This is to certify that the

thesis entitled

Patient Reporting Behaviors
in Cases of Colon and Rectal Cancer

presented by

Walter R. Gregg, Jr.

has been accepted towards fulfillment
of the requirements for

Masters degree in Anthropology

Cheryl Ritenbaugh
Major professor

Date May 15, 1979

O-7639

PATIENT REPORTING BEHAVIORS IN CASES OF COLON AND RECTAL CANCER

By

Walter R. Gregg, Jr.

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Anthropology

1979

ABSTRACT

PATIENT REPORTING BEHAVIORS IN CASES OF COLON AND RECTAL CANCER

By

Walter R. Gregg, Jr.

Medical practitioners have postulated that the time period between symptom recognition and diagnosis of cancer is directly proportional to disease staging and prognosis. With longer time intervals considered as maladaptive for the patient's well-being, there has been considerable research to enhance early detection. Although this research attempted to better understand cancer patient behavior, sub-cultural differences were not considered in any detail. The present study explores sub-cultural factors associated with cancer patient care-seeking behavior and involves a retrospective record review of 135 deceased low-income Black and White male colorectal cancer patients drawn from four Mid-Western V.A. hospitals. In this sample, Blacks experienced cancer-related symptoms for a shorter period of time before seeking care than did Whites, contrary to expectations. Further, analysis of the effect of various symptom combinations on time between symptom onset and first physician visit indicates differences between racial groups consistent with published ethnographic accounts of folk medical beliefs.

To my wife

Deborah J. Gregg

ACKNOWLEDGEMENTS

This study was conducted through Michigan State University, College of Human Medicine, Department of Anthropology, and I therefore wish to thank the University and especially the Department of Anthropology for the privilege of conducting this study under their auspices. To the administrators of the Veteran's Hospitals of Ann Arbor, Allen Park (Detroit), North Chicago, and Hines (Chicago); I would like to express my appreciation for their patience and cooperation in providing the necessary data for this research. Without their help this study could not have been conducted. Also, I would like to express my gratitude to the many persons in various Departments who generously provided assistance in the proper administration of this research. To Dr. Dan English, Chairman of the Department of Surgery of Michigan State, for his enthusiasm in this research and his helpful letters of introduction to the various hospitals. And, especially to Dr. William Frey, International Rehabilitation Special Education Network, and David West, College of Osteopathic Medicine, for their generous assistance in the development of the statistical analyses.

To the members of my thesis committee and the reader of my thesis, I owe a special debt of gratitude--to Dr. Raulet who deepened my insights and integration of anthropological concepts; to Dr. Snow for her helpful comments as reader and for her useful insights into Black medical beliefs; and especially to Dr. Cheryl Ritenbaugh, who as chairperson of my committee has guided my progress and development in the field of anthropology to this point, I am very grateful.

We live in an information gap. Between what our body tells us and what we have to know in order to function, there is a vacuum we must fill ourselves, and we fill it with information provided by our culture (Geertz 1968: 27).

TABLE OF CONTENTS

Chapter

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The primary purpose of this study is to contribute to the understanding of people's responses to cancer. It is suggested that this understanding may be enhanced by providing information derived from research based on concepts from the science of human culture and society, with the help of research methods appropriate for the study of people as social beings. This study is based on a Veteran's Administration hospital record review of Black and White male cancer patients who postponed[1] seeking medical advice for symptoms resulting from either colonic or rectal carcinoma. The main focus here centers around the role of sub-cultural differences in response to illness, with the assumption that these responses present identifiable regularities patterned along cultural models common to groups of similar ethnic origin. The major criterion for this analysis is symptom duration, defined as that reported time period between the first appearance or recognition of symptoms (in this case related to cancer) and medical intervention as initiated by the patient.

With reported symptom duration as the dependent variable representing a measure of secondary preventative health behaviors, special attention is given to group mean duration times for analysis. Four general hypotheses are presented to test for the existence of interethnic group differences related to reported symptom duration. 1) The mean reported symptom duration times for patients representing different ethnic backgrounds will be significantly different. 2) Persons with a positive family medical history for cancer (i.e., some suspected occurrence on the part of the patient) will exhibit significantly different between ethnic group mean reported symptom duration times. It is also hypothesized that the within ethnic group mean reporting times will be significantly different for persons with a positive family medical history when compared to those with a negative family medical history. 3) Individuals with prior experience of nosologically similar (i.e., cancer related) conditions to the one under study will exhibit significantly different between ethnic group mean reporting times. 4) Of the symptoms found to be significantly related to symptom duration for the sample as a whole, those symptoms reported most often for the present cancer episode will differ in content between ethnic subgroups.

Although several variables were used in the analysis, this investigation is particularly concerned with the five main variables of 1) reported symptom duration time, 2) ethnicity, 3) family medical history, 4) personal medical history, and 5) the symptoms presented during a patient's initial diagnostic visit for cancer. The premise linking these variables together maintains that behavioral responses to cancer will differ according to ethnic background, and that a discovery of these differences is possible through an analysis based on group mean reported symptom duration times. The differences in these mean duration times is thought to result from ethnically molded medical beliefs and social orientations. These beliefs and orientations integrate illness information obtained through personal and familial medical experience and generate behavioral responses appropriate to an individual's cultural milieu. These responses, when analyzed in the context of reported symptom duration prior to diagnosis, should reveal themselves in the form of significantly different mean duration times for a given condition and ethnic group.

The above stated hypotheses are somewhat general in their prediction of the behavioral reponses surrounding the phenomenon of symptom duration. This is in large part due to the fact that there have been no similar studies performed. Considerable research was undertaken on this issue, then labeled patient delay, between the mid-1930's and 1960's in response to concern with only a few isolated social variables such as individual personality, role expectations, and socioeconomic status. Also, few used preventative health behavior as a dependent variable. Although it would seem that culturally oriented research into the differential effectiveness of preventive health behaviors would have been a productive approach to use, "good data do not exist" (Kegeles 1976:104).

Anthropological studies have demonstrated that all cultural systems provide some knowledge of diseases, their classification, and etiology (Rubel 1960, Frake 1961, Atkinson 1962, Price-Williams 1962, Hallowell 1963, Fabrega 1971, 1974). Studies such as Zola (1966) and Fantl and Schiro (1959) on Irish and Italian patients, Hetherington and Hopkins (1969) on U.S. Whites, Non-Whites, Scandinavians and Poles, and Fabrega and Zucker (1977) on Ladinos, Mestizos, and Indigenas of Mexico have also demonstrated the differential effects of culture upon the interpretations of various symptomatologies. However, even though such research involving the relationships between ethnicity and certain diseases states has been the concern of medical sociologists and anthropologists for sometime, as yet there have been no definitive studies concerning ethnicity and cancer. While it may be prudent to imply that the illness response mechanisms for non-malignant and malignant disorders are essentially the same, this assumption still remains untested. Furthermore, before illness behavior information can be translated into effective practical applications for cancer control programs, its functional components need to be established in relation to malignant disease. Once we can identify what illness behavior modifers exist for particular ethnic subsets of the population, we can begin to gain a general understanding about why people behave the way they do. With this understanding we should be able to identify what social groups are more at risk than others for longer symptom evaluation periods (i.e., symptom duration times) and then modify educational and detection emphases accordingly for those groups.

The present study, like much of anthropological research, has developed out of observations of human behavior within a social context. This research grew out of observations on how people have responded to the knowledge that they have cancer and how this response has lead to changes in the nature of social relationships between the patients, their families, and friends. It was observed that people who were near the patient socially were influenced not only in terms of their relationship with the patient but also in terms of how they viewed illness. It seemed that although the people involved spoke and generally understood the vernacular of modern medical science, they tended to interpret and respond to the situation in quite emotional ways. These observations and others lead to general questions about how an illness situation could influence the medical behaviors of these people surrounding the patient. Is it generally the case for people, when confronted with some disease like cancer, to ignore their basic understanding about "scientific medicine" in favor of more emotional responses? Are such emotional responses a reflection of a person's social attitudes and beliefs, and if so, would such a response lend itself to being significantly influenced by that person's sociocultural milieu?

With the heavy emphasis that the American medical establishment has been giving to alerting people to the benefits of early diagnosis for cancer, symptom duration prior to diagnosis seemed to be a perfect situation to ask some of these questions about illness behavior. Considering the history of this war on late diagnosis it was assumed that the relevant literature would be replete with research on human behavior and cancer. Although some studies were found to deal with preventive health behaviors in light of sociocultural variability, the vast majority of them did so in a quite superficial manner, with the most prevalent topic of concern being on the nature of the patient's responsibility for delay in seeking medical advice. Unfortunately this problem was almost always approached in ways that in part ignored how the patient came to make the decisions he did. It was almost as if the medical researchers were viewing behavior in the same light as they did disease; that is, as if both were pathologies to be categorized and manipulated within the confines of a laboratory methodology. In their report entitled "The American Health Empire" Ehrenreich and Ehrenreich have summed up rather nicely the manner in which many medical professionals have treated patients and in turn the problems these patients present for medical intervention. "Everything about the American medical system seems calculated to maintain the childlike, dependent, and depersonalized condition of the patient" (1971:11). To be sure, there are members of the medical system who are trying to change this attitude, but in the case of studies on symptom duration, such attitudes have had a dampening effect on the explanatory value of medical investigation into human behavior. For example, the depersonalizing manner used by researchers to approach the problem served to eliminate possible insights into why people reacted as they did. Such a pathogenically oriented approach can only offer limited insights into the examination of medical behavior, and needs to be well balanced by sufficient concern about the social context from which such behaviors arise.

