitor</u> | | | | |
| Attitude* | 6.22 | 11.21 | -17.19 | 11.92 |
| Estimate of Attitude* | -1.87 | 40.16 | -47.00 | 32.41 |
| Subjective Norm* | -.66 | 2.02 | -2.66 | 1.11 |
| Estimate of Subjective Norm* | -57.28 | 65.98 | -115.05 | 47.24 |
| <u>Call Doctor</u> | | | | |
| Intention* | -1.07 | 1.75 | 2.46 | 1.10 |
| Attitude* | 9.01 | 11.51 | 25.75 | 6.81 |
| Subjective Norm* | 1.49 | 1.64 | 2.62 | 1.06 |
| Differential Intention* | 3.20 | 2.12 | -5.00 | 1.44 |
| Differential Attitude* | -2.79 | 19.64 | -42.94 | 16.71 |
| Differential Subjective Norm* | -2.15 | 3.30 | -5.28 | 1.82 |

*Difference between means of delayers and non-delayers is significant at $p < .001$.

scores, delayers intended to monitor while non-delayers intended to call the doctor, and delayers were less negative on their attitude and subjective norm scores. Thus, in comparison to non-delayers, the delayers had stronger preferences for monitoring the breast change, and against immediately calling the doctor.

Behavioral Beliefs Underlying
Attitudes Toward Monitoring

Table 5 presents the mean behavioral beliefs and outcome evaluations for delayers and non-delayers. In addition, Table 5 presents correlations for the measure of intention to engage in delay behavior with the behavioral beliefs and with the outcome evaluations. The discussion of the results contained in Table 5 focuses on the means rather than on the correlations, in order to highlight as clearly as possible the differences between delayers and non-delayers on the underlying determinants of attitudes and intentions. On Table 5, for the behavioral beliefs, a positive score indicates that the outcome was judged as likely to result from monitoring the breast change, while a negative score indicates that the outcome was judged as an unlikely result. For the outcome evaluations, a positive score indicates that the outcome was rated as "good," while a negative score indicates that the outcome was rated as "bad." Table 5 shows that delayers and non-delayers differed significantly on their evaluations of four out of nine consequences for which evaluations were made. In comparison to non-delayers, delayers gave a more favorable evaluation of the consequence "control my own health and feel confidence in myself," and less negative evaluations of

Table 5
Mean Behavioral Beliefs and Outcome Evaluations for Delayers and Non-delayers, and Correlations of Intention to Monitor with Behavioral Beliefs and Outcome Evaluations

| | Behavioral Beliefs | | | | Outcome Evaluation | | | | |
|---|-----------------------------------|-----------|--------|--------------|--------------------|-----------|--------|--------------|--------|
| | r with intention to monitor | Delayers | | Non-delayers | | Delayers | | Non-delayers | |
| | | \bar{X} | (SD) | \bar{X} | (SD) | \bar{X} | (SD) | \bar{X} | (SD) |
| If I monitored the change in my breast for a while rather than called the doctor immediately: | | | | | | | | | |
| I would be controlling my own health and would feel confidence in myself. ^{a,b} | .662* | .12 | (2.14) | -2.50 | (1.04) | 1.78 | (1.44) | .90 | (2.17) |
| I would avoid unpleasant medical procedures. ^{a,b} | .257* | -.83 | (1.98) | -1.78 | (1.78) | -.69 | (2.04) | -1.52 | (1.93) |
| I would feel anxious, fearful, and worried. ^b | -.467* | .72 | (1.98) | 2.41 | (1.46) | | | | |
| I would be able to convince myself that the change in my breast is nothing serious. ^{a,b} | .278* | -1.42 | (1.57) | -2.19 | (1.58) | -1.20 | (1.59) | -2.43 | (1.21) |
| I would be handling my problems and decisions on my own instead of turning them over to someone else. | .390* | .05 | (1.95) | -1.38 | (2.00) | .92 | (1.80) | .22 | (2.31) |
| My condition would become more serious or get worse. | -.329* | .07 | (1.42) | 1.04 | (1.55) | | | | |
| I would avoid being inconvenienced by taking time away from my daily routine. | .309* | .18 | (2.02) | -1.01 | (2.24) | -.93 | (1.67) | -1.53 | (1.99) |
| This would give me time to find a doctor I trust. | .157* | -.32 | (1.97) | -.86 | (1.81) | 2.21 | (1.40) | 2.40 | (1.41) |
| I would be more likely to need major surgery and/or other disabling treatments. | -.385* | -.57 | (1.63) | .88 | (1.88) | | | | |
| I would avoid wasting the doctor's time. ^b | .639* | -.02 | (1.71) | -2.25 | (1.32) | | | | |
| I would avoid appearing as a silly and foolish alarmist. ^{a,b} | .590* | -.17 | (1.72) | -2.17 | (1.47) | -.06 | (1.87) | -1.06 | (2.04) |
| Cancer would have time to grow or spread. ^b | -.311* | 1.30 | (1.42) | 2.14 | (1.24) | | | | |

Table 5
(continued)

| | Behavioral Beliefs | | | | Outcome Evaluations | | | |
|--|--|-----------------------------|-------------|---------------------|-----------------------------|-------------|-----------------------------|--|
| | <u>r with intention to monitor</u> | <u>Delayers</u> | | <u>Non-delayers</u> | <u>Delayers</u> | | <u>Non-delayers</u> | <u>r with intention to monitor</u> |
| | | <u>\bar{X}</u> | <u>(SD)</u> | | <u>\bar{X}</u> | <u>(SD)</u> | <u>\bar{X}</u> | <u>(SD)</u> |
| If and when I did call the doctor I would be able to provide enough information about the lump ^b for him/her to make an accurate diagnosis. | | | | | | | | |
| I would save money. ^b | .460* | .28 | (2.08) | -1.47 (1.68) | 2.37 | (.96) | 2.27 | (1.23) |
| I would be decreasing my chances for a complete cure. | .294* | -1.23 | (1.84) | -2.06 (1.47) | | | | .018 |
| The lump would go away. ^b | -.446* | .38 | (1.75) | 1.93 (1.48) | | | | |
| I would avoid upsetting my family. ^b | .379* | -.67 | (1.33) | -1.73 (1.44) | | | | |
| It would be too late for treatment and I might die. | .372* | -.44 | (1.85) | -1.74 (1.81) | | | | |
| I would not know what the change in my breast means. | -.497* | -1.27 | (1.67) | .46 (1.69) | | | | |
| | -.212* | .60 | (2.04) | 1.41 (2.01) | -1.16 | (2.22) | -1.74 | (2.17) |
| | | | | | | | | .157* |

^a Difference between mean outcome evaluations is significant at $p < .05$.

^b Difference between mean motivations to comply is significant at $p < .05$.

* $p < .05$.

"avoid unpleasant medical procedures" and "be able to convince myself that the change is nothing serious." While delayers gave a neutral evaluation for "avoid appearing as a silly and foolish alarmist," non-delayers gave this consequence a negative evaluation.

On the behavioral beliefs, delayers and non-delayers differed significantly on the perceived likelihood of every consequence, with the exception of "this would give me time to find a doctor I trust." Seven of the consequences were judged as neither likely or unlikely by delayers, but as unlikely by non-delayers: I would be controlling my own health and would feel confidence in myself; I would be handling my problems and decisions on my own instead of turning them over to someone else; I would avoid being inconvenienced by taking time away from my daily routine; I would avoid wasting the doctor's time; I would avoid appearing as a silly and foolish alarmist; I would be able to provide enough information about the lump for the doctor to make an accurate diagnosis; and, I would avoid upsetting my family. Two consequences were perceived by delayers as neither likely nor unlikely to result from monitoring the breast change, whereas non-delayers perceived them to be likely: My condition would become more serious or get worse; and, I would be decreasing my chances for a complete cure. While both delayers and non-delayers rated as unlikely the consequences of "I would avoid unpleasant medical procedures," "I would be able to convince myself that the change in my breast is nothing serious," "I would save money," and "the lump would go away," delayers rated them as less unlikely than did non-delayers. Both delayers and non-delayers perceived "I would feel

anxious, fearful, and worried," "cancer would have time to grow or spread," and "I would not know what the change in my breast means" as likely consequences of monitoring, but delayers less so than non-delayers. Finally, the consequences of "I would be more likely to need major surgery" and "it would be too late for treatment and I might die" were judged as unlikely by delayers, whereas non-delayers judged the former as likely and the latter as neutral.

Normative Beliefs Underlying Subjective Norms with Respect to Monitoring

Table 6 presents the mean normative beliefs and motivations to comply for delayers and non-delayers, as well as the correlations for intention to delay with normative beliefs and motivations to comply. For the normative beliefs, a positive score would indicate respondents' perceptions that the referent in question would be likely to prescribe monitoring the breast change, while a negative score indicates that the referent would be unlikely to prescribe monitoring. For the motivations to comply, the higher the score, the more respondents reported generally wanting to behave in accordance with the referent's prescriptions.

On the normative beliefs, delayers and non-delayers differed significantly on the perceived likelihood that every referent would think the breast change ought to be monitored. Each referent was believed by both groups to be unlikely to recommend monitoring. However, for every referent, delayers judged prescriptions for monitoring as less unlikely than did non-delayers. On the motivations to comply, delayers and non-delayers differed significantly in their ratings for only three

Table 6

Mean Normative Beliefs and Motivations to Comply for Delayers and Non-delayers, and Correlations of Intention to Monitor with Normative Beliefs and Motivations to Comply

| Referent | r with intention to monitor | Normative Beliefs | | | | Motivations to Comply | | | | r with intention to monitor |
|--|-------------------------------------|-------------------|--------|--------------|--------|-----------------------|--------|--------------|--------|-------------------------------------|
| | | Delayers | | Non-delayers | | Delayers | | Non-delayers | | |
| | | \bar{X} | (SD) | \bar{X} | (SD) | \bar{X} | (SD) | \bar{X} | (SD) | |
| Co-workers ^a | .357* | -.90 | (1.83) | -2.01 | (1.43) | 3.28 | (1.72) | 2.97 | (2.12) | .065 |
| Friends ^a | .491* | -.82 | (1.89) | -2.42 | (1.17) | 3.52 | (1.76) | 3.47 | (2.17) | .025 |
| Doctors ^{a,b} | .497* | -1.07 | (2.10) | -2.59 | (.88) | 5.43 | (1.52) | 6.12 | (1.46) | -.255* |
| Children ^a | .317* | -1.35 | (1.58) | -2.24 | (1.24) | 4.61 | (1.47) | 4.53 | (2.13) | .064 |
| Parents ^a | .237* | -1.40 | (1.52) | -2.12 | (1.34) | 4.41 | (1.50) | 4.42 | (2.05) | .042 |
| My doctor ^{a,b} | .466* | -1.20 | (2.22) | -2.66 | (.75) | 5.68 | (1.26) | 6.31 | (1.27) | -.256* |
| Husband ^a | .408* | -.85 | (1.92) | -2.27 | (1.28) | 5.23 | (1.42) | 5.45 | (1.93) | -.031 |
| Siblings ^a | .499* | -.87 | (1.77) | -2.46 | (1.02) | 4.15 | (1.54) | 4.48 | (2.09) | -.048 |
| Relatives ^a | .518* | -1.05 | (1.66) | -2.55 | (.89) | 3.71 | (1.45) | 3.98 | (2.03) | -.035 |
| American Cancer Society ^{a,b} | .254* | -1.95 | (1.73) | -2.59 | (1.05) | 5.25 | (1.49) | 5.85 | (1.71) | -.170* |

^aDifference between mean normative beliefs is significant at $p < .05$.

^bDifference between mean motivations to comply is significant at $p < .05$.

* $p < .05$.

referents: doctors, their own doctor, and the American Cancer Society. Both delayers and non-delayers had high average scores on motivations to comply with these three referents. However, in comparison to delayers, non-delayers gave significantly higher ratings for generally wanting to act as doctors, their doctor, and the American Cancer Society recommend.²

Summary

Respondents' intentions to delay seeking medical care or immediately seek care for the breast symptom were highly correlated with their attitudes toward delayed and prompt help-seeking behavior, and with their perceptions of which behavior other people would be likely to recommend. However, respondents' personal evaluations of the two behavioral options were more strongly related to intentions than were their perceived social pressures to choose one behavior over the other. When respondents were classified into the "delayer" and "non-delayer" groups it was clear that, in comparison to the delayers, the non-delayers were more extreme in their unfavorable evaluations of delay and their favorable evaluations of prompt help-seeking. The delayers manifested ambivalence in their attitudes, in that they were somewhat favorable toward engaging in both delayed and prompt behavior. The less extreme attitudes of delayers relative to non-delayers were reflected in the finding that delayers tended to believe that delaying medical care would be neither likely nor unlikely to result in various consequences.

Analyses of External Variables

Relationships of External Variables to Differential Intentions

Pearson correlation coefficients were computed between differential intention scores and scores for the variables that were assessed in the questionnaire, but are external to the Ajzen and Fishbein model.³ The first set of correlations computed was between differential intentions and respondents' ratings of the likelihood that they would talk to "people who are important" to them, as well as each of the ten referents, to find out what the referents would think they ought to do about the breast change. Table 7 presents the means and standard deviations for these ratings, and the results of the correlations. The column of means shows that the sample as a whole would be neither likely nor unlikely to talk to important others. On the average, respondents believed they would be likely to seek out their doctor, doctors, and their husband for advice about the change in their breast, but would be unlikely to consult with any other referent. The third column in the table shows that differential intention scores were negatively correlated with the likelihood of talking to three referents: doctors, one's own doctor, and the American Cancer Society. Respondents who intended to monitor the breast change for a while rather than call the doctor immediately believed it was unlikely that they would consult with the cancer society, or with their own or other doctors. These findings provide support for the reliability of the choice intention measures.

Table 7

Likelihoods of Consulting with Referents: Means,
Standard Deviations, and Correlations
with Differential Intentions

| I would talk to: | <u>\bar{X}</u> | <u>SD</u> | <u>r with differential intention</u> |
|--|-----------------------------|-----------|--|
| people who are important to me | 4.22 | 2.57 | -.076 |
| my co-workers | 2.55 | 1.78 | .120 |
| doctors | 5.55 | 1.88 | -.351* |
| my friends | 3.40 | 2.18 | .014 |
| my children | 3.15 | 2.08 | -.083 |
| my parents | 3.02 | 1.82 | -.047 |
| my doctor | 6.48 | 1.08 | -.460* |
| my husband | 5.18 | 2.04 | -.019 |
| my siblings | 3.04 | 1.98 | -.094 |
| my relatives | 2.30 | 1.64 | -.023 |
| the American Cancer Society | 3.17 | 2.24 | -.181* |
| to find out what they (s/he) think(s) I ought to do about the change in my breast. | | | |

* $p < .05$

Correlation coefficients were also computed between differential intentions and responses to each of the three variables that measured how long respondents would wait to call the doctor if the lump in their breast manifested specific characteristics. Each of the three correlation coefficients was significant. Intentional preference for monitoring the symptom instead of calling the doctor immediately was positively associated with waiting a longer period of time to call the doctor if the lump disappeared ($r=.527$, $p<.005$), if the lump did not change in any way ($r=.673$, $p<.005$), and if the lump grew or changed ($r=.439$, $p<.005$). These findings provide further support for the reliability of responses to the intention measures.

Table 8 presents the correlations between differential intentions and respondents' ratings of their emotional reactions to finding the breast change, as well as their ratings of what their emotional reactions would be if the change turned out to be breast cancer. The table shows that four emotional reactions to finding the breast change were significantly negatively correlated with differential intention. The stronger respondents' intentional preferences were for monitoring the change instead of calling the doctor, the less they felt fearful and apprehensive, anxious and panicky, concerned and worried, and sad and depressed upon discovering the breast symptom. Three emotional reactions to the possibility of the change turning out to be breast cancer were significantly related to differential intention scores. Intention to monitor the symptom was negatively correlated with feeling fearful

Table 8
Correlations Between Differential Intentions
and Emotional Reactions

| <u>Emotions</u> | <u>Finding the change</u> | <u>Change turned out to be breast cancer</u> |
|--------------------------|---------------------------|--|
| Embarrassed and ashamed | .081 | .097 |
| Fearful and apprehensive | -.280* | -.215* |
| Anxious and panicky | -.372* | -.158* |
| Angry and annoyed | .054 | .150* |
| Surprised and curious | .128 | .101 |
| Disbelieving and shocked | -.115 | .013 |
| Pessimistic and hopeless | -.118 | -.049 |
| Concerned and worried | -.213* | -.048 |
| Sad and depressed | -.206* | -.107 |

* $p < .05$

and apprehensive, and anxious and panicky, but this intention was positively correlated with feeling angry and annoyed.