Although the issue is not free from dispute[2], there are strong feelings within the professional medical community that this period of symptom duration has a direct relationship with poor prognosis in cancer patients such that the longer a person waits the greater the chance of having a poor prognosis (Blackwell 1963, Rogers 1974, Gerard 1975, Copeland 1976, 1977). Since the application of current means of treatment such as surgery and chemotherapy have only a limited ability to improve on colorectal cancer patient prognosis (Muldoon 1977), every effort should be made to bring people to medical care as soon as possible. In doing this we can at least maximize the effectiveness of such treatment regimens.

Research such as that outlined here is potentially valuable on both a theoretical and practical level. On the theoretical level such a study can provide additional information for the existing data base on disease and illness behaviors from which further questions may be generated. Also, the discovery in this study that ethnically related differences in behavioral response to cancer exist implies that data from non-malignant studies may be used to further enhance an understanding of behavioral response and malignant conditions. On a practical level such a study has obvious applications for the development of more efficient health planning programs through the identification of cultural groups at risk of taking longer evaluation periods relative to particular symptoms and medical conditions.

CHAPTER I

A THEORY OF CULTURE AND ILLNESS

Disease and illness have been universal experiences for human beings in all times and places. These experiences, although only a small reflection of an individual's total human experience, are the result of a fundamental interface between humankind's physical and social environments. Throughout time, these experiences have exerted an influence on the developmental character of human societies (Dubos 1973). In other words, disease as an environmental stress and illness as the social response to this stress have interacted throughout humankind's evolutionary history. Considering the theoretical importance of this interface, it is not surprising that anthropologists have found it most informative to investigate societal aspects related to disease and health. These researchers have noted a number of ways in which this interaction between the physical and social environments has influenced the development and maintenance of various social systems. For example, such interrelationships can serve in the maintenance of social control (Rubel 1960; Lieban 1962, 1973; Hallowell 1963; Paul 1963; Adams and Rubel 1967), and can affect the mode of enculturation and interpersonal relationships (Price-Williams 1962, Currier 1966, Adams and Rubel 1967, Ingham 1970).

Anthropologists interested in the "why" of human behavior have used this interface between disease and social systems as a stepping stone for research into a variety of health issues. Although a number of anthropologists have focused on contemporary health issues such as health policy implementation (Paul 1955, Firth 1957, Miner 1960, Foster 1961, Imperato 1969, Hochstrasser and Tapp 1970), it has only been within the last decade or so that specific research into issues of this nature have been pursued with any emphasis within the discipline. Until the early 1960's, the majority of anthropological research that provided information on how societies handled health problems was of a holistically enthographic nature. That is, few researchers went into the field with specific questions about health issues and their management. If these issues were discussed at all, it was often in the context of a general description of a society's particular cultural characteristics. Social systems that dealt with health issues were often described, but not analyzed in depth unless they were related to the investigator's particular research problem. Since this time, more and more research has focused on specific medical issues such as concepts of illness and health maintenance practices. While these studies often included analyses of how traditional medical systems interacted with orthodox Western medical practices, attention was usually given to non-Western medical beliefs with little emphasis on those systems existing within more modern industrialized nations.

An Ethnomedical Approach for the Study Medicine

A research approach common to many of these investigations involved an ethnomedical perspective. Ethnomedicine can be defined as the investigation of medical problems by an emphasis on how social and cultural factors affect their perception, expression and consequences (Fabrega 1975). An ethnomedical approach is therefore concerned with the sociocultural context in which medical problems arise and are handled. As noted above, the vast majority of ethnomedical research has been concerned with non-Western societies and has been rooted in such cultural domains as religion, magic, and witchcraft (Seijas 1973: 544). Such emphases are not surprising when one considers that these domains are, in comparison to orthodox Western medicine, performing tasks of similar importance in regard to illness and disease. The underlying assumption here is that the occurrence of disease creates certain sociocultural needs (e.g., identification, explanation, care and management) which require fulfillment. A cultural response apparently common in all societies has arisen to meet these needs in the development of medicine as a cultural system. And, illness behavior is, in part, an operationalization of the premises that exist within such a system. Unlike Western medical beliefs, such as a cultural system need not be limited to secular issues alone and can include the sacred as well. In general, a medical system can be viewed as having four basic functions: 1) a social construction of illness as a human experience; 2) a cognitive response to illness such as labeling, explaining, or interpreting; 3) therapeutic action; and 4) management of death and dying (Kleinman 1974, 1975). For the purposes of this thesis, only the first three functions will be considered in any detail in the following discussions.

In traditional and modern societies alike, such a medical system can often be grounded in a number of other cultural domains from the realm of interpersonal relations to science and magic. Also, in any given society, there can be a number of distinct systems of medical care in operation depending on the various social and epidemiological factors at play. An ethnomedical approach is therefore not limited to traditional societies and can provide a useful framework for viewing health behavior phenomena in more modern industrialized settings such as in the United States.

A short discussion of the medical belief system of low income Blacks in the United States can best illustrate how such a system can interact with a set of alternative beliefs (orthodox medicine) and at the same time retain a considerable degree of internal consistancy.

Several authors have noted that low income Blacks and often highly educated and socially mobile Blacks tend to lump phenomena which are kept conceptually separate by practitioners of orthodox medicine. For example, while modern Western medicine makes a distinction between science and religion, no event is considered purely secular by Black folk standards. "Importance is placed on oppositions between good and evil, natural and unnatural and all events, including illness, can be classified along such lines" (Snow 1978: 70). In this particular folk system, all illnesses are theoretically considered preventable if only care is taken by the individual. Therefore, each individual is responsible for knowing what positive actions are required as well as which conditions need to be avoided in order to achieve and maintain good health. Action is essential in this system, a failure to act appropriately will result in an illness for which responsibility must usually be accepted by the ill person.

Illnesses then are classified as either natural or unnatural (Cameron 1930; Wintrob 1973; Staiano 1974; Snow 1974, 1977, 1978a; Hillard and Rockwell 1978). This system of medical beliefs is quite coherent and is not just a random collection of isolated superstitions. "If the underlying premises are accepted, it makes just as much sense to the believer as the principals of orthodox medicine do to the health care professionals" (Snow 1974: 83). In this system, most problems in health status are thought to occur when the sick person is no longer in harmony with nature. In such a case, the person would be considered to be suffering from a natural illness. Since a person's good health is primarily based on such harmony, the rules of nature must be known and followed. One of the most common reported ways for a Black person to come down with an unnatural illness is by way of hexing, voodoo, crossing-up, root work or sorcery. Although a hex can be administered in several ways it is usually administered by placing some magical substance in the victim's food or drink. In sum, natural illness is the result of some disturbance in the natural order (which is often equated with good); whereas, unnatural illness is the result of supernatural forces often emanating from evil or malicious sources.

In this medical system, if a particular set of symptoms are considered natural in origin, help tends to be readily sought from the professional sector; whereas, if the symptoms are unnatural, they are not considered amenable to modern medical practices and traditional folk healers such as root doctors, herb doctors, spiritualists, or conjure men and women may be approached for aid.

Medical Belief Systems in Modern Society

Despite the strong reliance upon scientific paradigms in Western industrialized societies, one should not view modern professional or biomedical concepts of health and disease as a total reflection of Western medical beliefs. The modern medical profession is only one aspect of the total Western health system with folk medical beliefs and popular medical culture also representing important sectors for concern.

For heuristic purposes these three sectors of professional, folk, and popular medical beliefs can be viewed as a continuum of concepts which, although interrelated, tend to retain their somewhat distinct systems of classification and action. The folk and professional medical systems occupy opposite ends of this continuum because of their lack of congruency. The popular systems falls somewhere between the two. The professional or biomedical sector represents the major institutionalized system of medical beliefs for Western industrialized societies and has as its base a taxonomy and mode of action which stems from Western scientific thought. The folk sector has pragmatic aspects similar to orthodox medicine and incorporates those aspects of biomedical theory which are conceptually compatible with it. However, folk medical beliefs often transcend the theoretical limitations of Western medicine to embrace additional domains of experience. These domains which folk beliefs focus upon as important for the resolution of medical problems are often considered by orthodox practitioners to be in the realm of the sacred or the supernatural. As such, orthodox practitioners often profess neither understanding, competence, or even interest (Rubel 1964). Popular medical culture can be defined as a system of medical beliefs that are held by the medical laity. While this system tends to draw rather heavily on the terminology and general paradigm of biomedical thought, it translates them into more social and human terms, creating an amalgam of various folk and biomedical concepts. In commenting on folk and popular medical systems Kleinman has noted that

> we have hardly begun to examine their crucial interactions, which seem to be responsible for when patients are labeled sick, how they regard their illness, when they seek care, the type of care they seek, how they utilize health care facilities, whether they comply with treatment programs, and how they evaluate treatment (1975: 591).

Although the cultural domains of folk and popular medical beliefs are amenable to an ethnomedical perspective, the nature of the present research question on preventive health behavior and cancer requires that additional research perspectives be considered. This is necessary because of a lack of significant behavioral science analyses of the response of modern industrial peoples to such diseases as cancer with their medical, social, and personal ramifications for preventive health care (Kegeles 1976: 104). The present study uses a research orientation somewhat similar to past ethnomedical investigations, albeit with some modifications. These modifications result primarily from two differences between the present study and past ethnomedical research. The most important difference is that a different set of research questions are being asked of the data. Secondly, the abundance of non-anthropological investigations on symptom duration and cancer necessitates their inclusion into the overall discussion of the phenomenon. As will be apparent in the literature review, the major contributors to the study of symptom duration and cancer have been from the fields of medicine, psychology, psychiatry, and sociology.

Although some of the reviewed investigators demonstrated an awareness of a functional relationship between culture and health behaviors, most did not find it pertinent to their particular research questions. I do not mean to imply that medical, psychological, or sociological approaches are not valid for the study of disease-behavior interactions, but a strict adherence to these traditional perspectives can serve to present only a partial picture of what may be occurring. Fabrega (1977: 379) has voiced a similar caution regarding the use of traditional perspectives of cultural anthropology and psychiatry. In a sense, this noted lack of emphasis on the explanatory power of cultural factors resulted from certain inherent differences in the theoretical orientations of medicine, psychology, and sociology.

In part, these differences in research approaches result from the historical development of the respective disciplines. Although a thorough discussion of this history is beyond the scope of this presentation, a slight digression will serve to clarify why they do not emphasize the culture concept as an analytic tool. The discipline of medicine in Western industrialized societies is based on what has popularly been labeled the "biomedical model." Science with a capital "S" has become the belief system central to the Western medical model. Disease as a "pathological" state defined in terms of somatic parameters is the major premise for this system. Disease is seen as a process that begins with symptoms, and then proceeds to clusters of symptoms, to syndromes and ultimately to a specific pathogenesis. "It leaves no room within its framework for the social, psychological, and behavioral dimensions of illness" (Engel 1977: 130). Because of this non-social orientation there develops a gap between what the patient is asking for and what the physician has to offer. As Scotch (1963: 35) has noted, modern medicine tends to forget that the patient, in order to be treated successfully, needs to be treated and viewed within his frame of reference and cultural values regarding disease.

Psychology seems to have taken a tack similar to that of professional Western medicine and although there is some distinction made between illness as a process and disease as an event, it is still within a pathological or aberrant context (Preston 1966: 1109). The most important distinction that can be made between an anthropological approach and the one used by the psychologists and psychiatrists who have written about symptom and cancer is problem orientation. While there are a number of psychiatrists (notably Fabrega 1971, 1974; Kleinman 1974, 1977; and Kiev 1964) who have emphasized a sociocultural perspective in their research, the psychiatrists and psychologists who have worked on symptom duration have not taken this approach. These researchers, much like the physicians who have also written about this phenomenon, have formulated their research questions from the vantage point of the professional medical sector.

Sociologists on the other hand have become somewhat isolated from the culture concept due to their tendency to emphasize analyses of the internal evolution of Western institutions (Wax 1970). In general they seem to be concerned with a finer grain of difference than anthropologists. Although sociologists do look at differences between subcultural groups and topics such as the sociology of popular medical knowledge, for most, these questions are not a major topic for concern. With this tendency to focus on such fine grain topics as socioeconomic factors that affect preventive health behavior in one kind of culture, certain aspects of the social context become blurred or invisible. This exclusion of some of the broader aspects of the social context does not hinder the sociologist's goal of explaining within culture differences and similarities. However, such an exclusion precludes the culturally holistic approach traditional to anthropological research. To be sure, there are sociologists that can be said to be doing anthopology and anthropologists doing sociology, for there are no real hard and fast boundaries that can be drawn between the two perspectives. Sociologists and anthropologists often use similar research methodologies on quite similar problems, but the questions they ask are usually from two different contextual levels. When presented with the same observations on differences and similarities between two social groups, sociologists would tend to ask a different set of questions than anthropologists about why the differences are important.

In sum, while the approaches used by physicians, psychiatrists, psychologists, and sociologists in the study of symptom duration and cancer are quite valid, the exclusion of the patient's cultural point of view presents only a partial picture of the total stream of events. While a person's cultural mileau is not a major topic of concern for these researchers' it is a logical outgrowth of anthopological theory. By augmenting these investigations with research that poses questions based on this anthropological sensitivity, the potential for filling in such gaps in the total picture is enhanced. Thus, in order to add to the explanatory potential of the above approaches, the concept of culture has been included for an investigation of the phenomenon of symptom duration and cancer.

The Culture Concept and Systems of Medicine

Although most anthropologists would agree that an awareness of human cultures and cultural differences is a fundamental postulate for the research questions they are asking, there would be some disparity as to what the concept of culture implied. To be sure, one needs to take only a brief glance at the literature to see that considerable variability exists about what constitutes culture (cf. Kroeber and Kluckhohn 1952). This variability is due to the abstract nature of the term. In being an abstract concept, the term is open to as many definitions as there people who feel a need to define it. As Hallowell has so aptly put it, culture as an abstraction "is our abstraction, a convenience adopted to the kind of analysis we wish to make of the problems we wish to pursue" (1953: 611). Culture, like the concept of the gene, is an analytical heuristic tool that enables the investigator to focus in on those relationships which are considered most pertinent to the problem at hand.

In the case of this present study it has been necessary to abstract and characterize sociocultural factors in broad terms so as to permit the type of epidemiological analysis employed. Although this form of analysis was selected because of the characteristics of the data used, it should not be overlooked that this analysis is informed by an ethnomedical perspective designed to enhance an understanding of the fundamental nature of cultural reality. In this case, culture as an abstraction is seen as being based on the observation of individual members of some society whose behavior is manifested in particular responses to particular situations. These responses are, in a sense, extrinsic representations of thought and action resulting from an interplay between culturally determined behavioral rules or instructions and the needs generated by particular environmental circumstances. For example, if he suspects that someone harbors malicious feelings towards him, a low income Black would tend to interpret an otherwise non-threatening symptom as evidence of sorcery and respond accordingly. Since the occurrence of such responses are in large part dependent upon the symbolic character of cultural rules for behavior, the responses like the rules that foster them are embellished with systems or complexes of symbols (Geertz 1973). And, it is this interrelationship that makes such responses analyzable in cultural terms.

A definition of culture which seems most appropriate for this present research can be seen in the works of anthropologists like Clifford Geertz. For him culture, in terms of these symbols, is "the fabric of meaning in terms of which human beings interpret their experience and guide their action" (Geertz 1957: 34). Furthermore, Geertz feels that "culture is best seen not as complexes of concrete behavior patterns, customs or traditions, . . . but as a set of control mechanisms . . . for the governing of human behavior" (1968: 24). In this study, culture then is considered as being dominated by various sets of regulatory ideas (conveyed by systems of symbols which add meaning to experience) and act as control mechanisms that permit humans to transform an essentually chaotic universe into something with meaning, order, and predictability. I agree with Geertz that human behavior, without these regulatory ideas for giving meaning to experience, would be a totally unmanageable chaos of pointless acts embedded in an unpredictable experience.

> Culture, the accumulated totality of such (response) patterns, is not just an ornament of human existence but--the principal basis of its specificity--an essential condition for it" (Geertz 1968: 24-25).

People can adapt themselves to any situation their imaginations can cope with, but their flexibility in this regard has limits depending on the nature of their particular world view and the extraneous circumstances involved.

Put very succinctly, a peoples particular world view entails a culturally oriented mind set for ordering the universe. In commenting on the relationship between world view and health related concerns, Pellegrino (1963: 10) has stated that,

> every culture has developed a system of medicine which bears an indissoluble and reciprocal relationship to the prevailing world view.

Through an interaction between a peoples' world view or cognitive framework, their tone of life, and their external environment arise particular behavioral responses that order and reaffirm their existence. In these terms Western professional medicine can be seen as being dependent upon a world view that provides a particular explanation for illness causation and management. This development is a function of Western industrialized concepts of illness and disease and in being a cultural system it is not the only means by which people in industrialized societies can order their health related experiences. The medical system of American low income Blacks, with its classification of illneses as either natural or unnatural, is a good example of how people can maintain two classificatory systems without conflict.

The point here is that similar conceptualizations about particular aspects of the health experience do not preclude their inclusion into more than one medical system. The converse is also true in that fine grain differences can be found to exist in the form of regional variations within a single medical system. A case in point here involves the hot and cold theory of disease which is widely spread throughout Latin America. In this situation the system of hot and cold classifications of illness, foods, medicinal plants, and now even Western medicines can be seen to vary while the premise of balancing hot with cold elements remains essentially the same (Harwood 1971, Logan 1978). When considering the low income Black and Latin American systems as they interact with the Western professional system, conflicts in what the patient expects and what the Western physician has to offer can be noted (Harwood 1971, Snow 1977, Logan 1978). For example, Whitten (1962: 322) in his study of Black medical beliefs in North Carolina noted that all of his sources reported that a physician using scientific practices could not help an individual who was under the influence of a spell. These conflicts can sometimes hinder the Western physician's attempts at effecting "proper" treatment. And, these perceived problems in patient compliance are often thought to result from the patient's lack of knowledge about the importance of the "required" treatment regimen. This way of looking at the problem fails to recognize that the patient may feel that there are other equally or more important measures that should be taken or that the ones used should be employed in a different fashion. When considering problems in the delivery of health care to persons with world views quite distinct from that of Western medicine, there is considerable potential for misconceptions and conflict of interests to arise. To be sure, such problems can occur and be analyzed within a single culture as well as between two distinct cultural groups. However, in either case, the misconceptions that can arise between health provider and client can be especially confusing if no consideration is given to the patient's particular cultural milieu.