In an open-ended question, respondents were asked to provide their own diagnosis of the change in their breast. A total of 108 women answered this question, and responses fell into three categories: a diagnosis that the change was a symptom of cancer ($n=30$), a diagnosis that the change was not a cancer symptom ($n=59$), and an uncertain diagnosis that the change was either cancerous or non-cancerous ($n=20$). Respondents were also asked to rate the extent to which their personal diagnosis represented a life-threatening condition ($\bar{X}=3.59$, $SD=1.98$), and the likelihood that the change in their breast was a symptom of breast cancer ($\bar{X}=4.27$, $SD=1.70$). Responses to both of these items were significantly negatively correlated with differential intention scores. The stronger respondents' intentional preferences were for monitoring the change instead of calling the doctor, the less respondents judged their personal diagnosis as representing a life-threatening condition ($r=-.353$, $p<.005$). Stronger intentional preferences for monitoring were also associated with lower subjective probabilities of the change being a symptom of breast cancer ($r=-.384$, $p<.005$).⁴

Pearson correlations were computed between differential intention scores and respondents' ratings of breast cancer. Table 9 presents the results of the correlations, and the means and standard deviations of the ratings. There were no significant findings among the correlations, suggesting that respondents' conceptions of breast cancer did not

Table 9

Conceptions of Breast Cancer: Means, Standard Deviations,
and Correlations with Differential Intentions

| Breast cancer is: | <u>\bar{X}</u> | <u>SD</u> | <u>r with differential intention</u> |
|--|-----------------------------|-----------|--|
| permanent vs. temporary | 4.57 | 1.73 | .039 |
| incurable vs. curable | 2.52 | 1.40 | -.034 |
| disabling vs. empowering | 4.66 | 1.07 | .126 |
| dangerous vs. safe | 6.45 | .90 | .112 |
| painful vs. painless | 5.03 | 1.74 | -.108 |
| serious vs. mild | 6.74 | .57 | -.017 |
| life-threatening vs. not life-threatening | 6.29 | 1.19 | -.045 |
| recurring vs. not recurring | 5.37 | 1.08 | .017 |
| unpredictable vs. predictable | 5.41 | 1.70 | -.025 |
| contagious vs. not contagious | 1.22 | .85 | .009 |
| inheritable vs. not inheritable | 5.46 | 1.41 | -.053 |
| unpreventable vs. preventable | 4.87 | 1.81 | -.027 |
| uncontrollable vs. controllable | 3.01 | 1.67 | -.119 |
| dirty vs. clean | 3.68 | 1.11 | -.053 |
| mysterious vs. well-understood | 3.40 | 1.55 | .067 |
| unfair vs. fair | 5.08 | 1.34 | -.011 |
| bad vs. good | 5.74 | 1.35 | -.056 |
| punishing vs. rewarding | 4.57 | 1.08 | .034 |
| unpleasant vs. pleasant | 6.61 | .92 | .009 |
| undeserved vs. deserved | 5.59 | 1.48 | .011 |
| a disease that results in permanent bodily changes vs. no bodily changes | 5.82 | 1.09 | .005 |
| a disease that results in permanent personality changes vs. no personal- ity changes | 4.50 | 1.29 | -.051 |
| a disease that requires long treatment vs. short treatment | 5.34 | 1.32 | -.124 |

influence their intentions to delay seeking medical care or immediately seek care for the breast symptom.

The general measure of respondents' attitudes toward their past relationships with doctors (possible range = 5 to 35, \bar{X} =29.73, SD =5.97) also was not significantly correlated with differential intention scores. In contrast, the two items that addressed respondents' general habits of seeking medical care were found to be significantly related to differential intention. Specifically, the first item asked, "In general, when you notice a physical symptom, do you usually go to the doctor right away or do you wait" (\bar{X} =4.37, SD =2.06), and the second item asked, "In general, do you consult doctors on a regular basis or only in emergencies" (\bar{X} =5.09, SD =1.93). Intentional preference for monitoring the breast change instead of calling the doctor was negatively related to self-reports of usually going to the doctor right away when noticing a symptom (r =-.553, p <.005) and consulting doctors on a regular basis (r =-.313, p <.005).

Of the three scales that comprise the Multidimensional Health Locus of Control Scale--the Internal HLC Scale (possible range=6-36, \bar{X} =24.06, SD =4.53), the Powerful Others HLC Scale (possible range=6-36, \bar{X} =16.02, SD =5.11), and the Chance HLC Scale (possible range=6-36, \bar{X} =16.14, SD =5.09)--only the PHLC Scale was significantly correlated with differential intention scores (r =-.254, p <.005). Intentional preference for monitoring rather than immediately contacting the doctor was inversely related to respondents' beliefs that their health is determined by powerful other people. Responses to the Self-Esteem Scale (possible

range=10-40, \bar{X} =33.88, SD=4.21) failed to correlate significantly with differential intention.

Finally, relationships between differential intention and respondents' demographic characteristics were examined. Pearson correlation coefficients were computed between differential intention scores and respondents' age and education, the number of people respondents reported they were living with, their household's annual income, the average income per person in their household, and their husband's education. The only significant correlation involved respondents' education; the higher the level of formal education respondents had completed, the stronger their intentional preference was for monitoring the breast change rather than immediately calling the doctor ($r=.210$, $p<.05$). Chi-square tests were used to examine the relationships between differential intention and respondents' marital status, ethnic background, religion, employment status (i.e., whether they were or were not employed), and husbands' employment status. For the chi-square tests, the sample was divided into two groups on the basis of differential intention scores, and the groups were compared across the response categories for each demographic variable. The group of "non-delayers" was made up of 67 respondents (50.0%) who scored below the median on differential intention, indicating an intentional preference for immediately calling the doctor. The group of "delayers" consisted of the other half of the respondents, who scored above the median on this measure, indicating an intentional preference for monitoring the breast change. The chi-square tests revealed that there were no significant associations between

differential intention and the demographic variables of marital status, ethnic background, religion, employment status, and husbands' employment status.

Relationships of External Variables to Differential Attitude and Differential Subjective Norm

The following variables were found to be significantly correlated with differential intention: ratings of emotional reactions of fear, anxiety, concern, and sadness in response to finding the breast change; ratings of emotional reactions of fear, anxiety, and anger if the change turned out to be breast cancer; the extent to which personal diagnoses of the change were judged as representing a life-threatening condition; the perceived likelihood that the change was a symptom of breast cancer; two measures of general habits of seeking medical care; the Powerful Others Health Locus of Control Scale; and respondents' education. Ajzen and Fishbein state that because intentions are determined by attitude and subjective norm, any effects of external variables on intentions must be due to their impact on one or both of these factors. Therefore, Pearson correlation coefficients were computed between each of the external variables listed above, and differential attitude and subjective norm scores. The results are presented in Table 10.

The table shows that favorable attitudes toward monitoring the breast change, and perceived referential pressure to monitor, were both associated with the absence of fear and apprehension, anxiety and panic, and sadness and depression, upon discovering the symptom. In addition, the more favorable respondents' attitudes were toward monitoring, and

Table 10

Correlations Between External Variables and Differential
Attitude and Subjective Norm

| | <u>Differential Attitude</u> | <u>Differential Subjective Norm</u> |
|--|----------------------------------|---|
| Emotional reactions to finding the breast change: | | |
| Fearful and apprehensive | -.230* | -.181* |
| Anxious and panicky | -.293* | -.292* |
| Concerned and worried | -.106 | -.063 |
| Sad and depressed | -.208* | -.245* |
| Emotional reactions if the change turned out to be breast cancer: | | |
| Fearful and apprehensive | -.120 | -.084 |
| Anxious and panicky | -.070 | -.101 |
| Angry and annoyed | .037 | .026 |
| Personal diagnosis represents life-threatening condition | -.351* | -.201* |
| Likelihood that change is a symptom of breast cancer | -.338* | -.305* |
| General habits of seeking medical care: | | |
| Usually goes to the doctor right away when physical symptom is noticed | -.563* | -.368* |
| Consults doctors on a regular basis | -.316* | -.139 |
| Powerful Others Health Locus of Control | -.268* | -.185* |
| Education | .094 | .088 |

*p<.05

the more respondents believed other people would prescribe monitoring, the less they believed the change in their breast was a symptom of a life-threatening condition or breast cancer. Favorable attitudes and normative pressure toward monitoring were inversely related to respondents' self-reports of having a general habit of going to the doctor right away when they notice a physical symptom. Similarly, favorable attitudes toward monitoring were inversely related to self-reports of consulting doctors on a regular basis as opposed to only in emergencies. The more respondents had a favorable attitude toward monitoring, and believed that important other people would prescribe monitoring the breast change instead of calling the doctor, the less they believed that powerful other people control their health.

Prediction of Intention from External Variables

Eight regression equations were constructed in order to determine whether the consideration of variables external to the Ajzen and Fishbein model, in addition to the attitudinal and normative components, improved the prediction of choice intentions to delay seeking medical care or immediately seek care. Specifically, differential intention scores were predicted from differential attitude scores, differential subjective norm scores, and scores for each external variable that was significantly correlated with one or both of the attitudinal and normative factors. These predictions were made by means of hierarchical multiple regression analyses, in which differential attitude and subjective norm were entered as predictors of intention on the first step of

the analysis, and the external variable under consideration was entered as a predictor on the second step.

Table 11 presents the results of these regression analyses. Only three of the eight variables tested were found to contribute significantly to the prediction of differential intention, above and beyond the contributions of differential attitude and subjective norm. These variables were: the extent to which respondents reported feeling anxious and panicky upon discovering the change in their breast, respondents' perceptions of the likelihood that the change was a symptom of breast cancer, and the extent to which respondents had a general habit of going to the doctor right away when they notice a physical symptom. Intentional preferences for monitoring the breast change instead of immediately calling the doctor were predicted by the absence of anxiety, subjective probabilities that the change was not a breast cancer symptom, and having a general habit of waiting to go to the doctor when noticing a symptom. However, each of the three external variables accounted for only 3% or less of the variance in intentions to engage in prompt or delayed help-seeking behavior.⁵

Behavioral and Normative Beliefs Underlying External Variables

Ajzen and Fishbein state that if external variables are found to influence the attitudinal and/or normative factors, this influence must be accounted for by the variables' effects on one or more of the determinants of the factors, i.e., behavioral beliefs, outcome evaluations, normative beliefs, and motivations to comply. In order to examine the

Table 11

Regression of Differential Intention on Differential Attitude,
Differential Subjective Norm, and External Variables

| <u>External Variable</u> | <u>b</u> | <u>R*</u> | <u>R²</u> | <u>R² change</u> | <u>Significance of R² change</u> |
|--|----------|-----------|----------------------|-----------------------------|---|
| Emotional reactions to finding the breast change: | | | | | |
| Fearful and apprehensive | -.107 | .760 | .577 | .011 | .071 |
| Anxious and panicky | -.149 | .766 | .586 | .020 | .014 |
| Sad and depressed | -.031 | .753 | .567 | .001 | .607 |
| Personal diagnosis represents a life-threatening condition | -.109 | .756 | .571 | .010 | .084 |
| Likelihood change is a symptom of breast cancer | -.135 | .762 | .580 | .016 | .030 |
| General habits of seeking medical care: | | | | | |
| Usually goes to the doctor right away when physical symptom is noticed | -.192 | .769 | .591 | .025 | .005 |
| Consults doctors on a regular basis | -.099 | .758 | .575 | .009 | .102 |
| Powerful Others Health Locus of Control | -.056 | .754 | .569 | .003 | .355 |

*R significant at $p < .001$ for every regression.

impact on the determinants of the three external variables that were significant predictors of differential intention, correlations were computed of each external variable with the behavioral beliefs and with the outcome evaluations (see Table 12), and with the normative beliefs and motivations to comply (see Table 13).

Table 12 shows that the relationships of the behavioral beliefs to the external variables--anxiety in reaction to finding the breast change, perceived likelihood that the change was a breast cancer symptom, and having a habit of seeking care promptly for physical problems--were quite similar across the three variables, although not identical. All three external variables were significantly correlated with 11 of the 19 behavioral beliefs, and the direction of the correlations was consistent among the external variables for each of these beliefs. The correlations of the outcome evaluations with the external variables did not yield similar, significant results across the three variables. Therefore, the discussion of the results in Table 12 focuses on the correlations involving the behavioral beliefs.

Respondents who had little anxiety about the breast change, gave a low likelihood that the change was breast cancer, or had habitually put off medical care, believed that monitoring the breast change would enable them to control their own health with confidence, and handle their decisions by themselves. These same respondents also believed that delaying treatment for the breast change would allow them to avoid wasting a doctor's time and to save money. Further, these women thought

Table 12
Correlations of External Variables with Behavioral Beliefs and Outcome Evaluations

| | Behavioral Beliefs | | | Outcome Evaluations | |
|---|---------------------------|------------------------------|-------------------------|------------------------------|-------------------------|
| | <u>r with Anxiety</u> | <u>r with Likelihood</u> | <u>r with Habit</u> | <u>r with Likelihood</u> | <u>r with Habit</u> |
| If I monitored the change in my breast for a while rather than called the doctor immediately: | | | | | |
| I would be controlling my own health and would feel confidence in myself. | -.361* | -.350* | -.542* | | -.252* |
| I would avoid unpleasant medical procedures. | -.137 | -.085 | -.268* | -.115 | |
| I would feel anxious, fearful, and worried. | .524* | .299* | .440* | -.096 | -.234* |
| I would be able to convince myself that the change in my breast is nothing serious. | -.069 | -.218* | -.083 | | |
| I would be handling my problems and decisions on my own instead of turning them over to someone else. | | | | -.177* | -.336* |
| My condition would become more serious or get worse. | -.282* | -.261* | -.426* | .005 | |
| I would avoid being inconvenienced by taking time away from my daily routine. | .355* | .453* | .261* | | -.274* |
| This would give me time to find a doctor I trust. | -.108 | -.134 | -.291* | | |
| I would be more likely to need major surgery and/or other disabling treatments. | -.135 | -.132 | -.210* | -.028 | -.190* |
| I would avoid wasting the doctor's time. | .262* | .407* | .280* | -.089 | .094 |
| I would avoid appearing as a silly and foolish alarmist. | -.286* | -.257* | -.433* | | |
| Cancer would have time to grow or spread. | -.084 | -.189* | -.365* | -.101 | -.241* |
| | .373* | .323* | .192* | | |

Table 12
(continued)

| | Behavioral Beliefs | | Outcome Evaluations | |
|---|---------------------------|------------------------------|---------------------------|------------------------------|
| | <u>r with Anxiety</u> | <u>r with Likelihood</u> | <u>r with Anxiety</u> | <u>r with Likelihood</u> |
| If and when I did call the doctor I would be able to provide enough information about the lump for him/her to make an accurate diagnosis. | -.141 | -.206* | -.018 | -.073 |
| I would save money. | -.248* | -.218* | | |
| I would be decreasing my chances for a complete cure. | | | | .064 |
| The lump would go away. | .412* | .303* | | |
| I would avoid upsetting my family. | -.418* | -.359* | | |
| It would be too late for treatment and I might die. | -.139 | -.179* | | |
| I would not know what the change in my breast means. | .299* | .313* | | |
| | .051 | .191* | -.205 | .020 |
| | | | | -.096 |

*p<.05.

Table 13

Correlations of External Variables with Normative
Beliefs and Motivations to Comply

| <u>Referent</u> | <u>Motivations to Comply</u> | | | <u>Normative Beliefs</u> | | |
|----------------------------|------------------------------|------------------------------|-------------------------|---------------------------|------------------------------|-------------------------|
| | <u>r with Anxiety</u> | <u>r with Likelihood</u> | <u>r with Habit</u> | <u>r with Anxiety</u> | <u>r with Likelihood</u> | <u>r with Habit</u> |
| Co-workers | -.070 | .022 | -.100 | -.262* | -.255* | -.356* |
| Friends | .027 | .077 | -.092 | -.315* | -.321* | -.464* |
| Doctors | .113 | .068 | .269* | -.181* | -.297* | -.360* |
| Children | .107 | .084 | -.025 | -.191* | -.141 | -.256* |
| Parents | .103 | .137 | -.046 | .044 | -.097 | -.116 |
| My doctor | .028 | .085 | .253* | -.235* | -.312* | -.383* |
| Husband | .063 | -.001 | -.081 | -.149* | -.247* | -.265* |
| Siblings | .136 | .077 | -.027 | -.207* | -.275* | -.345* |
| Relatives | .153* | .174* | .027 | -.156* | -.258* | -.361* |
| American Cancer Society | .084 | .179* | .151* | -.229* | -.317* | -.342* |

* $p < .05$.

that the breast lump would probably disappear if they monitored it on their own for a while.