At this point it is important to note that this theoretical construct with its abstractions of culture, world view, and response mechanisms does not have a direct relationship with what may be happening on the ground of human interaction. This construct is merely a heuristic device to aid in the understanding of human interpersonal relationships. By using such devices the investigator can translate observed behaviors into meaningful terms relevant to the research questions asked. This framework for investigation is certainly not the only way of approaching those data one wishes to analyze. All investigators should remain aware of this caution and of the possibility that their particular theoretical approach could lead them to focus on domains of human experience where analyzable differences do not exist and to exclude those where true differences occur. For example, although in the present study any observed intergroup differences in health related behavior is considered to have evolved out of differences in intergroup world views, an analysis of such a relationship is beyond the scope of the research tools available. It is always possible that different behaviors could be the result of other less distinguishable or more subtle differences that the analysis was not designed to uncover (e.g., body image or concepts about the self).

From the discussion above it should not be assumed that the various aspects of a culture need to be in complete harmony at all times in order for the culture to persist. To be sure, a change in any aspect of a culture frequently affects the relationships that exist between other cultural components, but there is considerable flexibility. This can be seen in the way the Puerto Ricans and Guatemalans have incorporated Western medicines into their hot-cold system.

One of the main reasons behind this variability is the nature in which culture is transmitted to new members of the group. Culture, with its dependence on extrinsic sources of information for development and maintenance, relies upon a learning process (enculturation) that utilizes symbols in the form of gestures, actions, and words. Since there is always variability, cultural systems possess the ability to change in response to different circumstances.

Regarding the continued existence of medical belief systems Young has pointed out that

> a people's medical beliefs and practices persist because they answer instrumental and moral imperatives, and they are empirically effective since they enable sickness episodes to communicate and confirm ideas about the real world (1976: 5).

This is also the case for Western professional medicine; however, it is necessary to realize that in place of traditional forms of support for the medical system (e.g., religion and magic) has arisen a different belief system, "scientific knowledge." While this source of support may be substantively different from religious and magical belief systems, in function it is the same, and as Engel (1977: 130) has suggested, it could be considered a folk medical system in its own right. The Western medical system, like traditional systems, can be seen as involving people on two levels, as a group and as individuals. However, unlike most traditional systems, the Western professional system interacts with groups of a more culturally heterogeneous nature and because of this fact certain problems arise that can

can reduce the efficacy of such medical practice. The point here is not whether the Western system is more valuable in reducing the impact of disease or illness than a more traditional medical system, but that the majority of the Western medical practitioners conceive it as being more valuable. Western physicians are more action oriented than knowledge oriented (Freidson 1970: 168) and therefore, they would be less inclined to even consider such discrepancies because their prime concern is healing the patient.

Following Young's argument, people living in the United States should have a marked tendency to respond to illness in a biomedical manner because of the strong presence of Western professional medicine in this society. In other words, the majority of persons born in the U.S. grow up with a set of biomedical terms that become integrated into their medical experiences through various social mechanisms of learning (e.g., peer groups, family interrelations, books, radio, and television). The result is that there is a strong tendency for such societal members to somatize a variety of quite social experiences. For example, people who have grown up under such a biomedical systems might tend to express anxiety or stress in physical or biomedical terms, whereas, individuals from other subcultures like the American low income Black might speak of being hexed or rooted. People tend to live and express their experience in terms relative to their particular cultural or subcultural background.

In the U.S. society an individual's use of biomedical principles in response to illness has the potential to vary depending on the person's position in the total social system. For upper middle class Whites, biomedicine tends to comprise a large part of their folk medicine, whereas, lower class Blacks tend to have a more dissonant folk system by virtue of their peripheral membership in the society. With clinical medicine involving largely a dramaturgical experience, a differential internalization of biomedical principles should lead to different experiences in clinical encounters. Thus a major problem develops in regard to the different approaches to and conceptions of health, disease and medical treatment used by both the recipients and the suppliers of medical care. The results of such differences can be readily seen in the problem orientation and scope of investigations into symptom duration and cancer. Such orientations can, and in many cases do, lead to a misuse of resources in the delivery of health care by fostering unnecessary conflicts between the medical practitioners and the people they serve. Also, as mentioned earlier, these attitudes of the supplies of health care tend to reduce their chances of efficiently resolving various perceived problems in health care delivery because they are aware of only part of the situation. If we could accurately describe and understand health and illness behavior from the patient's point of view we could begin to formulate health services that do not conflict with such cultural values and beliefs (Simmons 1953, Paul 1955, Hochstrasser and Tapp 1970, Messing 1976).

Although much of the work done by anthropologists in the domain of medical belief systems has been concerned with the testing and development of anthropological theory, there is a growing trend for current research to deal with the applications of anthropological knowledge to medical settings and particularly to the field of public health (Vargas 1976: 441). As mentioned earlier, disease and illness have contributed to the biological and behavioral development of mankind, and the behavioral processes that are involved with the occurrences of disease provide a most informative area for investigation. Research in this area involves the testing of anthropological theory in regard to recurring behavioral responses and sociocultural variability.

An Experiential Framework

The approach used for investigating behavioral responses and disease in this presentation will involve Fabrega's (1974: 142-148) suggested phenomenological or experiential framework. This framework is firmly anchored in an ethnomedical perspective and entails a concern with past experiences along with a cultural awareness for an analysis of such health related responses. A concept of major importance to this framework is terms an illenss behavioral model. This model entails "general responses to stress and coping behaviors as well as more specific and socially organized behaviors" (Fabrega 1971: 213), and as such represents an operational aspect of the previously defined concept of culture. Another key concept in this framework is labeled illness recognition and defines the phase or process in which ego alone or with alter(s) decides that according to various criteria an illness or illness-free state exists. "This is a crucial decision in the health-illness-medical-care cycle and should not be assumed to follow an invariant pattern across cultures" (Fabrega 1971: 214).

Before proceeding further it will be necessary to make a distinction between the concepts of disease and illness. Disease is a biomedical category that heavily implicates the individual with a system of biomedical classification, and illness is a sociocultural category in which much of a person's response is determined by the attitudes and advice of people. Followers of the Western biomedical model see disease as involving changes in specific organs of the body caused by particular agents in predictable ways. As Engel has noted,

> (this biomedical model) assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables . . . it also demands that behavioral aberrations be explained on the basis of disordered somatic (biochemical or neurophysiological) processes (1977: 130).

Although there is a strong tendency in the United States to incorporate some of these concepts into one's illness experience (i.e., the emphasis on somatization of complaints) a complete biomedical interpretation such as that used by the modern medical professional would rarely occur to the person experiencing the disease. For the patient, altered bodily sensations are seen to fuse with the socio-cultural interpretations and form a culturally valid picture which symbolizes a disarticulation of the self. It should be noted here that in the case of the patient as opposed to Western medical practice there is no dichotomous relationship between mind and body and the self represents the total individual.

In sum, even though the individual may use biomedical terms, his response to this condition tends to be very social and emotional in nature. The nature of this difference lies in the fact that unlike the medical practitioner who sees the problem in discrete biomedical terms, the sick person feels that something is wrong with him as a whole individual, and his sickness is likely to be reflected in everything he does. His illness represents both an individual and a social event where he attempts to come to grips with his physical and mental well-being by evaluating the meaning of any symptoms of which he has become aware. This illness behavior response is broadly defined as one dimension of a set of cultural roles and strategies which extend from a person's social and cultural environment and which have evolved to cope with the potential chaos of disease situations. These rules and strategies, which are under continual modification, first take shape through the observation of illness models acted out by members of the person's immediate social network (family and significant others) through the process of enculturation. The result of this process is the establishment of a system of patterned discrimination and categorization of illness symptoms and the appropriate responses thought to be most efficacious in reducing such symptoms or at least accepting them. This illness behavior response in time should become modified depending on the nature of additional personal experiences. The nature of these experiences will depend on interactions with other people (e.g., physicians, traditional healers, co-workers, friends or the corner druggist) and on other sources of illness information such as books, radio, and television.

This illness behavior process is composed of three interdependent stages; recognition of some altered health state, an evaluation of this state, and the initiation of some ascribed mode of action in response to the evaluation. With the concern of this project being on those influences operating prior to the last stage, only the first two stages will be considered. These two stages can be broken down into analytical elements that are helpful in assessing cultural influences on help seeking behavior in response to disease.

The occurrence of a particular disease usually involves a process that gives rise to certain organismic changes which result in altered body sensations. Of course, in populations where such symptoms or sensations are ubiquitous, both the society and the individual could perceive the condition in conventional terms such as being quite normal as part of the ageing process or to be expected with particular occupations (Koos 1954, Mechanic 1974). In situations where this is not the case, people rely upon other sources of information for defining the character and importance of such sensations (Mechanic 1974: 61). Several authors have noted that there is a cultural aspect to these other sources of information and that these culturally oriented factors can noticeably influence a person's response to various symptoms (Zborowski 1952, 1969; Opler 1961; Zola 1966; Hetherington and Hopkins 1969). These influences are related to person's particular socio-cultural milieu and can involve a number of factors such as concepts about body function and image (Opler 1961) and concerns about disease causation (Glick 1967: 49). This implies that, within a culturally homogeneous group of people, an analysis of the patterns of response to particular symptoms or sensations should uncover clues for the differential effects of a people's cultural milieu when compared to another culturally homogeneous group. These response patterns should reflect a medical taxonomy and course of action that corresponds to particular cultural categories specific to particular groups. If a person has "gastrointestinal changes that are reflected in altered abdominal sensations of some sort, they will be perceived and given expression in terms of the relevant categories that the person has at his disposal" (Fabrega 1977: 211).

Although an analysis of symptom response can give some insights into how cultural factors can influence illness behavior, the evaluation stage has even more explanatory potential, especially when a phenomenological perspective is used. The types of experiential categories useful for analysis in this stage include such sources of illness and disease information as: 1) personal medical experience; 2) family medical experience; 3) interaction with persons other than family members; and 4) exposure to other extrinsic sources of information. An individual's personal medical experience involves a first hand contact with illness. Contrary to popular "scientific" opinion, people do not experience medical situations as discrete event but on a continuum. That is, they view their present medical situation in relation to what their past personal medical history has been and by comparing it with the histories of others. For example, if an individual has had a history of intermittent rectal bleeding due to peptic ulcers or hemorrhoids, he may be less likely to interpret a recent onset of bleeding as needing intervention than if he had never had similar problems before. In the process of evaluating our health status, we constantly weigh all of the possible explanations for particular symptoms. While some of these alternatives stem from past medical experience, they still pass through a cultural filter and are perceived accordingly.

Exposure to family medical problems presents a situation with the addition of various behavioral models provided by members of one's immediate social network during the developmental and maturational process. Included in the observation of these illness behavior models is information provided in the form of informal discussion which includes evaluations on how well or how poorly a person may be managing their condition. For example, Mechanic (1974: 61) has noted that children learn at very young ages how to "respond to various symptoms and feelings in terms of reactions of others to their behavior and social expectations in general." O'Frake in his study of the Subanun, has presented evidence in support of Mechanic's observation (1977: 185) as have other researchers under different social circumstances (Hallover 1972, Pless and Satterwhite 1973, Litman 1974). The substance and method of communication of illness behavior from one's societal members is the same as for his familial source of information, except in the temporarl sequence in which they occur. As Friedson (1970: 290) has correctly noted, the degree of cohesiveness of the social group of which a patient is a member determines to an extent how that person will respond to an illness episode. This information then is secondary and in a sense less influential because of its peripheral relationship in the enculturation process as compared to the family.

Exposure to other extrinsic sources of information, such as less personal social contacts, and (especially in industrialized societies) modes of communication such as radio and television, can provide behavior cues which have an impact on a person's overall illness behavior. These factors are less demonstrable than ones previously listed because of their diverse nature and have a lower potential for analytic application. This makes an analysis of such influences a long and involved process that is more suitable for follow-up studies performed after a pilot study has been conducted on the more accessable factors.

Illness behavior information is transmitted by the family, its kinship, and friendship networks within a cultural context and influences the manner in which individuals define and act upon symptoms or life crises. Most of the researchers concerned with health care utilization issues have given some attention to these implications, albeit there have been few attempts to specify their nature (Mabry 1964, Haggerty 1965, McKinley 1972). As in the investigations involving symptom duration, these utilization studies have tended to look at all patient behavior as a homogeneous set. Many have not given emphasis to the fact that although biomedical conepts have provided help for certain classes of medical problems, such concepts are "not only irrelevant to others (classes of problems), but misleading because they misdirect our efforts" (Eisenberg 1977: 19). It is within the context of problems such as these that anthropological theory has the potential to not only test certain questions about human behavior in regard to cultural factors, but to provide clues that may aid in the implementation of more effective solutions. The theoretical concepts of the biomedical model used so often by Western medical practitioners and reseराchers needs to be appended with cultural concepts in approaching problems of health behavior and medical care systems in modern societies.

The present investigation involving U.S. Whites and U.S. Blacks (both with low levels of income) draws on the premise that certain subcultural differences exist relative to preventive health behavior. A review of the literature on low income Blacks indicates that the beliefs previously discussed are fairly widespread among this U.S. population (Wintrob, Fox and O'Brien 1971; Michaelson 1972; Snow 1977; 1978b). Since this system appears to be fairly homogeneous and shows some contrast with that of the beliefs held by the White majority, a comparison of racial differences in health behaviors would seem amenable to the approach outlined above. One could suggest that the congruence between biomedicine and subcultural factors may be greater for Whites than for Blacks. Although this does not imply any directional relationship for preventive health behaviors and cancer, it does make a case for expecting some differences to exist. However, any group difference uncovered can not automatically be assumed to originate from these basic differences. For example, observed behavioral differences could be the result of more subtle variations in body attitudes or certain aspects about bodily function or even socioeconomic factors such as past patterns of health care utilization. Research of this nature provides a basis for examining some of these possibilities and clearly does not depend upon the comparison of two separate cultures to provide useful and meaningful information on such issues.

CHAPTER II

A HISTORICAL BACKGROUND INTO THE STUDY OF SYMPTOM DURATION

Investigations into the phenomenon of symptom duration have been conducted since the early 1900's and have resulted in hundreds of professionally published reports (cf. Kutner et al. 1957, Blackwell 1963, Antonovsky and Hartman 1974). Most of these studies were designed and carried out by medical and paramedical personnel. These researchers viewed symptom duration in light of such pathological implications as length of duration and its effects on patient prognosis. This concern with pathological implication (as mentioned earlier) was due to the general somatic orientation of the Western medical model. When this orientation was combined with the premise that a longer duration resulted in a lower survival potential and with the often paternalistic stance that physicians took in regard to patients, symptom duration became weighted with value judgments. The length of symptom duration was seen as a biologically maladaptive phenomenon and the longer it tood for a person to come in for care, the more that person's actions were judged to be a negative value. The result of this negative connotation was the creation of the concept of "patient delay" in seeking medical care. With this orientation investigations were structured to enable researchers to fix some degree of culpability on the individuals involved. By identifying individuals or classes of individuals prone to delap it was assumed that the problem could eventually be corrected through appropriate education. Also by quantifying the actions of these individuals over time it was held that various educational programs could be evaluated for their effectiveness in altering unwanted behaviors.

Generally, delay was defined as that period of time between the conscious recognition by a patient that a given condition or sensations may be pathological (i.e., a symptom of something wrong) and the point at which a therapeutic action relating to that symptom or symptoms is undertaken. This period of delap was divided into two components: "patient delay," the time elapsed between a conscious recognition of a pathological symptom or sign and the first presentation and the initiation of therapeutic action. Several terms have been noted in the literature which may shed some light on the type of attitudes medical professionals used in the study of retarded or prompt health care utilization. Terms like reasonable or undue delay (Pack and Gallo 1938: 443) and avoidable or unavoidable delay (Kutner et al. 1958: 96) suggest that persons using such terms felt that the physician or patient fully understood the problem from the stand point of the medical system. While this is certainly possible for the physician it would not seem very likely in the case of the patient. Even simplistic terms like delay or non-delay (Goldsen et al. 1957:1, Henderson et al. 1958:27) tend to carry similar connotations. The impartial term of lagtime suggested by Worden and Weisman (1975:69) is perhaps an indication of some change in this general attitude toward the patient who takes a little longer than others to come in for advice or care.

Evaluations of delay have for the most part been based upon some arbitrary point in time beyond which the delayer was held clinically responsible. The most frequently used definition of this criteria of delay was originally defined in a study by Pack and Gallo "delay on the part of the patient is designated as reasonable when...it is under three months; as undue delay when this interval is three months or over" (1938:443). Pack and Gallo's study represented the first large scale investigation (1,000 patients) into the phenomenon of symptom duration and as such influenced many subsequent studies to also use a three month marker (Leach and Robbins 1947, Gray and Ward 1952, Henderson et al. 1958, Cameron and Hinton 1968). However, investigators have used time periods ranging from one week (MacDonald 1947, Sugar and Watkins 1961) to four months (Shedden 1939) with most being one month (Stearns 1950, Guiss 1955, Soost and Thomas 1969). Although the use of such time markers has become traditional in the study of delay, current researchers have suggested using it with caution (Shuval 1970) or not using it at all (Hackett et al.

1973). Also, some investigators are beginning to question the concept of delay as an effective means of looking at the situation in general (Worden and Weisman 1975).

Existence of Delay

Despite the fact that there have been problems in identifying delay in cancer diagnosis (with the exception of heart disease, most delay studies have focused on cancer), much effort has been made to demonstrate its existence. Wainwright (1911) set the stage for later studies of delay when he reported on the effects of "patient procrastination" and physician's failure in recognizing cancer on patient prognosis. After the publishing of Wainwright's research, studies on the frequencies of delay became more widespread (Gibson 1915, Farr 1919, Simmons and Daland 1920, 1924). These earlier studies made no attempts at dividing delay into the above mentioned classifications of avoidable and unavoidable delay or as Blackwell (1963:6) has stated "bad delay or not-quite-so-bad delay". Delay was divided into patient and physician categories but the evaluation was totally negative. Not until after the Pack and Gallo study in 1938 did delay become classified as either a negative or a not so negative action. Subsequent investigations reported that for the most part, physician delay (defined as more than one month) was reported from twenty-three per cent (Cameron and Hinton 1968) to seventy-six per cent (Henderson 1966). Unfortunately the only conclusion that can be drawn from an examination of these data is that delay exists.