The respondents who were anxious after noticing the breast change, did attribute the change to breast cancer, or were apt to quickly seek a doctor's advice for bodily symptoms, believed that negative consequences would be likely to follow from delaying treatment for the change. They were certain that they would feel anxious, fearful, and worried if they did not immediately obtain professional care. These groups of women thought that delay would result in their condition becoming more serious and requiring major surgery. Additionally, high anxiety, cancer attributions, and habits of prompt behavior were positively associated with perceptions that delaying care would give cancer time to spread, decrease the chances for a complete cure, and increase the chances of death from disease.

Turning to Table 13, it can be seen that the correlations of the normative beliefs with the external variables produced results that were very much the same across the three variables. All three external variables were significantly inversely related to ratings that eight out of the ten referents would recommend monitoring the breast change rather than immediately calling the doctor. The greater respondents' anxiety, the higher their judged likelihood of breast cancer, and the more they tended to promptly seek a physician's care, the less the women believed that their co-workers, friends, husbands, relatives, and medical professionals would agree with deciding to delay care for the breast change. Also notable in Table 13 is that motivations to comply with the

suggestions of doctors, one's own doctor, and the American Cancer Society, were positively related to having a habit of seeking treatment right away for physical abnormalities.

Summary

Intentions to engage in delayed rather than prompt help-seeking behavior were associated with the absence of anxiety and panic in response to discovering the breast change, low subjective probabilities that the change was caused by breast cancer, and having established a habit of waiting to go to the doctor after noticing a physical symptom. These three variables significantly contributed to the prediction of intentions, above and beyond attitudinal and normative considerations. However, the contribution of the three variables to explaining the variance in intentions to immediately seek care or delay care, was quite small in each case. Low anxiety, non-cancer attributions, and having a general habit of delaying medical treatment, were linked to perceptions that delaying care for the breast change would be unlikely to result in undesirable outcomes.

Determinants of Perceived Likelihood that Change is Breast Cancer

Of special interest in the present study was investigating the determinants of respondents' interpretations of the breast change. Pearson correlation coefficients were computed between respondents' ratings of the likelihood that the change in their breast was a symptom of breast cancer, and three sets of variables: variables invoking use of

the representativeness heuristic, variables invoking use of the availability heuristic, and perceived vulnerability to breast cancer. The first set of correlations computed was between the likelihood ratings and respondents' ratings of how frequently breast cancer produces each of 30 symptoms, when breast cancer is in its early, initial stages.

Table 14 presents the means and standard deviations of the frequency ratings, and the results of the correlations. The first column on the table shows that the five symptoms that actually are symptoms of breast cancer (the first five symptoms listed on the table), received the highest mean ratings as to how frequently they are produced by early breast cancer. It can be seen in the third column that only two correlation coefficients were significant out of the 30 obtained. Higher subjective probabilities of the change being breast cancer were associated with higher assigned frequencies of breast cancer producing convulsions and a lump or thickening in the breast.

The second set of correlations was between the likelihood ratings and responses to the seven questions concerning the incidences of breast lumps, breast cancer, and deaths from breast cancer. The means and standard deviations of these items, as well as their correlations with the likelihood ratings, are presented in Table 15. The third column of the table shows that two of the correlation coefficients were significant. Higher probabilities of the change being breast cancer were associated with a higher assigned percentage of breast lumps that is diagnosed as breast cancer, and a higher assigned percentage of women that gets breast cancer. The final correlation computed was between the

Table 14

Frequencies of Breast Cancer Symptoms: Means, Standard Deviations, and Correlations with Likelihood that Change is Breast Cancer

| How frequently is each of the following a symptom of breast cancer, when breast cancer is in its early, initial stages? | \bar{X} | SD | r with perceived Likelihood that change is breast cancer |
|---|-----------|------|---|
| lump or thickening in breast | 3.96 | .76 | .187* |
| change in size, shape or skin of breast | 3.29 | .77 | .050 |
| change in retraction or scaliness of nipple | 3.27 | .82 | .115 |
| bleeding or discharge from nipple | 3.07 | .82 | .134 |
| pain or tenderness in breast, nipple | 3.01 | .95 | .094 |
| change in appearance of wart or mole | 2.87 | 1.13 | .065 |
| a sore that doesn't heal | 2.71 | 1.09 | .125 |
| weakness, tiredness | 2.01 | .96 | .126 |
| weight loss | 1.98 | .92 | .125 |
| abnormal Pap smear | 1.94 | 1.01 | -.064 |
| sore or stiff muscles, back | 1.76 | .88 | -.026 |
| abnormal vaginal bleeding | 1.60 | .79 | .029 |
| numbness, tingling in any part of body | 1.58 | .73 | .060 |
| chest pains | 1.57 | .76 | -.014 |
| shortness of breath, coughing | 1.49 | .71 | .048 |
| faintness, dizziness | 1.47 | .70 | .038 |
| fever | 1.43 | .69 | .046 |
| weight gain | 1.42 | .66 | -.035 |
| upset stomach, stomachache | 1.40 | .62 | .028 |
| hot flashes | 1.39 | .63 | .067 |
| headaches | 1.39 | .62 | .036 |
| sore throat, hoarseness, difficulty swallowing | 1.37 | .66 | -.039 |
| hair loss | 1.35 | .62 | .033 |
| heartburn, indigestion | 1.29 | .55 | -.010 |

Table 14
(continued)

| How frequently is each of the following a symptom of breast cancer, when breast cancer is in its early, initial stages? | <u>\bar{X}</u> | <u>SD</u> | <u>r with perceived Likelihood that change is breast cancer</u> |
|---|-----------------------------|-----------|---|
| blurred vision | 1.25 | .49 | .048 |
| chills | 1.24 | .51 | .010 |
| constant thirst | 1.20 | .49 | .047 |
| ringing in ears | 1.18 | .46 | -.015 |
| running, congested, or bleeding nose | 1.18 | .43 | .076 |
| convulsions | 1.10 | .33 | .174* |

* $p < .05$

Table 15
Incidences of Breast Lumps, Breast Cancer, and Deaths from Breast Cancer

| What percentage of: | <u>X</u> | <u>SD</u> | <u>r with perceived likelihood that change is breast cancer</u> | <u>r with perceived vulnerability to breast cancer</u> |
|---|----------|-----------|---|--|
| women discovers a breast lump at some time in their lives? | 46.89 | 22.32 | -.135 | .021 |
| lumps is diagnosed as breast cancer? | 28.27 | 18.11 | .163* | -.072 |
| women gets breast cancer? | 19.79 | 13.08 | .169* | -.057 |
| women who have breast cancer, but are not treated for the disease, die of it? | 79.35 | 31.94 | .052 | .060 |
| women who have breast cancer, and are treated for the disease, die of it? | 25.11 | 21.33 | .078 | .217* |
| How many women do you know who have discovered a breast lump that: | | | | |
| was not diagnosed as breast cancer? | 3.72 | 9.24 | .018 | .113 |
| was diagnosed as breast cancer? | 2.89 | 3.53 | .056 | .080 |

* $p < .05$

likelihood ratings and responses to the single item assessing respondents' perceived likelihood that they will get breast cancer "one day" ($\bar{X}=3.58$, $SD=1.59$). Higher probabilities of the change being breast cancer were associated with higher subjective probabilities of one day getting breast cancer ($r=.183$, $p<.05$).

Chi-square tests were used to examine the relationships between the perceived likelihood of the change being breast cancer and responses to three questions concerning respondents' actual medical history: whether or not the women had ever discovered a lump in their breast; whether or not they had ever had any breast symptoms other than a lump; and whether or not their mother or sister(s) had ever had breast cancer. For the chi-square tests, the sample was divided into two groups, the "cancer" and "non-cancer" groups, in the same way that was described previously. The chi-square tests revealed that whether or not respondents had ever discovered a lump in their breast was the only variable significantly associated with the perceived probability that the change was a symptom of breast cancer ($\chi^2(1)=10.73$, $p<.005$). Of the 78 women who reported never having had a breast lump, 32 (41.0%) judged the change as unlikely to be breast cancer, and 46 (59.0%) judged the change as likely to be cancerous. Of 54 women who reported having a history of one or more lumps, 39 (72.2%) rated breast cancer as unlikely, and 15 (27.8%) rated breast cancer as likely. Therefore, respondents who had previously discovered at least one lump in their breasts were less likely to believe that the change was a symptom of breast cancer, than respondents who had never discovered a lump.

For the subsample of respondents who did have a history of breast lumps, Pearson correlation coefficients were computed between ratings of the likelihood that the change was a symptom of breast cancer, and the number of times the women reported having discovered a lump, as well as the number of days they reported having waited to contact a doctor after discovering the lump(s). The latter variable produced a significant correlation; respondents who rated the chances of the change being breast cancer as relatively high took a fewer number of days to contact a doctor about breast lumps they had actually discovered in the past ($r = -.311$, $p < .05$). For the subsample of respondents whose mother or sister(s) did have a history of breast cancer, a correlation was computed between ratings of the likelihood that the change was a symptom of breast cancer, and respondents' ratings of how successful their mother/sister's outcome was from breast cancer ($\bar{X} = 3.80$, $SD = 2.80$). This correlation was not significant.

Predictors of Perceived Likelihood that Change is Breast Cancer

The following variables were found to be significantly related to respondents' ratings of the likelihood that the change in their breast was a symptom of breast cancer: ratings of how frequently breast cancer produces the symptoms of convulsions, and a lump or thickening in the breast, when breast cancer is in early stages; opinions as to the percentage of breast lumps that is diagnosed as breast cancer, and the percentage of women that gets breast cancer; respondents' ratings of the likelihood that they will get breast cancer one day; and respondents'

actual experience with breast lumps. A stepwise multiple regression analysis was performed in which each of these variables was entered as a predictor of the perceived likelihood of the change being breast cancer. The results of this analysis revealed that only two predictors--the perceived likelihood of one day getting breast cancer ($\underline{b}=.218$, $\underline{p}<.05$), and whether or not respondents had ever found a lump in their breasts ($\underline{b}=-.194$, $\underline{p}<.05$)--were significant. One predictor--the percentage of lumps that is diagnosed as breast cancer--was marginally significant ($\underline{b}=.175$, $\underline{p}<.10$). Together, these predictors accounted for 11% of the variance in the subjective probability that the change was a symptom of breast cancer ($\underline{R}=.327$, $\underline{p}<.05$).

Because women who had a history of breast lumps gave smaller chances that the breast change was cancerous than women who did not have such a history, the same regression analysis was conducted on each of these two groups separately, for exploratory purposes. For the women who had never discovered a breast lump, the regression of the likelihood ratings on the five variables that were significantly correlated with these ratings revealed that two predictors--the percentage of lumps that is diagnosed as breast cancer ($\underline{b}=.331$, $\underline{p}<.05$), and the perceived likelihood of one day getting breast cancer ($\underline{b}=.306$, $\underline{p}<.05$)--were significant, together accounting for 18% of the variance ($\underline{R}=.424$, $\underline{p}<.005$). For the women who had found at least one lump in their breasts, the same regression analysis revealed that no predictors were significant. However, for this group of women it was found that the number of days they reported having waited to contact the doctor after finding the lump(s) was

significantly negatively correlated with the perceived likelihood that the change was breast cancer. Therefore, this variable was entered as a predictor in the regression equation along with the other five variables. The results showed that the time taken to contact a doctor after discovery of a breast lump was a significant predictor ($b = -.435$, $p < .05$), accounting for 19% of the variance in perceived likelihood that the change was a symptom of breast cancer.

Determinants of Perceived Vulnerability to Breast Cancer

A secondary purpose of the present study was to examine the determinants of women's perceived vulnerability to breast cancer. Pearson correlation coefficients were computed between ratings of the likelihood of one day getting breast cancer and each variable that was hypothesized to influence this perceived likelihood. The first set of correlations computed was between the likelihood ratings and responses to the seven questions that concerned the incidences of breast lumps, breast cancer, and deaths from breast cancer. The presentation of these correlations in Table 15 shows that one correlation coefficient was significant. Higher subjective probabilities of getting breast cancer were associated with a higher assigned percentage of breast cancer victims who are treated for the disease but die of it. The second set of correlations computed was between the likelihood ratings and respondents' ratings of the extent to which they have personal control over not getting breast cancer ($\bar{X} = 2.56$, $SD = 1.65$), the extent to which they believe there is a

particular type of woman who has a high chance of getting breast cancer ($\bar{X}=4.32$, $SD=1.69$), and the extent to which they match their own description of this particular type of woman ($\bar{X}=2.95$, $SD=1.98$). Results showed that perceived personal control over getting breast cancer was not significantly correlated with perceived vulnerability to the disease. Results also showed that respondents who indicated that they are likely to get breast cancer one day tended not to believe that there is a particular type of woman who has a high chance of getting breast cancer ($r=-.158$, $p<.05$). However, respondents who felt vulnerable to breast cancer also viewed themselves as matching the characteristics of women who have a high chance of getting the disease ($r=.577$, $p<.005$).

Respondents' descriptions of the type of woman who has a high chance of getting breast cancer were classified into 16 categories. Twenty-five respondents (18.7%) did not answer this open-ended question. The 109 women who did provide a response listed from one to eight characteristics of a likely breast cancer victim. Table 16 displays the 16 categories and the number of respondents who gave each description. Over one-half of the respondents stated that having a family history of breast cancer puts women at high risk of getting the disease; this was by far the most frequently cited category. The second most frequent description of the woman likely to get breast cancer involved her personality traits. The likely victim was described as being anxious, depressed, and perfectionistic; "she represses her emotions" and "buries her own needs--she worries about others first." More than 10% of the sample stated that nulliparous women, women who consume alcohol,

Table 16
Descriptions of the Likely Breast Cancer Victim

| How would you describe the type of woman who has a high chance of getting breast cancer? | <u>n</u> | <u>% of sample</u> |
|---|----------|--------------------|
| Woman has a family history of breast cancer | 80 | 59.7 |
| Woman has certain personality traits, e.g., she is anxious, depressed, type A, and unable to express her emotions and needs | 23 | 17.2 |
| Woman never had children and/or didn't breastfeed children | 19 | 14.2 |
| Woman uses caffeine and/or alcohol and/or tobacco | 18 | 13.4 |
| Woman eats poor diet, e.g., diet high in fats and additives, and low in vitamins and minerals | 16 | 11.9 |
| Woman lives and works in stressful environment | 14 | 10.4 |
| Woman is older | 12 | 9.0 |
| Woman has been exposed to carcinogens in the environment | 10 | 7.5 |
| Woman is large-breasted | 8 | 6.0 |
| Woman has a history of breast symptoms, e.g., fibrocystic disease | 7 | 5.2 |
| Woman is in generally poor physical condition | 7 | 5.2 |
| Woman takes hormones, e.g., birth control pills | 5 | 3.7 |
| Woman doesn't exercise | 4 | 3.0 |
| Woman has certain ethnic background, e.g., she is Southern European, Jewish, or non-Asian | 4 | 3.0 |
| Woman is overweight | 3 | 2.2 |
| Other: Woman's body had a physiological change | | |
| Woman has had children | | |
| Woman has breastfed children | | |
| Woman is of upper SES | 5 | 3.7 |

tobacco, and caffeine, and women who maintain an inadequate diet, have a high chance of getting breast cancer.

Chi-square tests were used to examine the relationships between the perceived likelihood of one day getting breast cancer and responses to the three questions that concerned respondents' actual medical history: whether or not the women had ever discovered a lump in their breast; whether or not they had ever had any breast symptoms other than a lump; and whether or not their mother or sister(s) had ever had breast cancer. For the chi-square tests, the sample was divided into two groups on the basis of ratings of the likelihood of one day getting breast cancer. The "invulnerable" group consisted of 61 women (45.9%) who scored below the median, indicating that they are relatively unlikely to get breast cancer, and the "vulnerable" group was made up of 73 women (54.1%) who scored above the median, indicating that they are relatively likely to get breast cancer one day. The chi-square tests revealed that whether or not respondents' mother or sister(s) had ever had breast cancer was the only variable that was significantly associated with the perceived probability of one day getting breast cancer ($\chi^2(1)=7.44$, $p<.05$). Of the 114 women whose relatives had not had breast cancer, 58 (50.9%) judged themselves as unlikely to get breast cancer, and 56 (49.1%) judged themselves as likely to get the disease. Of the 20 women who had a mother or sister with breast cancer, three (15.0%) felt invulnerable, and 17 (85.0%) felt vulnerable to getting breast cancer. Therefore, respondents who had a family history of breast cancer perceived themselves as more likely to get breast cancer one day than

respondents who did not have a history of breast cancer within their immediate family.