Except for the uniformity of using a three month temporal marker for delay (which excludes many studies using other definitions of delay) and a general focus on cancer, these studies are difficult to compare for several reasons. First, there has been no strong attempt at controlling for specific cancer sites even though it has been common knowledge for some time that cancer sites have variable rates of growth and development (even within single sites, Cooper and Smith 1975, Hughes 1976). Second, by not controlling for the cancer site, problems in comparability arise because of the degree of variability in site related symptoms. Third, care has not been taken to adequately identify the populations from which the samples have been drawn and most populations that have been clearly outlined have not been analyzed for secular trends. There are exceptions to this aspect of sample identification; the research of Pack and Gallo (1938), Leach and Robbins (1947), Robbins et al. (1950), and Robbins et al. (1953) were all conducted on patient populations from the same institutions over a period of twenty years. But even with these studies one can not be sure if the patients were drawn from comparable populations since many factors can alter institutional utilization (e.g., changes in institutional status as treatment centers). Last, as also pointed out by Antonovsky and Hartman (1974: 109) there is a methodological problem concerning the nature of the questions asked of the patients and the setting in which the questions were asked. "Quite conceivably, one might obtain different answers from the same person, depending upon whether he is asked about a pain episode, a persistant pain, or an unusual sensation" (Antonovsky and Hartman 1974:109). Blackwell (1963:9) quite adequately sums up when she states,

> Clearly, setting a criterion for patient delay in terms of time does not permit a realistic analysis of the nature and meaning of delay . . . neither an attempt to fix responsibility for delay on physician or patient nor an effort to show differences in delay across time can do more than point up the fact that the phenomenon of delay exists, has existed and will continue to exist, and that inquiry into the nature of the phenomenon might be more productive in terms of enabling health practitioners to deal effectively with the problem.

Variables in Symptom Duration

As mentioned above, the literature on symptom duration prior to diagnosis and treatment is almost entirely in the field of cancer. However, the investigators involved in this research have approached symptom duration from several directions. Generally there are five classes of variables that have been used most frequently in the study of delay. These classes of variables can occur in any combination and include: (1) sociodemographic factors such as age, sex, occupation, income, education, social class, religion and rural and urban residence patterns; (2) cancer related factors such as knowledge about the existence of cancer and its various symptoms, and previous experience with cancer in either a direct or indirect manner; (3) psychological factors such as a person's general emotional well being, their intellectual capacity, hypochondria, concepts of body image, and coping behaviors related to fear of cancer; (4) concepts of physicians and the health care system such as attitudinal and behavior relationships of an individual to physicians and the existent health care system; (5) sociocultural factors like ethnicity and its concomitant aspects such as culturally learned behavioral dispositions toward medical care and preventive health behavior, and the effects of attitudes and behavior of others on individuals who have noticed the presence of unusual signs or symptoms.

Sociodemographic Factors

Although patient age has been a frequently tested variable for causal effects on delay in a large number of studies, its significance remains unclear. There appear to be more positive than negative correlations for the effects of age. The majority of the research reporting an association with age and duration have indicated that older persons seemed to wait the longest before seeing a doctor (King and Leach 1951, Cobb et al. 1954, Shapiro et al. 1967, Fink et al. 1968). However, a few studies (Soost and Thomas 1969, Antonovsky 1972) have reported a tendency for younger people to wait longer than older people and one study (Breslow and Hochstim 1964) reported that persons under the age of thirty and over the age of sixty-four tended to wait the longest. These seemingly conflicting results do not necessarily detract from the possibility of an age relationship but the number of non-associations reported certainly calls any assessment of a causal nature into question (Guiss 1955, Titchener et al. 1956, Antonovsky 1972, Hackett et al. 1973, Worden and Weisman 1975). For example, since elderly people tend to be more heavily represented among the lower socioeconomic and poorly educated groups, there is a possibility that age could covary with economic and educational status. Such a relationship could present different results for age effects depending on the nature of the intervening variables. Also, as Blackwell (1963:14) and Goldsen (1963) have mentioned, experience (e.g., past relationships with physicians) can also be a factor of age and further confound the influence of age on duration.

Another reason why the correlations with duration and age should be approached with caution concerns the fact that the morbidity by age of most cancer sites tends to be skewed to the right with an over representation of the elderly in the long duration classes. The only way to avoid this possible error in sampling is to control for the cancer site so that the rate of incidence for age is known. Unfortunately, except for two studies that involved breast cancer screening clinics (Shapiro et al. 1967, and Fink et al. 1968) none of the studies showing a correlation with older age and length of duration have controlled for site. Although the screening studies did control for site of cancer and reported that older people waited longer than others, there have been reports of younger people waiting longer in similar screening programs for the same site

Antonovsky 1972). Regardless of the information made available through these studies, we cannot be sure that the person who delays seeing a physician for some condition or symptom would be the same type of person who would reject participation in a screening program or delay seeing a physician for a different symptom.

Of all of the studies examined, only one showed any relationship between the sex of the individual and the length of "delay" (King and Leach 1951). This relationship was considered by the investigators as being rather minor and in this case representing some interaction with patterns of medical care habits.

Although some of the investigations on symptom duration have checked such variables as levels of education, income and occupation, most researchers have collapsed these factors into the general category of socioeconomic status. This category is generally believed to "reflect the balance or net effect of social, environmental, situational, educational, financial, and other forces in the individual's personal world" (Coburn and Pope 1974:67) and therefore is a reflection of a person's general life style. Out of the studies reviewed that have found correlations with socioeconomic status or its components (King and Leach 1951, Cobb et al. 1954, Goldsen et al. 1957, Kutner and Gordon 1961, and Hackett et al. 1973) only one (Antonovsky 1972) differed from the general concensus that persons of lower socioeconomic status tend to wait longer than persons of a higher status. Of the investigations reviewed, only a few reported no relationship between delay and socioeconomic status (Mossetti et al. 1970, Worden and Weisman 1975) or educational level (Henderson et al. 1958, Fisher 1967) the remainder of the studies did not provide any information on these variables at all.

Further investigation into the effects of socioeconomic status on preventive health behaviors is clearly indicated because of the underlying interrelationships involved. Levels of education and income may, in addition to providing frameworks for the development of personal habits in health assessment and care utilization (Waitzkin and Stoeckle 1972), provide differential access to social networks and thus could be influencial in the development or maintenance of particular health care patterns (Enelow 1976:66). Also, such complex psychosocial attitudes as powerlessness or apathy so common in lower socioeconomic classes could have effects on medical care habits. For example, in commenting on the supernatural component of urban Black medical beliefs, Snow (1978a:69) has observed that for people who feel powerless to control their environment, beliefs like bad luck, evil influences, or magic as causes for illness or misfortune are to be expected. Alternative beliefs could in part explain such observations like "being black--and especially being poor--appears to militate against the utilization of certain health services" (Cockerham 1978:70). What is suggested here is that under certain conditions, ethnically exclusive social relationships may tend to channel help seeking behavior toward the group rather than toward orthodox medical care.

Two marginal aspects of life style (i.e., urban-rural residence and religion) have also been given minor attention in these investigations. In the only report reviewed concerning urban-rural residence, Goldsen *et al.* (1957:2) in a study of 727 patients living in New York reported that persons living in the rural areas of upstate New York tended to wait longer than persons from New York City. However, since no mention was made in this study about the ethnic or racial characteristics of the sample, it would be somewhat difficult to fully interprete Goldsen's results. Such a finding could represent some regional relationship with preventative health behavior and for this reason should be checked by further research sensitive to such factors as ethnicity and social class membership.

Occasionally, mention has been made about certain religious creeds being related to delay such as Protestantism (King and Leach 1951, Kutner and Gordon 1961), Catholicism (Fink et al. 1968) and religion in general (Titchener et al. 1956). The effects of religious behavior can be quite complex and elusive and, as Comstock and Partridge (1972) point out, a superficial approach of merely listing a person's religious preference misses the boat in terms of controlling for its effects on health behavior. They suggest that by focusing on church attendance, some of this complexity can be eliminated. Since attendance by itself may also be a gross measure of influence one could take things one step further and also look at religiosity or the content of religious domains. For example, a more formal religion might affect people of a low religious activity just as much as a less formalized religion would for people of a higher activity level. Only one study was reported to have at least used attendance in relation to religious influence on cancer patients (Monk et al. 1962). This study involved colon and rectal cancer patients and although no relationship was found for colon patients, rectal patients were reported to attend church services less and were more likely to not be a member of a religious body. A study of this character has no value at all for the problem at hand and if it has any utility at all, it would be to show how the principles of statistics and epidemiology can be grossly mishandled.

Whether or not the approach suggested by Comstock and Partridge can be of any value in the understanding of symptom duration is a moot point at present because no one has used it in this regard. To be sure, if I wanted to control for religious factors operating on health behavior (e.g., the influence of religious dogma or of reference groups that patronize particular churches), I would not use just religious preference. The level of effect that these factors may have on an individual's health behavior can not be adequately controlled by merely checking a person's nominal religious affiliation.

Cancer Related Factors

One of the most popular cancer related variables used in studies of delay has been patient awareness or knowledge about cancer in general and its various symptomatologies in particular. The usage of this variable has to a large extent been the result of a heavy emphasis on the efficacy of cancer education. The literature on delay and cancer detection has been replete with comments on the use and effects of cancer education and diachronic studies have often been designed to permit the evaluation of educational programs (Robbins et al. 1959, Blackwell 1964, Kelly and Thiene 1967, Kegeles 1973). As early as 1943 Harms and associates reported that in a sample of 158 cancer patients from a New Haven hospital, the major cause of patient delay was a lack of "proper" information about cancer regarding knowledge of its existence and the nature of the associated symptoms (1943:337). A review of the articles focusing on the patient's knowledge of cancer shows that there is no simple relationship between cancer knowledge and preventive health actions. Although some of the studies suggest that knowledge areas have a relationship to action (Harms et al. 1943, King and Leach 1950, Aitken-Swan and Paterson 1955, Kutner and Gordon 1961), the methodologies are not consistent and comparisions of the results are therefore difficult. For example, Smith (1935) in a study of 95 cancer patients (several sites) from a hospital in New York reported that over half of the forty-one patients with breast symptoms delayed because of "ignorance or procrastination". Here, two separate concepts of behavior which differ in their contextual relationship with symptom duration have been treated as one, and in fact are nothing more than descriptions of the behavior they are intended to explain (Kegeles 1976:53). In some of the articles it is not clear as to whether their reference to ignorance is for cancer in general or for a failure to recognize and identify specific symptoms or even a characteristic of the person involved (Leach and Robbins 1947). Some studies in the other extreme have ruled out ignorance altogether as a factor in duration length. Titchener et al. (1956:1192) reported that,

> people resist diagnosis and treatment seldom because they are ignorant of the significance of a change in themselves but oftener because the appearance of a sign or symptom sets off a sequence of maladaptive and neurotic behavior resulting in irrational procrastination.

Titchener noticed, as have others (Hackett et al. 1973, Worden and Weisman 1975), that various psychological factors can confound the relationship between the absence of knowledge about cancer and delay by interacting with the symptoms the patient perceives. Such factors as fear of treatment, hospitals or doctors (Titchener et al. 1956), belief in curability (Eardley 1974), shame (Sandifer and Pritchett 1958), and fear of diagnosis (Worden and Weisman 1975), as well as others were found to mimic the effects of a lack of knowledge and deserve adequate attention for research. A more complete discussion of these factors as well as others will be given in the following section on psychological factors in symptom duration.

The site of cancer or locale of the symptoms from the cancer has been used as a criteria for comparing delay patterns in a number of investigations. The most consistent finding regarding site show a higher proportion of patients waiting longer for external or more superficial lesions than for internal lesions (Goldsen 1953, Goldsen et al. 1957). However some investigators have reported shorter lengths of duration for breast cancer (Leach and Robbins 1947, King and Leach 1951, Hackett et al. 1973), some have shown less duration for other sites (Smith 1935), and some have reported no difference in site location (Simmons and Daland 1920, Cobb et al. 1954).

Another cancer related factor that is intimately tied to cancer site and knowledge about cancer is the nature and perception of the symptoms. Many investigators have reported that patients with long delays tended to believe their symptoms were not serious (Pack and Gallo 1938, Bates and Ariel 1948, Aitken-Swan and Paterson 1955, Worden and Weisman 1975) or at least not unusual (King and Leach 1950, Goldsen et al. 1957). Paterson (1955:933) noted that when a longer delay was found it was "related to the painlessness and apparent triviality of their lesion"[3]. Also, other studies, notably Henerson et al. (1958:33) and Worden and Weisman (1975:75) reported either no significant difference between delayers and nondelayers in regard to dramatic symptoms or found presenting symptoms to have no relationship at all with symptom duration. The most interesting interpretations of the present data were reported by Goldsen (1953) and King and Leach (1950). These investigators felt that their results indicated that length of duration was more related to the patient's usual behavior toward any symptom than towards symptoms of cancer. Unlike the previous reports and many of the later ones, these researchers did not view disease events as isolated happenings, but saw them as occurring on a continuum and therefore they looked at the behavior of the patient as a continuous series of evaluations.

It would seem that the vast majority of investigations into symptom duration regarding site of cancer and its resulting symptoms have used the same perspective as for other factors such as age, socioeconomic status, and knowledge about cancer. This perspective, which seems to be the result of the particulate nature of the Western medical model, involves a focusing of attention on a particular variable with an apparent tendency to disregard possible interaction effects with other factors. Whether or not this approach bias is real or apparent is not clear; however, the continued insistence on the relevance of certain variables over others suggests that the bias is real. In the case of symptom perception the evidence would seem to point to the fact that people treat cancer symptoms just like any other symptom and that, if in their mind, the symptom seems serious they will take action. Also, while certain combinations of symptoms may be given minor attention a different combination of the same symptoms may give rise to considerable concern. For example, while Blacks tend to consider a symptom set like weight loss coupled with poor appetite as minor or natural (in the domain of orthodox care), they become quite concerned about the possibility of witchcraft when they lose weight and have been eating normally (Snow 1978a:81). This latter case is usually grounds for seeing a lay healer who is capable of combating the evil influences of witchcraft. Such different responses could lead to a differential utilization of health care services and therefore conceivably affect symptom duration times in cases of colon and rectal cancer since the above symptoms are common for such malignancies. The factors behind this judgment process would seem to be intimately linked to a variety of relationships which Titchener et al. (1956:1190) rightly interprets as operating before, during, and after an individual's recognition of a symptom of illness.

One major factor that is involved in this judgment process is a person's past experience with cancer. Attempts have been made to assess this experience most often in the form of whether or not a person has had cancer themselves or known of someone who has had cancer. It was assumed that through this contact a person develops certain opinions about such things as the efficacy of seeking medical care and the treatment regimens involved. These opinions in turn determine that person's willingness to take part in an examination for early detection. The data presented indicates, with the exception of McCullough and Gilbertson (1969), that, contrary to the belief that persons who know people that have developed cancer will tend to report early, increased knowledge of people with cancer tends to promote delay. For example, Cobb et al. (1954:922) observed that patients who reported that cancer had occurred in their families tended to delay longer than patients who reported no cancer in their families medical histories. Results presented by Hackett et al. (1973:17) indicated that while patient reported family cancer events seemed to have no effect on delay, patients who reported that cancer ran in their families were most often delayers than nondelayers. Considering these results it would seem that what a patient subjectively feels (i.e., cancer runs in their family) has more influence over duration time than what the patient objectively knows (i.e., cancer has occurred in the family).

Psychological Factors

It would seem that although site, age, income, educational level, symptom perception, and knowledge about cancer through some experience may, to some extent, influence symptom duration, they may do so by their relation to more basic psychological and sociocultural factors. This present section will cover those investigations that have studied symptom duration in light of particular psychological issues. As Antonovsky and Hartman (1974) have noted, there seem to be four major issues that have received most of the attention in such investigations: general emotional health; intellectual capacity; hypochondria and body image; and styles of coping with fear and cancer.

Studies about psychological factors in symptom duration began in the 1940's (Blackwell 1963: 17-18) with Youngman's (1947) Australian study. In Youngman's investigation of persons who "should have come earlier for treatment," many emotional abnormalities, i.e., uphoria, apathy, nerousness, anxiety, surliness, etc., were reported for persons having long symptom duration times. However, the utility of this study is in question since its research design is flawed by the absence of any control group and by the impressionistic character of the data. Henderson et al. (1958: 36) reported that in 100 cancer patients (all sites), from two English-speaking hospitals in Montreal, over fifty-five per cent of the delay group had a history of psychiatric symptoms whereas only nineteen per cent of the non-delay group had such histories. A later study, unfortunately by the same author, confirmed these findings (Henderson 1966). On the other hand there have been studies that have reported no relationships between psychiatric conditions and delay (Titchener et al.

1956, McCullough and Gilbertson 1969). For example, in Titchener's study, which was part of a larger psychiatric survey of surgical patients in the United States, there were no correlations between delayers and non-delayers in regard to the presence of neuroses, psychoses, character and behavioral disorders, mental deficiencies or the absence of psychiatric illness (1956: 1190). The most common psychological influence for delay in this study were fear of punishment from surgical treatment, i.e., tensions about pain or mutilation, and fear of death in surgical treatment (1956: 1190).

While these data would at first seem to suggest that delay is not the result of any particular psychiatric condition, an alternative explanation is possible when the concept of cultural variability is added to the discussion. With several cultural populations being represented in these studies, it is possible that such a situation of cultural variability could account for some of the conflicting results. One could suggest that these different results could be due to some interaction between psychological and cultural factors or a misrepresentation of cultural differences as psychological variation by the authors. By looking at these studies from the perspective of anthropological theory such seemingly conflicting results are expected and not considered inconsistent.

Other studies have focused on intelligence. These investigations used intelligence not in the sense of knowledge about cancer but in the old tradition of I.Q. tests. Although Youngman's study reported a low average I.Q. for patients that wait longer, his research suffers from certain design errors which result in a very unrepresentative sample of patients. The remainder of the studies that investigated I.Q., notably Aitken-Swan and Paterson (1955) and McCullough and Gilbertson (1969) found no relationship between intelligence and delay.