For the subsample of respondents who had a history of breast lumps, Pearson correlation coefficients were computed between ratings of the likelihood of one day getting breast cancer, and the number of times the women reported having discovered a lump, as well as the number of days they reported having waited to contact a doctor after discovering the lump(s). Neither correlation was significant. For the subsample of respondents whose mother or sister(s) had a history of breast cancer, a correlation was computed between ratings of the likelihood of one day getting breast cancer and respondents' ratings of how successful their mother's/sister's outcome was from breast cancer. This correlation was not significant.

Predictors of Perceived Vulnerability to Breast Cancer

Four variables were found to be significantly associated with respondents' ratings of the likelihood of one day getting breast cancer: opinions as to the percentage of breast cancer patients who are treated for the disease but die of it, the extent to which respondents believed there is a particular type of woman who has a high chance of getting breast cancer, the extent to which respondents believed they match their own description of this particular type of woman, and respondents' family history of breast cancer. A stepwise multiple regression analysis was performed in which each of these variables was entered as a predictor of the perceived likelihood of one day getting breast cancer.

The results of this analysis revealed that only one predictor--the extent to which respondents judged themselves as matching their own stereotype of a likely breast cancer victim ($b=.504$, $p<.001$)--was significant. Whether or not respondents' mother and/or sisters had ever had breast cancer was of marginal significance ($b=.158$, $p<.10$). These two predictors together accounted for 34% of the variance ($R=.587$, $p<.001$).

Because of the chi-square result that women who had a family history of breast cancer differed from women who did not have such a history on their perceptions of the likelihood of one day getting breast cancer, the same regression analysis was conducted for each of these two groups separately. For the women who did not have a mother or sister with breast cancer, the regression of the likelihood ratings on the three variables that were significantly correlated with these ratings revealed that the same variable--the extent to which respondents judged themselves as matching their own stereotype of a likely breast cancer victim ($b=.508$, $p<.001$)--was significant, accounting for 26% of the variance. For the women who did have a mother or sister with breast cancer, the identical regression analysis revealed that a different variable--the percentage of breast cancer victims who die of the disease in spite of being treated for it ($b=.549$, $p<.05$)--was significant, accounting for 30% of the variance in perceived vulnerability to breast cancer.

CHAPTER IV

DISCUSSION

The Theory of Reasoned Action

Prediction of Intentions

The present study found that women's intentions to engage in prompt or delay behavior in seeking medical care for a breast cancer symptom correlated highly with corresponding attitudinal and normative measures. Because a woman's intention to engage in prompt or delay behavior reflects a choice between these two alternatives, differential intentions, attitudes, and subjective norms were assessed. Differential intentions were significantly predicted by differential attitudes and differential subjective norms. Respondents who had intentional preferences for monitoring the change in their breast for a while rather than immediately calling the doctor, were more favorable in their evaluations of monitoring than of immediately seeking help, and believed that important others would be more likely to prescribe monitoring than immediately seeking a doctor's advice. Although differential attitude and differential subjective norm were both significant predictors of choice intentions, the attitudinal component proved to be a more important determinant of help-seeking decisions than the normative component. Similarly, although both attitude toward monitoring the breast change and subjective norm with respect to monitoring contributed significantly to the prediction of intentions to monitor, the attitudinal factor was found to have a greater influence than the normative factor. In the

prediction of intentions to immediately call the doctor, the only significant predictor was attitude toward immediately seeking help, for subjective norm failed to make a significant contribution. The choice respondents made between delaying medical care and seeking medical care promptly was primarily determined by personal, attitudinal considerations as opposed to social, normative considerations.

Delayers Versus Non-delayers

In the present study, promptness and delay in seeking medical care for a breast cancer symptom were defined empirically, on the basis of the sample's responses to the measure of intention to monitor the breast change rather than immediately call the doctor. The group of delayers intended to monitor the change rather than call the doctor right away, whereas the group of non-delayers did not intend to monitor the change. This classification of respondents was found to be useful for understanding the women's intentions to delay or not delay care, in that delayers and non-delayers differed significantly on their mean responses to the two additional intention measures and every measure of attitudes and subjective norms that underlie intentions.

The most clearcut differences between the two groups were on the assessment of differential intention, the measure of intention to immediately call the doctor, and the direct measure of attitude toward monitoring the breast change. The mean differential intention scores showed that delayers intended to monitor the change, while non-delayers intended to call the doctor immediately. Quite similarly, mean scores for

intention to call the doctor revealed that delayers did not intend to immediately contact a doctor, while non-delayers did intend to do so. Delayers had a mean positive evaluation of deciding to monitor, and non-delayers had an unfavorable evaluation of this decision. Results of the remaining measures of attitudes and subjective norms showed that, relative to the non-delaying group, the delayers were less negative in their attitudes toward monitoring, and less positive in their attitudes toward calling the doctor. In addition, delayers perceived prescriptions for monitoring by other people to be less unlikely, and they perceived prescriptions for calling immediately to be less likely. Thus, in comparison to non-delayers, the group of delayers had stronger intentional preferences for delaying medical care and against seeking care promptly. Underlying this intentional choice were more favorable evaluations of the decision to delay and less favorable evaluations of the decision to immediately seek care. Intentions to delay were further determined by perceptions that important others would exert relatively less pressure to either delay or not delay.

Because delayers and non-delayers differed on each component on the theory of reasoned action, a detailed examination is warranted of the cognitive structures that were found to underlie the intentions of each group. The responses of the non-delayers to the intention, attitude, and subjective norm measures were quite consistent, which provided a clear picture of the cognitive foundation of the intention to seek medical care promptly. That is, the non-delayers clearly did intend to call the doctor immediately and did not intend to monitor the breast

change. Accordingly, they had a favorable attitude toward seeking care immediately, and an unfavorable evaluation of putting off professional care. Further, the non-delayers believed that people who were important to them would recommend seeking medical attention immediately, but would not recommend delaying action.

In contrast to the non-delayers, the delayers were inconsistent in their assessments of the components that determined their intention to delay, so that the cognitive foundation of this intention is more difficult to clearly identify. The delayers displayed ambivalence in their attitudes toward delay and prompt behavior, and their responses to the intention, attitudinal, and normative measures had generally greater variance compared to the responses of non-delayers. As stated above, it was clear that delayers did intend to monitor the breast change and did not intend to immediately call the doctor. Additionally, delayers were favorable in their attitude toward monitoring on the direct measure of this attitude. However, on the indirect measures of attitude toward monitoring, delayers were slightly negative in their evaluations of this behavior. Furthermore, delayers were favorable in their evaluations of the decision to immediately call the doctor. The delayers believed that other people would recommend prompt help-seeking behavior, and would tend not to recommend delaying medical treatment.

It is apparent that delayers' intentions to delay medical care were not rooted in unfavorable attitudes toward immediately seeking care, or in perceived social pressure to delay care. In fact, the intentions of delayers did not even appear to originate in the possession

of highly favorable attitudes toward delaying, and the intentions were held despite perceived normative pressure for prompt medical attention. It seemed that intentional preferences for delay were determined by the absence of polarized attitudes with respect to both intentional choices--the lack of strongly favorable attitudes toward immediate care, and the lack of strongly favorable or unfavorable attitudes toward delay. The decision to delay seeking medical care for a breast cancer symptom may be a decision made by default, the result of moderate evaluations of each of the two behavioral options. A delayer may reason that because going to the doctor right away is not an especially desirable option, and monitoring the symptom is not particularly good or bad, she might as well put off seeking a professional diagnosis.

The absence of polarized attitudes on the part of delayers in comparison to non-delayers was also seen in the results concerning the determinants of attitudes, behavioral beliefs. Delayers and non-delayers differed significantly on the perceived likelihood that 18 out of 19 consequences would result from monitoring the breast change rather than calling the doctor immediately. However, delayers judged nine of these consequences as neither likely nor unlikely to occur, and on eight other consequences, the mean likelihood ratings of the delayers were closer to the neutral point than the ratings of non-delayers.

Relative to the delayers, the non-delayers were more convinced that several types of consequences would be unlikely to follow from monitoring the breast change. Non-delayers believed that the decision to delay would not allow them to confidently handle their health and

other problems on their own, or to gather enough information about the breast symptom to enable a doctor to diagnose it accurately. They also believed that they would not avoid inconveniencing themselves, their family, or their doctor, by monitoring the change, and that monitoring would not save them from spending money or undergoing medical procedures. Furthermore, non-delayers believed it would be unlikely that they would be able to avoid appearing as alarmists, or convince themselves that the symptom was not serious and that it would go away. Non-delayers were more certain than delayers that if they did not immediately call the doctor, their condition would worsen and cancer would have time to grow, so that their chances for a cure would be decreased and more extensive treatment would be necessary. Non-delayers were also more sure that they would feel anxious about the change in their breast and would not know what the symptom meant. Only one consequence of delaying, "it would be too late for treatment and I might die," was rated as neither likely nor unlikely by non-delayers; delayers rated this consequence as unlikely to result from the decision to monitor the breast change rather than seek immediate care.

External Variables

Prediction of Intentions

Three variables that are external to the theory of reasoned action were found to contribute significantly to the prediction of choice intentions, above and beyond the contributions of differential attitude and differential subjective norm. Intentional preferences for monitoring

the breast change rather than immediately calling the doctor, were predicted by the absence of anxiety and panic in reaction to discovering the symptom. As noted in the introduction, studies of delay in seeking a diagnosis of cancer symptoms have considered affective reactions to the discovery of the symptoms to be important variables in explaining delay behavior, although findings concerning the influence of these reactions on delay have been inconsistent. The findings of the present study concur with those of Cameron and Hinton (1968) and Sugar and Watkins (1961), who suggested that the experience of anxiety in response to finding a symptom of breast cancer may be associated with early help-seeking. Intentions to delay calling a doctor about the breast change were also predicted by low subjective probabilities of the change being a breast cancer symptom. This finding supports Rodin's (1978) notion that when people assign causes to symptoms on the basis of limited information, this can inhibit help seeking behavior. It is also in line with cancer delay researchers' conclusions that the interpretation of breast cancer symptoms as due to a cause other than cancer promotes delay in obtaining a diagnosis (Cameron & Hinton, 1968; Eardley, 1974; Gold, 1964; Greer, 1974; Sugar & Watkins, 1961). The third variable found to be predictive of intentions to delay was the self-report of having a general habit of waiting to go to the doctor after noticing a physical symptom instead of going to the doctor right away. One of the least equivocal findings of cancer delay studies is that cancer patients' behavioral reactions to the symptoms of their disease are similar to their behavioral responses to the symptoms of previous,

other illnesses (Clements & Wakefield, 1972; Goldsen, Gerhardt & Handy, 1957; Hackett, Cassem & Raker, 1973; Henderson, Wittkower & Loughheed, 1958; King & Leach, 1950).

Unlike prior cancer delay studies, the present study provided empirical evidence as to how the absence of anxiety in response to finding a cancer symptom, misattributions for the symptom, and general habits of putting off medical treatment, might indirectly influence delay in seeking care for the symptom, as well as directly contribute to delay. Specifically, the indirect impact of these external variables on intentions to delay was explained in terms of their impact on mediating variables, the determinants of intentions. First, the relationships of these three variables to the direct determinants of differential intentions--differential attitude and differential subjective norm--were examined. It was found that the absence of anxiety upon discovering the breast change, low subjective probabilities of the change being a breast cancer symptom, and having a general practice of waiting to seek a doctor's advice for physical symptoms, were all associated with favorable attitudes toward monitoring the breast change rather than immediately calling the doctor, and the perception of social pressure to delay medical care. Next, the relationships of the external variables to indirect determinants of intentions were investigated, in that correlations were computed between the external variables and the behavioral belief measures.

These correlations revealed that respondents who had a low level of anxiety, made non-cancer attributions, and generally delayed medical

care, were convinced that monitoring the breast change would enable them to control their own health and other problems with confidence. These women were also certain that by delaying care, they would avoid wasting a doctor's time and would save money, since the lump would probably just go away. In contrast, the anxious, cancer-attribution, and general non-delayer respondents were more sure than their counterparts that they not only would feel anxious about the breast symptom if they did not call the doctor, but they also believed that their condition would become more serious and that cancer would spread, thereby increasing the need for disabling treatments and decreasing the chances for a complete cure. Finally, the anxious, cancer-attribution, and general non-delayer groups perceived the possibility of dying as a result of delayed treatment to be more likely than did the other groups of respondents. In summary, it is apparent that the absence of anxiety in response to finding a breast cancer symptom, the attribution of the symptom to a cause other than breast cancer, and having a general tendency to wait before seeking care for physical symptoms, all contribute to intentional preferences for delay partly because they impact on specific and general beliefs that determine intentions to delay. However, each of these variables was shown to also have a direct, non-mediated link to the decision to postpone medical care for the breast change.

Causal Attributions

One focus of the present study was determining the basis on which respondents assigned causes for the breast change they were asked to

imagine they had discovered. More specifically, the predictors of the perceived likelihood that the change was a breast cancer symptom were examined. It was found that respondents' actual history of having or not having lumps in their breasts was related to the women's interpretations of the hypothetical breast change. Respondents who had never found a breast lump believed the chances were greater that the change was a cancer symptom than respondents who had found at least one breast lump. The reason that the respondents with a history of breast lumps tended to make non-cancer attributions probably lies in the fact that, for most of the women, their lumps were diagnosed as caused by a non-cancerous condition. In particular, of the 56 respondents (41.8% of the sample) who reported having a history of breast lumps, only two had ever had breast cancer. Since the great majority of the women who had ever found a breast lump had benign tumors, it is not surprising that they would interpret the hypothetical breast change as also being non-malignant. Greer (1974), in his study of delay in seeking medical care for breast cancer symptoms, found that women who had a history of benign breast tumors often assumed that a subsequent lump was benign, and so the women were apt to delay obtaining a diagnosis of that lump. Other studies of cancer delay report that delay occurs because patients frequently attribute their cancer symptoms to a recurrence of a previous illness that was not cancer (Cameron & Hinton, 1968; Gold, 1964; Henderson, 1966; Henderson, Wittkower & Lougheed, 1958; King & Leach, 1950). Since respondents who had a history of breast lumps were found to differ from respondents who did not have such a history on their interpretations

of the imaginary breast change, these two groups were treated separately in examining the predictors of causal attributions for the change.

For the subsample of respondents who had never discovered a lump in their breasts, it was determined that two variables significantly predicted subjective probabilities that the breast change represented breast cancer. Greater likelihoods of breast cancer were associated with higher assigned percentages as to how many breast lumps are diagnosed as cancerous, and with greater perceived likelihoods of one day getting breast cancer. It is probable that both of the predictor variables invoked utilization of the availability heuristic (Tversky & Kahneman, 1974). That is, when estimating the percentage of all breast lumps that are diagnosed as breast cancer, the respondents may have made their estimates according to how easily they could recall cases of cancerous breast tumors they had heard about through other people or the media. When the women were unable to recall such cases, they made a judgment that few breast lumps are indeed caused by cancer, and thus assumed that their own imaginary lump was not attributable to breast cancer. In a similar way, respondents' appraisals of the likelihood of one day getting breast cancer depended partly on the extent to which the women had personal experience with breast cancer that made vivid images of the disease available to them; this point is more fully discussed below. In terms of the present discussion, the point is that women who perceived themselves as invulnerable to breast cancer were likely to interpret the change in their breast as due to a condition other than cancer.

These results suggest that, among women who have never found a breast lump before, decisions regarding the cause of a lump are rooted at least partly in cognitive processes. Traditionally, cancer delay researchers have emphasized motivational factors that influence the interpretation of cancer symptoms. For example, researchers have indicated that people deny the possibility that their symptoms are caused by cancer, because they are so fearful of having the disease (Bard & Sutherland, 1955; Cameron & Hinton, 1968; Greer, 1974; Shands et al., 1951). The findings of the present study do not negate the role that motivational factors play in assigning causes to cancer symptoms. However, they do point out that cognitive factors, such as availability biases, also play a role in cancer symptom attributions.

For the subsample of respondents who had found at least one lump in their breasts, only one variable was significantly related to subjective probabilities that the breast change was a symptom of breast cancer. This variable was the number of days that passed between the respondents' discovery of the lumps and their contacting a doctor for advice about the lumps. A greater likelihood of the change being breast cancer was associated with having taken a fewer number of days to contact a doctor. This result is interesting when it is contrasted with the results for the respondents who did not have a history of breast lumps. The contrast suggests that, among women who have a history of breast tumors (or more specifically, a history of benign breast tumors), causal attributions for a new lump do not depend upon the availability of information about other women's experiences with breast tumors.

Rather, once women have experienced the situation of finding a lump in their breast, they may automatically interpret and respond to the discovery of another lump in much the same way as they did previously. It should be recalled that one predictor of respondents' intentions to seek help or not for the breast change was their interpretation of the change. If it is true that women tend to give the same attribution for a newly discovered lump as for previous lumps, then it is not surprising that their behavioral response to previous lumps is predictive of their interpretation of a new lump.

Vulnerability

Another focus of the present study was on investigating factors that influenced the extent to which respondents perceived themselves as vulnerable to breast cancer. The study examined the predictors of respondents' ratings of the likelihood that they will get breast cancer one day. Whether or not respondents' immediate family members had ever had breast cancer was found to be significantly associated with the respondents' perceptions of vulnerability. Respondents who had a mother or sister with breast cancer were more likely to perceive themselves as vulnerable to the disease than respondents who did not have such a history in their family. Having a female blood relative with breast cancer does, in fact, increase one's chances of getting the disease (American Cancer Society, Note 1). Nonetheless, as mentioned briefly above, respondents' judgments of the likelihood of one day getting breast cancer were probably affected by the cognitive bias of

availability. The availability hypothesis implies that because having experience with a disease makes the disease more vivid and salient in memory, this experience leads to a greater subjective probability of getting the disease. This further implies that the occurrence of breast cancer in one's family would lead to an exaggerated perception of vulnerability to breast cancer, in comparison to the perceptions of women whose mother and sisters were not victims of breast cancer. Because perceived vulnerability to breast cancer was found to differ between respondents with and without a family history of the disease, these two groups were considered separately in examining the predictors of vulnerability.

For the subsample of women whose mother and/or sisters had never had breast cancer, one variable significantly predicted the extent to which they believed they will be likely to get breast cancer. This variable was the extent to which the respondents viewed themselves as matching their own descriptions of the type of woman who has a high chance of getting breast cancer. The less respondents judged themselves as matching their stereotype of a breast cancer victim, the less they perceived themselves as vulnerable to breast cancer.

Weinstein (1980) has suggested that the possession of stereotypes of victims of negative events stems partly from motivational processes. In this view, stereotypes serve an ego-defensive function, and so people rarely see themselves as similar to the type of person who suffers misfortune. However, Weinstein has also noted that stereotypes of victims may be rooted in cognitive processes, such as representativeness biases

(Tversky & Kahneman, 1974). According to the representativeness hypothesis, when people decide whether or not they fit a stereotype, they examine the extent to which they match the salient characteristics of those who do fit the stereotype. If people find differences between the characteristics of their stereotypes of victims and their own qualities or attributes, they are likely to conclude that they will avoid victimization. The present study showed that this cognitive bias operates in judgments as to the likelihood of being victimized by breast cancer. Respondents who found discrepancies between their own characteristics and their description of a typical breast cancer victim believed that they are relatively unlikely to ever get breast cancer.

It is noteworthy that, to some degree, respondents' descriptions of the type of woman who has a high chance of getting breast cancer were accurate representations of some of the factors that are considered to put women at high risk of getting the disease. The American Cancer Society (Note 1) states that risk factors for breast cancer include a family history of breast cancer, never having had children, and being middle-aged or older. These factors were listed in respondents' accounts of who is likely to get breast cancer (see Table 16). Therefore, it might appear that rather than giving biased estimates of the likelihood of getting breast cancer, respondents simply used their knowledge of the risk factors in breast cancer to realistically estimate their own risk of getting the disease. It may seem that the possession of correct information about the characteristics of women who are at high risk of getting breast cancer would lead to greater accuracy in assessing one's

own risk. However, a further examination of the implications of the representativeness hypothesis indicates that relying on stereotypes of victims in estimating one's own chances of victimization does bias these estimates, even when the stereotypes accurately incorporate known risk factors. In using the representativeness heuristic to judge the probability of getting a disease, for example, people tend to ignore base rates for the disease, which biases their subjective probabilities. In the present study, respondents' opinions as to the percentage of all women who get breast cancer were unrelated to their assessments of their own chances of getting breast cancer. Furthermore, reliance on one's stereotype of disease victims in making judgments as to the likelihood of getting the disease results in the failure to consider that victims of the disease do not always match the stereotype; this failure biases the likelihood judgments. Women who are quite knowledgeable about the risk factors in breast cancer may overlook the fact that many breast cancer victims do not have a history of breast cancer in their family, and do have children. This gives rise to the conclusion that the possession of information as to the risk factors of breast cancer, whether correct or incorrect, will lead women to make biased estimates of their chances of getting the disease, if they do not believe that they display the risk factors. Women who do not see themselves as having the characteristics that cause women to have breast cancer will underestimate their vulnerability to breast cancer. The present study demonstrates that this underestimation may indirectly contribute to delayed help-seeking for a breast cancer symptom.

For the respondents who had a mother or sister with breast cancer, one variable significantly predicted their ratings of the likelihood of getting breast cancer one day. Respondents who perceived themselves as more vulnerable believed that a higher percentage of breast cancer victims die of the disease despite being treated for it. This finding is inconsistent with some researchers' suggestions that motivational processes cause people to defensively deny the possibility of becoming ill, especially seriously ill (e.g., Kirscht, Haefner, Kegeles & Rosenstock, 1966). If motivational processes determined this subsample's estimates of getting breast cancer, the respondents would be expected to give themselves a smaller chance of getting breast cancer when they believed that breast cancer is often fatal. In contrast, this finding is not inconsistent with the notion that cognitive processes, including availability biases, figure heavily in people's judgments of the likelihood of suffering an illness. The availability hypothesis states that emotionally salient events exert a disproportionate impact on inferences as to the frequency with which those events occur. In support of this statement, the present study found that respondents who considered their mother and/or sister to have had an unsuccessful outcome from breast cancer (perhaps meaning that the relative died), believed that a larger percentage of breast cancer victims die despite receiving treatment ($r = -.415$, $p < .05$). Given that a family member's poor outcome from breast cancer can be an emotionally powerful event, the experience of this event apparently inflates estimates of how many women die from the disease, which in turn inflates the perceived likelihood of getting the

disease. This cognitively based explanation for the finding that respondents who had a family history of breast cancer perceived themselves as more vulnerable to the disease if they also believed that breast cancer is incurable, is only a speculation. However, it does point to the possibility that cognitive biases, as opposed to only motivational ones, determine people's perceptions of their vulnerability to cancer.

The Decision to Delay

In the present study, respondents read a scenario about a woman, Ann, who discovered a breast cancer symptom and decided to delay seeking medical care for the symptom. The results of the study suggest that a different scenario would more realistically represent the process by which women decide to delay professional treatment for a symptom of breast cancer. This scenario is presented below.

One morning, Ann woke up and took a shower before getting dressed to leave the house. As Ann was showering, she happened to feel a hard, tiny thickening on the edge of her left nipple. The bump was quite small, smaller than the size of a pea. Ann wasn't sure there was anything unusual about the spot. Aside from this change, she hadn't noticed anything about her physical condition that was different from normal.

Ann got out of the shower and thought about what she should do. Should she call the doctor for an appointment or should she watch the symptom on her own? Ann thought it would be somewhat advantageous to call her doctor right away, but she also thought it would be of some benefit to monitor the change by herself for a while. She didn't really have any strong opinions one way or the other. While Ann believed that other people, including her family, her friends, and most physicians, would probably recommend having an exam immediately instead of waiting, she didn't imagine that they would feel very strongly about what to do either. Ann didn't think that anything particularly good or bad would happen to her if she put off calling the doctor. She didn't feel anxious about having found the change in her breast and she didn't believe it could be caused by

breast cancer. When Ann had noticed physical symptoms in the past, she'd usually take her time about calling the doctor.

In fact, Ann had found a lump in her breast once before, and she'd waited a while to call the doctor about that. The doctor had diagnosed the lump as benign and told her it was nothing serious. Ann thought that this new symptom was probably the same type of condition. After thinking of women she knew or had heard of who had found breast lumps, Ann concluded that lumps are rarely diagnosed as breast cancer. Ann didn't think she'd ever get breast cancer. She just wasn't the kind of woman who that would happen to; as far as she knew, no one in her family had ever had it.

Ann couldn't think of any compelling reasons to call or not call the doctor about the change in her breast. She decided she would call the doctor if the thickening persisted, grew, or changed. Ann felt that, for the time being, there was no risk in not calling the doctor.

Methodology

The methods that were used in the present study raise several issues that need to be addressed. One issue concerns the fact that intentions to seek medical care or not for a breast cancer symptom were assessed with respect to the hypothetical discovery of such a symptom. Respondents formed their intentions on the basis of imagining that they had discovered a change in their breast, so that the intentions under investigation were not formed in the context of actually experiencing this situation. This raises the potential problem that the intention measures did not provide valid indications of what respondents' intentional preferences for help-seeking would be, if the women actually discovered the breast change described. The respondents might make different decisions about obtaining medical treatment, if and when they find a symptom of breast cancer, from the decisions they believed they

would make when they were asked to picture themselves making such choices. Certain procedures were followed in the study to minimize this potential problem. The respondents were not simply instructed to imagine that they had discovered a breast cancer symptom, or a lump in their breast. Rather, respondents read a scenario about a woman who discovered a change in her breast, and the circumstances in which she made the discovery as well as the characteristics of the change, were described in detail. Thus respondents were given specific pieces of information they could use to readily imagine themselves in the situation of finding a breast symptom. Furthermore, the requirement was made that the respondents be 35 years of age or older. The sample thereby consisted of women whose age put them at high risk of getting breast cancer.

It is possible that respondents' supposed intentions to seek medical care or not differed from what their actual intentions would be, because the women perceived themselves as likely to respond in a socially desirable way to finding a breast symptom. In the situation of deciding whether to seek medical attention promptly or to delay care for a breast abnormality, the socially desirable decision is to immediately seek professional care. It did not appear that respondents' hypothetical intentions were invalid because of social desirability biases, since a large proportion of the sample was self-identified as having intentional preferences for delay. Fully 44.8% of the respondents judged that they would be likely to monitor the change in their breast for a while, rather than call the doctor immediately. Two additional measures of

intentions also showed that these delayers believed they would be likely to monitor the breast change, but would be unlikely to call a doctor immediately for advice about the symptom. Furthermore, intentional preferences for delay or prompt behavior among all respondents, as assessed by differential intention scores, were found to be reliable. The finding that a substantial portion of the respondents reported having intentions to delay medical care argues against the possibility that choice intentions, even though hypothetical, were formed purely on the basis of social desirability biases rather than on respondents' realistic appraisals of what their intentional choices would be. However, it is clear that additional research is needed that will examine the intention to delay seeking care for a breast cancer symptom when the intention is formed in response to a real, as opposed to an imaginary, symptom.

Another methodological issue involves the study's focus on the prediction of intentions instead of behavior. As just discussed, the study assessed respondents' intentions to engage in prompt or delayed help-seeking behavior with regard to the hypothetical occurrence of a breast cancer symptom. Because intentions were measured in relation to an imagined experience, it was not possible to obtain a measure of actual behavior and then test the extent to which intentions predicted behavior. This brings up the potential problem that, had the study measured help-seeking intentions and behaviors among symptomatic women, intentions might be found to be unrelated to the behavioral observations. Little understanding of delay behavior would be gained by predicting intentions to delay, if intentions were not predictive of

this behavior. However, theoretical and empirical work by Ajzen and Fishbein (1980) suggests that intentions would have accurately predicted behavior in the situation of responding to a breast cancer symptom, if it had been possible to test the prediction. Ajzen and Fishbein state that intentions predict behavior, if certain prerequisites are met. They have demonstrated that intentions significantly predict behavior in a wide variety of behavioral realms, including losing weight, using contraception, and consumer and voting choices, when these prerequisites are fulfilled.

For intention to predict behavior, the behavior observed must be under volitional control. According to Ajzen and Fishbein, a behavior is under a person's volitional control if the individual can decide at will to perform it or not perform it. When this definition is applied to the topic of the present study, it is apparent that calling a doctor for advice about a cancer symptom is largely under volitional control, although this action may be inhibited by lack of financial resources. The second requirement that needs to be met for intention to predict behavior, is that intention and behavior must be assessed at corresponding levels of generality. Thirdly, the intention must not have changed in the interval between the time at which it was assessed and the time at which the behavior was observed. To ensure a strong intention-behavior relationship, it is therefore desirable to assess intention in close temporal proximity to the behavior, since the longer the intervening time interval, the more likely is the occurrence of unforeseen events that may change the intention. In the case of investigating delay in

seeking care for a breast cancer symptom, it would certainly be possible to design a study in which these latter two prerequisites were met, if a sample of symptomatic women could be obtained. The ideal study would be a prospective one, in which a sample of symptomatic women would be followed over time. The women who developed breast cancer symptoms would complete measures of their intentions for prompt or delayed help-seeking behavior before they contacted a doctor, and then their help-seeking behavior or lack of it would be assessed. If such a study were carried out, there would be no theoretical reason to suspect that intentions would not accurately predict behavior. Hopefully, prospective studies of this type will be performed in the future, not only to provide a better understanding of delay in seeking medical care for breast cancer symptoms, but to also provide a basis on which effective interventions can be designed to deter delay behavior.

FOOTNOTES

¹The classification of respondents into "delayers" and "non-delayers" was also accomplished by dividing the sample at the median of differential intention scores, and at the median score for intention to immediately call the doctor. The results presented in Tables 4, 5, and 6, that compare delayers to non-delayers, do not change in any substantive way according to which intention measure is used to define the two groups. The findings that were based on classifying respondents according to intention to engage in delay behavior were chosen for presentation, because behavioral and normative beliefs were assessed only with respect to delay behavior, and the impact of these beliefs on intentions was of interest.

²Delayers and non-delayers were compared on their answers to the open-ended question that asked respondents to indicate what advice they thought their doctor would give them, if they did decide to call the doctor immediately. Of the 127 respondents who provided an answer, 107 (84.3%) stated that the doctor would recommend an immediate examination and/or test, and 20 (15.7%) stated either that the doctor would recommend monitoring the change for a while, or that they were uncertain of what advice the doctor would give them. A chi-square test that compared delayers and non-delayers on these two responses yielded a significant association; $\chi^2(1)=14.85$, $p<.001$. Among the 20 women who believed the doctor would recommend monitoring, only three (15.0%) were non-delayers, and 17 (85.0%) were delayers. In contrast, among the 107 women who believed the doctor would recommend an exam, 69 (64.5%) were non-delayers, and 38 (35.5%) were in the delayer group.

³Pearson correlation coefficients were also computed between external variables and scores for intention to monitor, and scores for intention to call the doctor. The results of these correlations were virtually identical to those presented, which utilized differential intention scores. The correlations between differential intentions and the external variables were chosen for presentation, because differential intention scores incorporate all the data available concerning intentions.

⁴Responses to the open-ended question concerning personal diagnoses were used to check the reliability of respondents' ratings of the likelihood that the change was a breast cancer symptom. The sample was divided into two groups at the median of the likelihood ratings. The "non-cancer" group consisted of 70 women (52.2%) who scored below the median, and the "cancer" group was made up of 62 women (46.3%) who scored above the median. (Two women did not respond to this item.) A chi-square test was used to compare the two groups across the response categories for personal diagnosis, and the result was significant; $\chi^2(2)=45.70$, $p<.001$. All of the 30 women who, in the open-ended

question, made a cancer diagnosis were in the cancer group. The majority (75.9%, $n=44$) of the 59 respondents who made a non-cancer diagnosis were in the non-cancer group. The 20 women who were uncertain of their personal diagnoses were almost as likely to be in the non-cancer group ($n=9$) as in the cancer group ($n=11$). This result indicates that the likelihood ratings of the change being a symptom of breast cancer were reliable.

⁵Four additional regression equations were constructed in order to test whether the three external variables that significantly contributed to the prediction of differential intentions, still made a significant contribution to prediction when the indirect measures of attitude and subjective norm with respect to delay were substituted for the corresponding differential attitude and subjective norm scores in the regressions. First, differential intention scores were predicted from just the estimate of attitude toward monitoring the breast change and the estimate of subjective norm with regard to monitoring. This regression showed that both predictors were significant, together accounting for 41% of the variance in differential intentions ($R=.642$, $p<.001$). The regression coefficients were .483 ($p<.001$) and .235 ($p<.005$) for the attitude and subjective norm estimates, respectively.

Secondly, differential intention scores were predicted from the attitude and subjective norm estimates, and each of the three external variables. These predictions were made by means of hierarchical multiple regression analyses, where the estimates were entered as predictors on the first step of the analysis, and the external variable under investigation was entered on the second step. The following table presents the results of these analyses.

| <u>External variable</u> | <u>b</u> | <u>R</u> | <u>R²</u> | <u>R² change</u> | <u>Significance of R² change</u> |
|--|----------|----------|----------------------|---------------------------------|---|
| Anxious and panicky upon finding breast change | -.141 | .654 | .428 | .016 | .056 |
| Likelihood change is a symptom of breast cancer | -.130 | .647 | .418 | .014 | .087 |
| Usually goes to the doctor right away when physical symptom is noticed | -.315 | .698 | .487 | .075 | .000 |

Respondents' feelings of anxiety and panic after discovering the breast change, and their ratings of the likelihood that the change was a breast cancer symptom, marginally contributed to the prediction of differential intentions, above and beyond the attitude and subjective norm estimates.

Having a habit of going to the doctor immediately for symptoms was inversely associated with intentions to delay seeking care, and this variable accounted for 8% of the variance in differential intentions.

REFERENCE NOTES

1. 1982 Cancer facts and figures. New York: American Cancer Society, 1981.
2. Janoff-Bulman, R., Madden, M. E. & Timko, C. The illusion of invulnerability. Unpublished manuscript, University of Massachusetts, 1980.
3. Lang-Gunn, L. Sickness as sin: Observers' perceptions of the physically ill. Unpublished manuscript, University of Massachusetts, 1980.

REFERENCES

- Abrams, R. D. & Finesinger, J. E. Guilt reactions in patients with cancer. Cancer, 1953, 6, 474-482.
- Aitken-Swan, J. & Paterson, R. The cancer patient: Delay in seeking advice. British Medical Journal, 1955, 1, 623-627.
- Ajzen, I. & Fishbein, M. Understanding attitudes and predicting social behavior. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Antonovsky, A. & Hartman, H. Delay in the detection of cancer: A review of the literature. Health Education Monographs, 1974, 2, 98-128.
- Apple, D. How laymen define illness. Journal of Health and Human Behavior, 1960, 1, 219-225.
- Bard, M. & Sutherland, A. M. Psychological impact of cancer and its treatment. IV. Adaptation to radical mastectomy. Cancer, 1955, 8, 656-672.
- Barker, R. G. Adjustment to physical handicap and illness: A survey of the social psychology of physique and disability. New York: Social Science Research Council, 1953.
- Blackwell, B. The literature of delay in seeking medical care for chronic illness. Health Education Monographs, 1963, 16, 3-31.
- Burdick, D. & Chanatry, F. Central New York Surgical Society, surgery on breast carcinoma, 1920-1952. Cancer, 1954, 7, 47-53.
- Cameron, A. & Hinton, J. Delay in seeking treatment for mammary tumors. Cancer, 1968, 21, 1121-1126.
- Clements, J. & Wakefield, J. Symptoms and uncertainty. International Journal of Health Education, 1972, 15, 113-122.
- Cobb, B., Clark, R. L., McGuire, C. & Howe, C. D. Patient-responsible delay of treatment of cancer. Cancer, 1954, 7, 920-926.
- D'Andrade, R. G., Quinn, N. R., Nerlove, S. B. & Romney, A. K. Categories of disease in American-English and Mexican-Spanish. In A. K. Romney, R. N. Shepard & S. B. Nerlove (Eds.), Multidimensional scaling: Theory and applications in the behavioral sciences. New York: Seminar Press, 1972.
- Davis, F. Passage through crisis. Indianapolis: Bobbs-Merrill, 1963.

- Eardley, A. Triggers to action: A study of what makes women seek advice for breast conditions. International Journal of Health Education, 1974, 17, 256-265.
- Fabrega, H. Disease and social behavior: An interdisciplinary perspective. Cambridge, Mass.: MIT Press, 1974.
- Fabrega, H. & Manning, P. K. Disease, illness, and deviant behavior. In R. A. Scott & J. D. Douglas (Eds.), Theoretical perspectives in deviance. New York: Basic Books, 1972.
- Fishbein, M. & Ajzen, I. Belief, attitude, intention and behavior: An introduction to theory and research. Reading, Mass.: Addison-Wesley, 1975.
- Fisher, S. Motivation for patient delay. Archives of General Psychiatry, 1967, 16, 676-678.
- Freidson, E. Client control and medical practice. American Journal of Sociology, 1960, 65, 374-382.
- Freidson, E. Patients' views of medical practice. New York: Russell Sage Foundation, 1961.
- Gold, M. A. Causes of patients' delay in diseases of the breast. Cancer, 1964, 17, 564-577.
- Goldsen, R. K., Gerhardt, P. R. & Handy, V. H. Some factors related to patient delay in seeking diagnosis for cancer symptoms. Cancer, 1957, 10, 1-7.
- Green, L. W. & Roberts, B. J. The research literature on why women delay in seeking medical care for breast symptoms. Health Education Monographs, 1974, 2, 129-177.
- Greer, S. Psychological aspects: Delay in the treatment of breast cancer. Proceedings of the Royal Society of Medicine, 1974, 67, 470-473.
- Hackett, T. P., Cassem, N. H. & Raker, J. W. Patient delay in cancer. The New England Journal of Medicine, 1973, 289, 14-20.
- Hammerschlag, C. A., Fisher, S., DeCosse, J. & Kaplan, E. Breast symptoms and patient delay: Psychological variables involved. Cancer, 1964, 17, 1480-1485.
- Henderson, J. G. Denial and repression as factors in the delay of patients with cancer presenting themselves to the physician. Annals of the New York Academy of Sciences, 1966, 125, 856-864.

- Henderson, J. G., Wittkower, M. B. & Loughheed, M. N. A psychiatric investigation of the delay factor in patient to doctor presentation in cancer. Journal of Psychosomatic Research, 1958, 3, 27-41.
- Herzlich, C. Health and illness: A social psychological analysis. In H. Tajfel (Ed.), European Monographs in Social Psychology (Vol. 5). New York: Academic Press, 1973.
- Janis, I. L. Effects of fear arousal on attitude change: Recent developments in theory and experimental research. In L. Berkowitz (Ed.), Advances in experimental social Psychology (Vol. 3). New York: Academic Press, 1967.
- Janis, I. L. & Feshbach, S. Effects of fear-arousing communications. Journal of Abnormal and Social Psychology, 1953, 48, 78-92.
- Janis, I. L. & Rodin, J. Attribution, control, and decision making: Social psychology and health care. In G. C. Stone, F. Cohen & N. E. Adler (Eds.), Health psychology. San Francisco: Jossey-Bass, 1979.
- Janoff-Bulman, R. & Lang-Gunn, L. Coping with disease and accidents: The role of self-blame attributions. In L. Y. Abramson (Ed.), Social-personal inference in clinical psychology. New York: The Guilford Press, in press.
- Janoff-Bulman, R., Madden, M. E. & Timko, C. Victims' reactions to aid: The role of perceived vulnerability. In A. Nadler, J. D. Fisher & B. M. DePaulo (Eds.), New directions in helping, (Vol. 3): Applied perspectives on help seeking and receiving. New York: Academic Press, 1983.
- Jefferys, M., Brotherston, J. H. F. & Cartwright, A. Consumption of medicines on a working-class housing estate. British Journal of Preventive and Social Medicine, 1960, 14, 64-76.
- Jenkins, C. D. & Zyanski, S. J. Dimensions of beliefs and feelings concerning three diseases--poliomyelitis, cancer, and mental illness: A factor analytic study. Behavioral Science, 1968, 13, 372-381.
- Jones, R. A., Wiese, H. J., Moore, R. W. & Haley, J. V. On the perceived meaning of symptoms. Medical Care, 1981, 19, 710-717.
- Kahneman, D. & Tversky, A. On the psychology of prediction. Psychological Review, 1973, 80, 237-251.
- Kasl, S. V. & Cobb, S. Some psychosocial factors associated with illness behavior and selected illnesses. Journal of Chronic Diseases, 1964, 17, 325-345.

- Kasl, S. V. & Cobb, S. Health behavior, illness behavior, and sick role behavior. Archives of Environmental Health, 1966, 12, 246-266.
- Kessel, N. & Shepard, M. The health and attitudes of people who seldom consult a doctor. Medical Care, 1965, 3, 6-10.
- King, R. A. & Leach, J. E. Factors contributing to delay by patients seeking medical care. Cancer, 1950, 3, 571-579.
- Kirscht, J. P. The Health Belief Model and illness behavior. Health Education Monographs, 1974, 2, 387-408.
- Kirscht, J. P., Haefner, D. P., Kegeles, S. S. & Rosenstock, I. M. A national study of health beliefs. Journal of Health and Human Behavior, 1966, 7, 248-254.
- Koos, E. L. The health of Regionville. New York: Columbia University Press, 1954.
- Kosa, J. & Robertson, L. S. The social aspects of health and illness. In J. Kosa & I. K. Zola (Eds.), Poverty and health: A sociological analysis. Cambridge, Mass.: Harvard University Press, 1975.
- Krantz, D. S., Baum, A. & Wideman, M. V. Assessment of preferences for self-treatment and information in medical care. Journal of Personality and Social Psychology, 1980, 39, 977-990.
- Kushner, R. Breast cancer: A personal history and an investigative report. New York: Harcourt, Brace, Jovanovich, 1975.
- Kutner, B. & Gordan, G. Seeking care for cancer. Journal of Health and Human Behavior, 1961, 2, 171-178.
- Leventhal, H. Findings and theory in the study of fear communications. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 5). New York: Academic Press, 1970.
- Linz, D., Penrod, S., Siverhus, S. & Leventhal, H. The cognitive organization of disease and illness among lay persons. Unpublished manuscript, University of Wisconsin-Madison, 1982.
- Lynch, H. T. & Krush, A. J. Delay: A deterrent to cancer detection. Archives of Environmental Health, 1968, 17, 204-209.
- Lynch, H. T. & Krush, A. J. Breast carcinoma and delay in treatment. Surgery, Gynecology, and Obstetrics, 1969, 128, 1027-1032.
- Makover, H. B. Patient and physician delay in cancer diagnosis: Medical aspects. Journal of Chronic Diseases, 1963, 16, 419-426.

- Marshall, J. R., Gregorio, D. I. & Walsh, D. Sex differences in illness behavior: Care seeking among cancer patients. Journal of Health and Social Behavior, 1982, 23, 197-204.
- McIntosh, J. Processes of communication, information seeking and control associated with cancer: A selective review of the literature. Social Science and Medicine, 1974, 8, 167-187.
- McKinlay, J. B. The help-seeking behavior of the poor. In J. Kosa & I. K. Zola (Eds.), Poverty and health: A sociological analysis. Cambridge, Mass.: Harvard University Press, 1975.
- Mechanic, D. The concept of illness behavior. Journal of Chronic Diseases, 1962a, 15, 189-195.
- Mechanic, D. Medical sociology. New York: The Free Press, 1968.
- Mechanic, D. Social psychological factors affecting the presentation of bodily complaints. The New England Journal of Medicine, 1972, 286, 1132-1139.
- Mechanic, D. & Volkart, E. H. Illness behavior and medical diagnosis. Journal of Health and Human Behavior, 1960, 1, 86-91.
- Miller, M. H. Seeking advice for cancer symptoms. American Journal of Public Health, 1973, 63, 955-961.
- Nisbett, R. E. & Ross, L. Human inference: Strategies and shortcomings of social judgment. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Nisbett, R. E. & Wilson, T. D. Telling more than we can know: Verbal reports on mental processes. Psychological Review, 1977, 84, 231-259.
- Osgood, C. E., Suci, G. J. & Tannenbaum, P. H. The measurement of meaning. Urbana, Ill.: University of Illinois Press, 1957.
- Pack, G. T. & Gallo, J. S. The culpability for delay in the treatment of cancer. American Journal of Cancer, 1938, 33, 443-462.
- Parsons, T. The social system. Glencoe: The Free Press, 1951.
- Pennebaker, J. W. The psychology of physical symptoms. New York: Springer-Verlag, 1982.
- Pennebaker, J. W. & Skelton, J. A. Psychological parameters of physical symptoms. Personality and Social Psychology Bulletin, 1978, 4, 524-530.

- Robbins, G. F., MacDonald, M. C. & Pack, G. T. Delay in the diagnosis and treatment of physicians with cancer. Cancer, 1953, 6, 624-626.
- Roberts, B. J. A framework for consideration of forces in achieving earliness of treatment. Health Education Monographs, 1965, 19, 16-32.
- Robinson, D. The process of becoming ill. London: Routledge & Kegan Paul, 1971.
- Rodin, J. Somatopsychics and attribution. Personality and Social Psychology Bulletin, 1978, 4, 531-540.
- Rosenberg, M. Society and the adolescent self-image. Princeton, N.J.: Princeton University Press, 1965.
- Rosenstock, I. M. & Kirscht, J. P. Why people seek health care. In G. C. Stone, F. Cohen & N. E. Adler (Eds.), Health psychology. San Francisco: Jossey-Bass, 1979.
- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (Whole No. 609).
- Shands, H. C., Finesinger, J. E., Cobb, S. & Abrams, R. D. Psychological mechanisms in patients with cancer. Cancer, 1951, 4, 1159-1170.
- Shontz, F. C. The psychological aspects of physical illness and disability. New York: Macmillan, 1975.
- Slovic, P., Fischhoff, B. & Lichtenstein, S. Behavioral decision theory. Annual Review of Psychology, 1977, 28, 1-39.
- Stoeckle, J. D., Zola, I. K. & Davidson, G. E. On going to see the doctor: The contributions of the patient to the decision to seek medical aid. Journal of Chronic Diseases, 1963, 16, 975-989.
- Strickland, B. R. Internal-external expectancies and health-related behaviors. Journal of Consulting and Clinical Psychology, 1978, 46, 1192-1211.
- Suchman, E. A. Stages of illness and medical care. Journal of Health and Human Behavior, 1965, 6, 114-128.
- Sugar, M. & Watkins, C. Some observations about patients with a breast mass. Cancer, 1961, 14, 979-988.

APPENDIX A
PILOT STUDY QUESTIONNAIRE

This questionnaire is part of a study that explores the different decisions people make about seeking medical help. We are particularly interested in the different decisions women make about what to do when they find a lump in their breast. Some women decide to call their doctor immediately, and some women decide to watch the lump for a while to see what happens. Please read the scenarios below. The scenarios describe the experiences of two women, Ann and Susan. You will see that, although the women had the same experience, they had different reactions to that experience.

One morning, Ann woke up and took a shower before getting dressed to leave the house. As Ann was showering, she felt a hard, tiny lump on the edge of her left nipple. The lump was so small, smaller than the size of a pea, that Ann wasn't sure it was anything unusual. Aside from the lump, Ann hadn't noticed anything about her physical condition that was different from normal.

Ann thought about how small the lump was and that she was feeling as well as she usually did. She thought that, even though the lump was tiny and she felt fine, she should find out if the lump was something serious. Ann got out of the shower and decided she would immediately call her doctor. She made an appointment to have an examination.

One morning, Susan woke up and took a shower before getting dressed to leave the house. As Susan was showering, she felt a hard, tiny lump on the edge of her left nipple. The lump was so small, smaller than the size of a pea, that Susan wasn't sure it was anything unusual. Aside from the lump, Susan hadn't noticed anything about her physical condition that was different from normal.

Susan thought about how small the lump was and that she was feeling as well as she usually did. She thought that, because the lump was tiny and she felt fine, she should watch the lump to find out if it would change or go away. Susan got out of the shower and decided she would watch the lump for a while. She could always make an appointment to have an examination at a later time.

We would like to know what your reactions would be if you had the same experience as Ann and Susan. First, try to imagine that what happened to Ann and Susan has just happened to you. Imagine that you have just found a lump in your breast while taking a morning shower. The lump is on the edge of your left nipple; it is hard and smaller than a pea. Other than the lump, you haven't noticed anything out of the ordinary about your physical condition. Next, please respond to the following questions as if you have just experienced the same situation as Ann and Susan. We realize that responding as if you are actually in this situation may be difficult. Please take your time and do your best. There are no right or wrong answers to any of the questions.

Please answer the following questions as you think you would if you had just found a lump in your breast.

- 1) What do you see as the advantages of immediately calling the doctor,
as Ann did? (Please list.)

- 2) What do you see as the disadvantages of immediately calling the doctor?

4) Are there any people or groups who would approve of you immediately calling the doctor? (Please list.)

5) Are there any people or groups who would disapprove of you immediately calling the doctor?

6) What do you see as the advantages of watching the lump for a while, as Susan did?

7) What do you see as the disadvantages of watching the lump for a while?

8) Is there anything else you associate with watching the lump for a while?

9) Are there any people or groups who would approve of you watching the lump for a while?

10) Are there any people or groups who would disapprove of you watching the lump for a while?

11) What emotions did you feel when you found the lump? (Please list.)

12) On each of the following scales, please put an X in the space that corresponds to your response.

a) I intend to immediately call the doctor, as Ann did.

likely : ____ : ____ : ____ : ____ : ____ : ____ : unlikely

b) I intend to watch the lump for a while, as Susan did.

likely : ____ : ____ : ____ : ____ : ____ : ____ : unlikely

13) Suppose you decided to watch the lump for a while (i.e., you did not immediately call the doctor.) Under what circumstances, if any, would you eventually call the doctor?

14) Suppose you decided to watch the lump for a while and it did not go away.

a) Would you eventually call the doctor? ____ yes ____ no

b) If yes, how long would you wait to call the doctor from the time you found the lump? (Please give number of days, weeks, months, or years.)

Background Information

- 1) What is your marital status?
☐ Never married
☐ Married
☐ Separated or divorced
☐ Widowed
- 2) What year were you born? _____
- 3) Ethnic Background:
☐ White
☐ Black
☐ Hispanic
☐ Asian
☐ Other: _____
- 4) Religion:
☐ Catholic
☐ Protestant
☐ Jewish
☐ Other: _____
☐ None
- 5) What is the last year of school you completed?
☐ 8th grade or below
☐ Some high school
☐ Graduated from high school
☐ Some business or trade school
☐ Graduated from business or trade school
☐ Some college
☐ Graduated from college
☐ Some graduate work
☐ Graduate degree
- 6) Are you employed? ☐ yes ☐ no
If yes, what is your occupation? _____
- 7) How many people do you live with? _____ people.

8) What is your household's annual income?

- ☐ \$10,000 or less
- ☐ \$10,001 - \$20,000
- ☐ \$20,001 - \$30,000
- ☐ \$30,001 - \$40,000
- ☐ \$40,001 - \$50,000
- ☐ \$50,001 or more

9) How many people does this income support? _____ people.

If you are presently married, please answer the following questions.

1) What is the last year of school your husband completed?

- ☐ 8th grade or below
- ☐ Some high school
- ☐ Graduated from high school
- ☐ Some business or trade school
- ☐ Graduated from business or trade school
- ☐ Some college
- ☐ Graduated from college
- ☐ Some graduate work
- ☐ Graduate degree

2) Is your husband employed? _____yes _____no

If yes, what is his occupation? _____

THANK YOU VERY MUCH FOR YOUR HELP!

APPENDIX B
RECRUITMENT MATERIALS



The Commonwealth of Massachusetts
University of Massachusetts
Amherst 01003

DEPARTMENT OF PSYCHOLOGY

Hello,

I am a doctoral student in social psychology at the University of Massachusetts at Amherst. For my dissertation, I am studying decisions people make about seeking medical help. As you well know, the cost of medical care in the United States is rapidly increasing, and so it is important to find out when and why people go to the doctor. In particular, I am studying how women make decisions about seeking medical care for health problems that apply only to women, and not to men. Your name has been chosen as a member of a random sample of women living in Hampshire County.

I would like to know if you would be willing to help me with my study by filling out a questionnaire. In the questionnaire, you would read a brief story about a woman who notices a particular change in her body, and then you would answer questions concerning what you would think, feel, and do if you were in the same situation as the woman in the story. The questionnaire takes between one-half hour and one hour to complete. All of your responses would be completely confidential and your name would never be associated with them. You would be free to not answer any questions you do not want to answer. Furthermore, you could fill out the questionnaire at any time and place you choose. I am sorry I am unable to offer any compensation for filling out the questionnaire. However, I do believe you would find it interesting, and I would be glad to send you the results of the study once it is completed.

Enclosed is a stamped, addressed postcard that I would appreciate you mailing back to me whether or not you are willing to participate in my study. If you are willing to participate, I will call you at the number and time you specify on the postcard, to talk about when and where I can leave a questionnaire for you. I would very much appreciate your cooperation with my study because full participation is important for the validity of its results. I believe that the results will improve our understanding of how people make health-related decisions, and may eventually impact public health policy.

This study has been reviewed and approved by the Department of Psychology at UMass. If you have any questions or hesitations about the project, do not hesitate to call me at 545-0264. I thank you, in advance, for your help.

Sincerely,

Christine Timko

Christine Timko



☐ I would like to help you.

☐ I would like more information before I commit myself.

My name is _____.

You can call me _____ at _____ (when) _____ (phone number).



☐ I am sick and tired of being asked to fill out questionnaires. I have a good mind to call out a "60 Minutes" crew on you.

APPENDIX C
QUESTIONNAIRE PACKET

INFORMED CONSENT FORM

In the questionnaire you are about to fill out, you are first asked to read a story about a woman who notices a particular change in her body. You are then asked to imagine that you are in the same situation as the woman in the story, and to answer questions concerning what you believe you would think, feel, and do if you were in this situation. You are also asked to provide your opinions about some general and specific health-related issues, as well as some information about your actual medical history.

If you have any questions while you are completing the questionnaire, do not hesitate to call me, Christine Timko, at 545-1390 (days) or 586-8142 (evenings). You are free to not answer any questions on the questionnaire that you do not want to answer, and to discontinue your participation in this study at any time. All of your responses will be completely confidential and your name will never be associated with them; the questionnaire will be identified by a number, rather than by your name.

I have read the above statement and I agree to participate in this study.

Signature

Date

Instructions

In the questionnaire you are about to fill out, we ask questions that make use of rating scales with seven spaces; you are to make a check mark in the place that best describes your opinion. For example, if you were asked to rate "The weather in Massachusetts" on such a scale, the seven spaces should be interpreted as follows:

The weather in Massachusetts is

good: _____ : _____ : _____ : _____ : _____ : _____ : bad
 extremely quite slightly neither slightly quite extremely

If you think the weather in Massachusetts is quite good, then you would place your mark as follows:

The weather in Massachusetts is

good: : ^X : : : : : : bad
 extremely quite slightly neither slightly quite extremely

If you think the weather in Massachusetts is neither good nor bad, then you would place your mark as follows:

The weather in Massachusetts is

good: _____ : _____ : _____ : ^X _____ : _____ : _____ : bad
 extremely quite slightly neither slightly quite extremely

You will also be using a rating scale with likely-unlikely as endpoints. This scale is to be interpreted in the same way. For example, if you were asked to rate "The weather in Massachusetts is cold in January" on such a scale, it would appear as follows:

The weather in Massachusetts is cold in January.

likely: _____ : _____ : _____ : _____ : _____ : _____ : unlikely
 extremely quite slightly neither slightly quite extremely

In making your ratings, please remember the following points:

- (1) Place your marks in the middle of spaces, not on the boundaries:

: ——— : X : ——— : ——— : ——— : Y :
this not
this

- (2) Please try to answer every item.
- (3) Never put more than one check mark on a single scale.

This questionnaire is part of a study that explores the different decisions people make about seeking medical help. We are particularly interested in the decisions women make about what to do when they notice a change in their breast. Past research has shown that women do make different decisions in this situation. Please read the scenario below. The scenario describes the experience of a woman, Ann, who noticed a change in her breast.

One morning, Ann woke up and took a shower before getting dressed to leave the house. As Ann was showering, she happened to feel a hard, tiny thickening on the edge of her left nipple. The bump was quite small, smaller than the size of a pea. Ann wasn't sure there was anything unusual about the spot. Aside from this change, she hadn't noticed anything about her physical condition that was different from normal.

Ann got out of the shower and thought about what she should do. She considered immediately calling the doctor for an appointment, but she thought that in this case it might be best to monitor the change herself for a while. The thickening was tiny and Ann was feeling as well as she usually did. Ann knew that women sometimes get lumps in their breasts that soon disappear by themselves. She was not an alarmist, and she would closely watch the bump on her own. Ann decided she would call the doctor if the thickening persisted, grew, or changed. She felt that, for the time being, there was no risk in not calling the doctor.

We would like to know what your reactions would be if you had the same experience as Ann. First, try to imagine that what happened to Ann has just happened to you. Imagine that you have just felt a hard, tiny thickening on the edge of your left nipple while taking a morning shower. The bump is so small, smaller than the size of a pea, that you aren't sure there is really anything different about the spot. Other than this change, you haven't noticed anything out of the ordinary about your physical condition. Next, please answer the following questions as if you have just experienced the same situation as Ann. We realize that responding as if you are in this situation may be difficult, but please take your time to think seriously about what your reactions would actually be. There are no right or wrong answers to any of the questions. Thank you.

Part A

1) How likely is it that you would decide to monitor the change in your breast for a while, as Ann decided to do, rather than immediately calling the doctor?

likely: _____:_____:_____:_____:_____:_____ :unlikely
 extremely quite slightly neither slightly quite extremely

2) How likely is it that you would decide to immediately call the doctor?

likely: _____:_____:_____:_____:_____:_____ :unlikely
 extremely quite slightly neither slightly quite extremely

3) If the lump disappeared, at what point in time after noticing it would you call the doctor?

| | |
|-------------------------|-----------------------------------|
| _____ less than one day | _____ two months |
| _____ two days | _____ three months |
| _____ one week | _____ six months |
| _____ two weeks | _____ one year |
| _____ three weeks | _____ more than one year |
| _____ four weeks | _____ would never call the doctor |
| _____ six weeks | |

4) If the lump did not change in any way (i.e., it did not grow or disappear), at what point in time after noticing it would you call the doctor?

| | |
|-------------------------|-----------------------------------|
| _____ less than one day | _____ two months |
| _____ two days | _____ three months |
| _____ one week | _____ six months |
| _____ two weeks | _____ one year |
| _____ three weeks | _____ more than one year |
| _____ four weeks | _____ would never call the doctor |
| _____ six weeks | |

5) If the lump did grow or change, at what point in time after noticing this growth or change would you call the doctor?

| | |
|-------------------------|-----------------------------------|
| _____ less than one day | _____ two months |
| _____ two days | _____ three months |
| _____ one week | _____ six months |
| _____ two weeks | _____ one year |
| _____ three weeks | _____ more than one year |
| _____ four weeks | _____ would never call the doctor |
| _____ six weeks | |

- 6) For you to decide to monitor the change in your breast for a while, rather than immediately calling the doctor, would be:

wise: _____:_____:_____:_____:_____:_____:_____:foolish
strong: _____:_____:_____:_____:_____:_____:_____weak
motivated: _____:_____:_____:_____:_____:_____:_____aimless
useful: _____:_____:_____:_____:_____:_____:_____useless
active: _____:_____:_____:_____:_____:_____:_____passive
sick: _____:_____:_____:_____:_____:_____:_____healthy
pleasant: _____:_____:_____:_____:_____:_____:_____unpleasant
easy: _____:_____:_____:_____:_____:_____:_____difficult
comfortable: _____:_____:_____:_____:_____:_____:_____uncomfortable
good: _____:_____:_____:_____:_____:_____:_____bad
emotional: _____:_____:_____:_____:_____:_____:_____unemotional
pessimistic: _____:_____:_____:_____:_____:_____:_____optimistic
excitable: _____:_____:_____:_____:_____:_____:_____calm
harmful: _____:_____:_____:_____:_____:_____:_____beneficial
practical: _____:_____:_____:_____:_____:_____:_____impractical
convenient: _____:_____:_____:_____:_____:_____:_____inconvenient
effortful: _____:_____:_____:_____:_____:_____:_____effortless
troublesome: _____:_____:_____:_____:_____:_____:_____peaceful
acceptable: _____:_____:_____:_____:_____:_____:_____objectionable
manageable: _____:_____:_____:_____:_____:_____:_____impossible

- 7) For you to decide to immediately call the doctor would be:

wise: _____:_____:_____:_____:_____:_____:_____foolish
strong: _____:_____:_____:_____:_____:_____:_____weak
motivated: _____:_____:_____:_____:_____:_____:_____aimless
useful: _____:_____:_____:_____:_____:_____:_____useless
active: _____:_____:_____:_____:_____:_____:_____passive
sick: _____:_____:_____:_____:_____:_____:_____healthy
pleasant: _____:_____:_____:_____:_____:_____:_____unpleasant
easy: _____:_____:_____:_____:_____:_____:_____difficult
comfortable: _____:_____:_____:_____:_____:_____:_____uncomfortable
good: _____:_____:_____:_____:_____:_____:_____bad
emotional: _____:_____:_____:_____:_____:_____:_____unemotional
pessimistic: _____:_____:_____:_____:_____:_____:_____optimistic
excitable: _____:_____:_____:_____:_____:_____:_____calm

For you to decide to immediately call the doctor would be:

harmful: _____:_____:_____:_____:_____:_____:_____:beneficial
practical: _____:_____:_____:_____:_____:_____:_____:impractical
convenient: _____:_____:_____:_____:_____:_____:_____:inconvenient
effortful: _____:_____:_____:_____:_____:_____:_____:effortless
troublesome: _____:_____:_____:_____:_____:_____:_____:peaceful
acceptable: _____:_____:_____:_____:_____:_____:_____:objectionable
manageable: _____:_____:_____:_____:_____:_____:_____:impossible

8) Suppose you did decide to immediately call the doctor for advice about the change in your breast. What advice do you think the doctor would give you?

9) How likely is it that most people who are important to you would think you ought to monitor the change in your breast for a while, rather than immediately calling the doctor?

likely: _____:_____:_____:_____:_____:_____:_____:unlikely

10) How likely is it that most people who are important to you would think you ought to immediately call the doctor?

likely: _____:_____:_____:_____:_____:_____:_____:unlikely

11) How likely is it that you would talk to people who are important to you to find out what they think you ought to do about the change in your breast?

likely: _____:_____:_____:_____:_____:_____:_____:unlikely

Part B--This section of the questionnaire asks you about possible consequences of deciding to monitor the change in your breast for a while.

1) For me to control my own health and feel confidence in myself is:

good: _____:_____:_____:_____:_____:_____:_____:bad

2) For me to avoid unpleasant medical procedures is:

good: _____:_____:_____:_____:_____:_____:_____:bad

3) For me to be able to convince myself that a change in my breast is nothing serious is:

good: _____:_____:_____:_____:_____:_____:_____:bad

- 4) For me to handle my problems and decisions on my own, instead of turning them over to someone else, is:
good: _____:_____:_____:_____:_____:_____:_____:bad
- 5) For me to avoid being inconvenienced by taking time away from my daily routine is:
good: _____:_____:_____:_____:_____:_____:_____:bad
- 6) For me to take time to find a doctor I trust is:
good: _____:_____:_____:_____:_____:_____:_____:bad
- 7) For me to avoid appearing as a silly and foolish alarmist is:
good: _____:_____:_____:_____:_____:_____:_____:bad
- 8) For me to be able to provide enough information about a lump in my breast for the doctor to make an accurate diagnosis is:
good: _____:_____:_____:_____:_____:_____:_____:bad
- 9) For me to not know what a change in my breast means is:
good: _____:_____:_____:_____:_____:_____:_____:bad

Part B1

- 1) If I monitored the change in my breast for a while rather than called the doctor immediately, I would be controlling my own health and would feel confidence in myself.
likely: _____:_____:_____:_____:_____:_____:_____:unlikely
- 2) If I monitored the change in my breast for a while rather than called the doctor immediately, I would avoid unpleasant medical procedures.
likely: _____:_____:_____:_____:_____:_____:_____:unlikely
- 3) If I monitored the change in my breast for a while rather than called the doctor immediately, I would feel anxious, fearful, and worried.
likely: _____:_____:_____:_____:_____:_____:_____:unlikely
- 4) If I monitored the change in my breast for a while rather than called the doctor immediately, I would be able to convince myself that the change in my breast is nothing serious.
likely: _____:_____:_____:_____:_____:_____:_____:unlikely
- 5) If I monitored the change in my breast for a while rather than called the doctor immediately, I would be handling my problems and decisions on my own instead of turning them over to someone else.
likely: _____:_____:_____:_____:_____:_____:_____:unlikely

- 6) If I monitored the change in my breast for a while rather than called the doctor immediately, my condition would become more serious or get worse.
likely: ____:____:____:____:____:____:____:unlikely
- 7) If I monitored the change in my breast for a while rather than called the doctor immediately, I would avoid being inconvenienced by taking time away from my daily routine.
likely: ____:____:____:____:____:____:____:unlikely
- 8) If I monitored the change in my breast for a while rather than called the doctor immediately, this would give me time to find a doctor I trust.
likely: ____:____:____:____:____:____:____:unlikely
- 9) If I monitored the change in my breast for a while rather than called the doctor immediately, I would be more likely to need major surgery and/or other disabling treatments.
likely: ____:____:____:____:____:____:____:unlikely
- 10) If I monitored the change in my breast for a while rather than called the doctor immediately, I would avoid wasting the doctor's time.
likely: ____:____:____:____:____:____:____:unlikely
- 11) If I monitored the change in my breast for a while rather than called the doctor immediately, I would avoid appearing as a silly and foolish alarmist.
likely: ____:____:____:____:____:____:____:unlikely
- 12) If I monitored the change in my breast for a while rather than called the doctor immediately, cancer would have time to grow or spread.
likely: ____:____:____:____:____:____:____:unlikely
- 13) If I monitored the change in my breast for a while rather than called the doctor immediately, if and when I did call the doctor I would be able to provide enough information about the lump for him/her to make an accurate diagnosis.
likely: ____:____:____:____:____:____:____:unlikely
- 14) If I monitored the change in my breast for a while rather than called the doctor immediately, I would save money.
likely: ____:____:____:____:____:____:____:unlikely
- 15) If I monitored the change in my breast for a while rather than called the doctor immediately, I would be decreasing my chances for a complete cure.
likely: ____:____:____:____:____:____:____:unlikely

- 16) If I monitored the change in my breast for a while rather than called the doctor immediately, the lump would go away.

likely:____:____:____:____:____:____:____:unlikely

- 17) If I monitored the change in my breast for a while rather than called the doctor immediately, I would avoid upsetting my family.

likely:____:____:____:____:____:____:____:unlikely

- 18) If I monitored the change in my breast for a while rather than called the doctor immediately, it would be too late for treatment and I might die.

likely:____:____:____:____:____:____:____:unlikely

- 19) If I monitored the change in my breast for a while rather than called the doctor immediately, I would not know what the change in my breast means.

likely:____:____:____:____:____:____:____:unlikely

Part C--This section of the questionnaire asks you what other people or groups would think you ought to do about the change in your breast. Please leave blank any questions that do not apply to you (for example, if you do not have any children, leave blank all the questions that ask about "my children").

- 1) Most of my co-workers would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

- 2) Most of my friends would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

- 3) Most doctors would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

- 4) My children would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

- 5) My parents would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

- 6) My doctor would think I ought to monitor the change in my breast for a while, rather than call him/her immediately.

likely:____:____:____:____:____:____:____:unlikely

7) My husband would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

8) My in-laws would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

9) My siblings (brothers and sisters) would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

10) Most of my relatives would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

11) The American Cancer Society would think I ought to monitor the change in my breast for a while, rather than call the doctor immediately.

likely:____:____:____:____:____:____:____:unlikely

Part C1

1) Generally speaking, I want to do what my co-workers think I ought to do.

likely:____:____:____:____:____:____:____:unlikely

2) Generally speaking, I want to do what my friends think I ought to do.

likely:____:____:____:____:____:____:____:unlikely

3) Generally speaking, I want to do what doctors think I ought to do.

likely:____:____:____:____:____:____:____:unlikely

4) Generally speaking, I want to do what my children think I ought to do.

likely:____:____:____:____:____:____:____:unlikely

5) Generally speaking, I want to do what my parents think I ought to do.

likely:____:____:____:____:____:____:____:unlikely

6) Generally speaking, I want to do what my doctor thinks I ought to do.

likely:____:____:____:____:____:____:____:unlikely

7) Generally speaking, I want to do what my husband thinks I ought to do.

likely:____:____:____:____:____:____:____:unlikely

- 8) Generally speaking, I want to do what my in-laws think I ought to do.
likely:____:____:____:____:____:____:____:unlikely
- 9) Generally speaking, I want to do what my siblings think I ought to do.
likely:____:____:____:____:____:____:____:unlikely
- 10) Generally speaking, I want to do what my relatives think I ought to do.
likely:____:____:____:____:____:____:____:unlikely
- 11) Generally speaking, I want to do what the American Cancer Society thinks I ought to do.
likely:____:____:____:____:____:____:____:unlikely

Part C2

- 1) I would talk to my co-workers to find out what they think I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 2) I would talk to doctors to find out what they think I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 3) I would talk to my friends to find out what they think I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 4) I would talk to my children to find out what they think I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 5) I would talk to my parents to find out what they think I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 6) I would talk to my doctor to find out what s/he thinks I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely
- 7) I would talk to my husband to find out what he thinks I ought to do about the change in my breast.
likely:____:____:____:____:____:____:____:unlikely

8) I would talk to my in-laws to find out what they think I ought to do about the change in my breast.

likely:____:____:____:____:____:____:____:unlikely

9) I would talk to my siblings to find out what they think I ought to do about the change in my breast.

likely:____:____:____:____:____:____:____:unlikely

10) I would talk to my relatives to find out what they think I ought to do about the change in my breast.

likely:____:____:____:____:____:____:____:unlikely

11) I would talk to the American Cancer Society to find out what they think I ought to do about the change in my breast.

likely:____:____:____:____:____:____:____:unlikely

Part D--This section of the questionnaire asks about your emotional reactions to finding the change in your breast.

Discovering the change in my breast made me feel:

1) Embarrassed and ashamed

extremely:____:____:____:____:____:____:____:not at all

2) Fearful and apprehensive

extremely:____:____:____:____:____:____:____:not at all

3) Anxious and panicky

extremely:____:____:____:____:____:____:____:not at all

4) Angry and annoyed

extremely:____:____:____:____:____:____:____:not at all

5) Surprised and curious

extremely:____:____:____:____:____:____:____:not at all

6) Disbelieving and shocked

extremely:____:____:____:____:____:____:____:not at all

7) Pessimistic and hopeless

extremely:____:____:____:____:____:____:____:not at all

8) Concerned and worried

extremely:____:____:____:____:____:____:____:not at all

Discovering the change in my breast made me feel:

- 9) Sad and depressed

extremely:____:____:____:____:____:____:____:not at all

Part E--This section of the questionnaire asks about your personal diagnosis of the change in your breast. Please respond to the questions, even if your answers are guesses.

- 1) What is your own diagnosis of the change in your breast?

- 2) To what extent does your personal diagnosis represent a life-threatening condition?

life-threatening:____:____:____:____:____:____:____:not life-threatening

- 3) How likely is it that the change in your breast is a symptom of breast cancer?

likely:____:____:____:____:____:____:____:unlikely

Part F--This section of the questionnaire asks about what your emotional reactions would be if the change in your breast turned out to be breast cancer.

If the change in my breast turned out to be breast cancer, I would feel:

- 1) Embarrassed and ashamed

extremely:____:____:____:____:____:____:____:not at all

- 2) Fearful and apprehensive

extremely:____:____:____:____:____:____:____:not at all

- 3) Anxious and panicky

extremely:____:____:____:____:____:____:____:not at all

- 4) Angry and annoyed

extremely:____:____:____:____:____:____:____:not at all

- 5) Surprised and curious

extremely:____:____:____:____:____:____:____:not at all

If the change in my breast turned out to be breast cancer, I would feel:

- 6) Disbelieving and shocked

extremely: _____: _____: _____: _____: _____: _____: not at all

- 7) Pessimistic and hopeless

extremely: _____: _____: _____: _____: _____: _____: not at all

- 8) Concerned and worried

extremely: _____: _____: _____: _____: _____: _____: not at all

- 9) Sad and depressed

extremely: _____: _____: _____: _____: _____: _____: not at all

Section II--Instructions

The remainder of this questionnaire contains questions that do not require you to respond as if you had discovered a change in your breast. From now on, please stop imagining that you have found a bump. Just answer the rest of the questions as you normally would. Thank you.

Part A--This section of the questionnaire asks you to provide some information about your actual medical history.

- 1) Have you ever discovered a lump in your breast? _____yes _____no

If yes: How many times? _____time(s)

Did you have the lump(s) examined by a doctor? _____yes _____no

If yes: How much time went by between your discovery of the lump(s) and you contacting a doctor? Please indicate the number of days, weeks, months, or years.

What was the doctor's diagnosis of the lump(s)?

- 2) Have you ever had any breast symptoms other than a lump? _____yes _____no

If yes: Please briefly describe the symptom(s).

- 4) How would you describe the type of woman who has a high chance of getting breast cancer?

- 5) To what extent do you match this description?

completely: ____:____:____:____:____:____:not at all

Part D--Below is a list of physical symptoms. We would like you to rate each symptom as to how frequently it is a symptom of breast cancer, when breast cancer is in its early, initial stages. Please use the following scale to rate each symptom:

- 1 = early, initial breast cancer never produces this symptom
2 = early, initial breast cancer rarely produces this symptom
3 = early, initial breast cancer sometimes produces this symptom
4 = early, initial breast cancer usually produces this symptom
5 = early, initial breast cancer always produces this symptom

Place the number that corresponds to your rating in the space preceding each symptom.

- ____ 1) convulsions
____ 2) sore or stiff muscles, back
____ 3) hot flashes
____ 4) shortness of breath, coughing
____ 5) weight loss
____ 6) hair loss
____ 7) pain or tenderness in breast, nipple
____ 8) change in appearance of wart or mole
____ 9) fever
____ 10) numbness, tingling in any part of body

1 = never; 2 = rarely; 3 = sometimes; 4 = usually; 5 = always

- _____ 11) headaches
- _____ 12) blurred vision
- _____ 13) weight gain
- _____ 14) lump or thickening in breast
- _____ 15) change in retraction or scaliness of nipple
- _____ 16) a sore that doesn't heal
- _____ 17) upset stomach, stomachache
- _____ 18) faintness, dizziness
- _____ 19) heartburn, indigestion
- _____ 20) ringing in ears
- _____ 21) constant thirst
- _____ 22) bleeding or discharge from nipple
- _____ 23) abnormal Pap smear
- _____ 24) chills
- _____ 25) chest pains
- _____ 26) running, congested, or bleeding nose
- _____ 27) weakness, tiredness
- _____ 28) change in size, shape, or skin of breast
- _____ 29) abnormal vaginal bleeding
- _____ 30) sore throat, hoarseness, difficulty swallowing

Part E--This section of the questionnaire asks you to describe breast cancer as a disease, by responding to the scales below.

Breast cancer is:

permanent: _____ : _____ : _____ : _____ : _____ : _____ : _____ : temporary

incurable: _____ : _____ : _____ : _____ : _____ : _____ : _____ : curable

disabling: _____ : _____ : _____ : _____ : _____ : _____ : _____ : empowering

dangerous: _____ : _____ : _____ : _____ : _____ : _____ : _____ : safe

Breast cancer is:

painful: _____:painless
serious: _____:mild
life-threatening: _____:not life-threatening
recurring: _____:not recurring
unpredictable: _____:predictable
contagious: _____:not contagious
inheritable: _____:not inheritable
unpreventable: _____:preventable
uncontrollable: _____:controllable
dirty: _____:clean
mysterious: _____:well-understood
unfair: _____:fair
bad: _____:good
punishing: _____:rewarding
unpleasant: _____:pleasant
undeserved: _____:deserved
a disease that results in per- _____: a disease that results in no
manent bodily changes _____:bodily changes
a disease that results in per- _____: a disease that results in no
manent personality changes _____:personality changes
a disease that requires long _____: a disease that requires short
treatment _____:treatment

Part F--The next section of the questionnaire asks you about your relationships with doctors, and about your general habits of seeking medical help.
(Please keep going--you are almost done, really!!)

1) In general, my relationships with doctors have been:

good: _____: _____: _____: _____: _____: _____: _____: bad

beneficial: _____: _____: _____: _____: _____: _____: _____: harmful

satisfactory: _____: _____: _____: _____: _____: _____: _____: unsatisfactory

comfortable: _____: _____: _____: _____: _____: _____: _____: uncomfortable

friendly: _____: _____: _____: _____: _____: _____: _____: unfriendly

2) In general, when you notice a physical symptom, do you usually go to the doctor right away or do you wait?

usually go
right away: _____: _____: _____: _____: _____: _____: _____: usually
wait

3) In general, do you consult doctors on a regular basis or only in emergencies?

on a regular
basis: _____: _____: _____: _____: _____: _____: _____: only in
emergencies

4) Think of the most recent time you called the doctor about a physical symptom you had noticed. What was the symptom?

How much time went by between your noticing the symptom and your contacting the doctor? Please indicate the number of days, weeks, months, or years.

Part G--This section of the questionnaire asks for your opinions about general health and illness issues.

Please use the following scale in responding to each statement below.

| | | | | | |
|----------|---|---|---|---|----------|
| 6 | 5 | 4 | 3 | 2 | 1 |
| strongly | | | | | strongly |
| agree | | | | | disagree |

Place the number that corresponds to your response in the space preceding each statement.

_____ 1. If I get sick, it is my own behavior which determines how soon I get well again.

_____ 2. No matter what I do, if I am going to get sick, I will get sick.

| | | | | | |
|-------------------|---|---|---|---|----------------------|
| 6 | 5 | 4 | 3 | 2 | 1 |
| strongly agree | | | | | strongly disagree |

- _____ 3. Having regular contact with my physician is the best way for me to avoid illness.
- _____ 4. Most things that affect my health happen to me by accident.
- _____ 5. Whenever I don't feel well, I should consult a medically trained professional.
- _____ 6. I am in control of my health.
- _____ 7. My family has a lot to do with my becoming sick or staying healthy.
- _____ 8. When I get sick I am to blame.
- _____ 9. Luck plays a big part in determining how soon I will recover from an illness.
- _____ 10. Health professionals control my health.
- _____ 11. My good health is largely a matter of good fortune.
- _____ 12. The main thing which affects my health is what I myself do.
- _____ 13. If I take care of myself, I can avoid illness.
- _____ 14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.
- _____ 15. No matter what I do, I'm likely to get sick.
- _____ 16. If it's meant to be, I will stay healthy.
- _____ 17. If I take the right actions, I can stay healthy.
- _____ 18. Regarding my health, I can only do what my doctor tells me to do.

Part H--This section of the questionnaire asks for your general feelings about yourself.

Please use the following scale in responding to each statement below.

| | | | |
|-------------------|-------|----------|----------------------|
| 4 | 3 | 2 | 1 |
| strongly agree | agree | disagree | strongly disagree |

Place the number that corresponds to your response in the space preceding each statement.

- _____ 1. I feel that I'm a person of worth, at least on an equal basis with others.
- _____ 2. I feel that I have a number of good qualities.

| | | | |
|----------|-------|----------|----------|
| 4 | 3 | 2 | 1 |
| strongly | agree | disagree | strongly |
| agree | | | disagree |

- _____ 3. All in all, I am inclined to feel that I am a failure.
- _____ 4. I am able to do things as well as most other people.
- _____ 5. I feel that I do not have much to be proud of.
- _____ 6. I take a positive attitude toward myself.
- _____ 7. On the whole, I am satisfied with myself
- _____ 8. I wish I could have more respect for myself.
- _____ 9. I certainly feel useless at times.
- _____ 10. At times I think I am no good at all.

Background Information

- 1) What is your marital status?
- _____ Never married
- _____ Married
- _____ Separated or divorced
- _____ Widowed
- 2) What year were you born? _____
- 3) Ethnic background:
- _____ White
- _____ Black
- _____ Hispanic
- _____ Asian
- _____ Other: _____
- 4) Religion:
- _____ Catholic
- _____ Protestant
- _____ Jewish
- _____ Other: _____
- _____ None
- 5) Are you employed? _____ yes _____ no
- If yes, what is your occupation? _____

6) What is the last year of school you completed?

- ☐ 8th grade or below
- ☐ Some high school
- ☐ Graduated from high school
- ☐ Some business or trade school
- ☐ Graduated from business or trade school
- ☐ Some college
- ☐ Graduated from college
- ☐ Some graduate work
- ☐ Graduate degree

7) How many people do you live with? _____ people

8) What is your household's annual income?

- ☐ \$10,000 or less
- ☐ \$10,001 - \$20,000
- ☐ \$20,001 - \$30,000
- ☐ \$30,001 - \$40,000
- ☐ \$40,001 - \$50,000
- ☐ \$50,001 or more

9) How many people does this income support? _____ people

If you are presently married, please answer the following questions.

1) What is the last year of school your husband completed?

- ☐ 8th grade or below
- ☐ Some high school
- ☐ Graduated from high school
- ☐ Some business or trade school
- ☐ Graduated from business or trade school
- ☐ Some college
- ☐ Graduated from college
- ☐ Some graduate work
- ☐ Graduate degree

2) Is your husband employed? _____ yes _____ no

If yes, what is his occupation? _____