The only other two aspects of personality that have been reported with any frequency have been hypochondria and body image. Reznikoff (1955: 456) reported a high percentage of hypochondriacs among persons who showed up for screening clinics. Studies by Henderson et al. (1958), Hammerschlag (1964), Henderson (1966), and Fisher (1967) have also offered support to Reznikoff's conclusions. Both Hammerschlaf and Fisher used the Fisher-Cleveland Barrier test and found that persons with long symptom durations more often than not scored high on the test. A high scorer was an indepentent person with defined standards and goals and was persistant in achieving their goals without being diverted by stressful situations. Fisher has suggested (1967: 677-678) that these persons are often characterized by a false sense of body security and a need to remain independent and therefore in opposition to the actions of a hypochondriac will reject a placement of dependence on therapeutic measures. Other studies such as Sugar and Watkins (1961) have also reported this tendency of denial of body changes for persons with longer symptom durations.

To be sure, there are probably many psychological factors involved in symptom duration but they can not be easily classified into some particular diagnostic category. Worden and Weisman's (1975) study reflects this impression and by using several psychological instruments such as the profile of mood states (POMS), the Minnesota multiphasic personality inventory (MMPI), and the index of predominant concerns (IPC), has approached the phenomenon of symptom duration from a more person oriented perspective rather than an impersonal and more pathogenically oriented perspective. By focusing on the present psychological state of the patients they found high levels of tension, fatigue, confusion, and total mood disturbance to be significantly correlated with symptom duration such that delay was increased. Also, they and others have found relationships between symptom duration and past situations of psychological disturbance such as poor relations with one's spouse, multiproblem family or origin, and marital problems in general (Worden and Weisman 1975:73-74, Aitken-Swan and Paterson 1955:625). These results and the ones discussed above on hypochondria and body image would seem to indicate that psychological factors are important during the decision making process of whether or not to seek care. However, as yet it is not understood what psychological mechanisms are in operation except for reactions related to hypochondria, body image, and fear or apprehensions about the diagnostic, surgical and social social outcome of the detection visit. Perhaps these issues could be better examined through longitudinally designed studies rather than the retrospective ones that have been used in the past.

Probably one of the most widely discussed psychological factors thought to influence symptom duration has been cancer phobia (cf. Kutner et al. 1958, Blackwell 1963, Antonovsky and Hartman 1974). Although a lot of effort has been devoted to finding the causes for fear and anxiety in cancer, the goal of most studies has been to examine the styles of coping strategies used to handle such fears. In general, the conclusions of most studies dealing with these psychological factors have been that there are two basic patterns of response to fear in regard to cancer. The first type of response characterizes the patient with a long symptom duration and involves an immobilization of action and results from the occurrence of certain defense mechanisms such as denial and repression of the person's symptoms or general condition. The second type of fear response characterizes the prompt patient who tends to mobilize action in an active fashion to seek medical care or advice. While a fear of impending death certainly has some important relationship with cancer phobia, Titchener et al. (1956:1190) and Aitken-Swan and Paterson (1955:625) have noted that expectations of pain, mutilation and general fear of doctors or hospitals also tend to heighten the level of cancer phobia. Aitken-Swan and Paterson reported that over twenty-five per cent (78) of all patients they interviewed spoke of some fear about operations and hospitals in connection with their delay and Cobb et al. (1954:923) reported that ninety per cent of their sample (729) admitted to a general fear that affected their actions in some way. In Cobb's study, as with Titchener and Aitken-Swan and Paterson, fear was not seen as some diffuse entity but as a tangible, lived-with fear of long-drawn out suffering of some nature. The pragmatic observations noted above can also be viewed in a cultural context. For example, Zborowski observed that Irish patient fears about the crippling effects of surgery seemed related to a concern over wholeness of body and strength (1969:218). Also, as Cobb has indicated, this fear can go beyond the personal level of coping with pain or mutilation and can range from concern over creating a financial burden on the family to a fear of how the family and others will behave toward them in the event of long term separation (therapy) and potential death (1954:923-924). MacDonald (1947) and Harms et al. (1943) have presented inconsistent results in that they reported that fear was not very significant as a factor for delay except in a few cases. Fear is a complex issue composed of a number of factors, many of which can be anchored into several cultural domains.

As with previously discussed factors in delay, the observed inconsistent results obtained for fear might be better explained if it were viewed as dependent (in part) upon a cultural substrate. Fear certainly warrants further investigation, but before new research is conducted it should be more clearly defined to allow for a more complete analysis of its effects on symptom duration.

With only a few minor exceptions (Kutner et al. 1958, Worden and Weisman 1975) most studies have agreed that fear in someway determines how a person will act depending on certain previous conditions. It can result from worries about physical discomfort, forced dependency, financial burden, social unacceptability and a variety of other reasons. All of this points to the fact that although fear may be a psychological response, it is the result of a multiplicity of factors which extend across categorical boundaries and whose effects upon symptom duration are not linear. For example, Cobb et al. (1954) and Goldsen et al. (1957) have shown that a knowledge about the significance of cancer symptoms tends to increase delay when level of fear or anxiety are high, but reduces delay when fear levels are low. Some investigators feel that this low level of fear reported by Cobb and Goldsen's research should actually be classified as an intermediate level of fear. Antonovsky and Hartman (1974:123) support this view and have suggested that "a moderated degree of fear of the consequences of cancer is conducive to nondelay, whereas both little and great fear encourage delay".

Physician and Medical Care Factors

There have not been very many studies that have focused on the effects of patient-physician or patient-medical system relationships and symptom duration in cancer. However, the nature of these relationships as potential barriers to prompt treatment makes it necessary to devote some discussion to them no matter how slight. Of the studies that have focused on these factors, their emphases have been divided into two general concerns: availability of detection and treatment facilities; and doctor-patient relationships. Several studies have reported on the relevance of access to treatment and screening centers as important factors in symptom duration (Braund and Binkley 1942, Henderson 1966). In these studies access was defined not only in terms of availability of the centers but in terms of the patients ability to pay for services and their ability to take time out from normal responsibilities to go to the center.

Some attention has been given to doctor-patient relationships. Here as before, fear of doctors or hospitals can be cited as contributing factors in unsatisfactory doctor-patient relationships (Aitken-Swan and Paterson 1955, Titchener et al. 1956). In addition to apprehension about doctors and the medical system, others such as Hollingshead and Redlich (1958) have mentioned communication problems between doctors or middle or high social class and patients of lower social status. Also, the belief that professional diagnosis is no better than self-diagnosis (Kegeles _et_ _al._ 1965, Kegeles 1969) or little confidence in the effects of treatment (Aitken-Swan and Paterson 1955) seem to contribute to problems of communication between doctors and patients. In general, any factors that tend to contribute to an uncomfortable relationship are seen as causal factors in delay (Cobb et al. 1954, Henderson et al. 1958). Another factor which has not been mentioned in the above investigations centers around the problem causing potential of cultural differences between the physician and the patient. For example, Gans (1962:136-138) in his study on Italian-American patients observed that even subtle ethnic difference such as social distance could create extreme problems in physician-patient relationships. In the care of Blacks Snow (1978b) has noted that they tend to see orthodox medicine as very strong and expect rapid results irrespective of whether the condition was clinically diagnosed as chronic or acute in nature. Also, in situations where alternative treatment is available "it is not unusual for an individual to go to the doctor and use home remedies at the same time" (Snow 1977:79) or discontinue the prescribed medication in favor of home remedies (Snow 1974:92). Here it is important to note that in order for such problems to arise the physician and the patient need not be members of two very distinct cultures.

Sociocultural Factors

Preventive health behaviors can be seen as the result of an interaction between environment (i.e., both social and material), and a more ideological level involving values and norms of a person's particular sociocultural background. The environment presents a set of situations to which a person applies their knowledge from a particular cultural milieu and arrives at some conclusion for appropriate behavioral action. In other words, an individual acquires from their culture certain kinds of knowledge, an evaluation of health in terms of particular values, and a general understanding of what is considered appropriate and inappropriate action. These factors, when interfaced with particular environmental conditions, provide a person with a choice of acceptable alternative actions or subsets of cultural norms.

Few investigations have been made into the relationship between sociocultural factors and symptom duration and those that do treat the impact of such factors on only the most general level. This general treatment of the data can, by missing hidden relationships, at worst lead to conclusions totally inconsistent with reality and at least result in inconsistencies between similar investigative conclusions. For example, the few reports in relation to a patient's ethnicity have been quite inconsistent. Whereas King and Leach (1954:225) found that first generation immigrants waited less and had better health care habits than second generation Americans, Breslow and Hochstim (1964: 110) reported that immigrants (foreign-born Whites) waited longer before seeking care than American-born Whites. Although it should be noted that the first study was on cancer patients while the second was on cervical cancer screening participants, one is not sure as to the cultural background or even the nationality of these immigrants. It is very possible that several different cultural populations have been represented and compared. The few Israeli studies performed are also clouded by inconsistent results. Grushka and Steinitz (1955) reported that non-European Israelis tended to have longer durations, while Bar-Meir and Davies (1960) and Moses and Cividali (1966) found no correlation, and Antonovsky (1972) found no relationship in Haifa but in Jerusalem reported that non-European Israelis wait the longest before seeking care. Unfortunately, as in the above reports on immigrants, information on the cultural criteria for defining the subject's ethnicity is lacking in these studies. One wonders about the cultural homogeneity of these groups. For example, are non-European Israelis from Israel, North Africa, or other parts of the Middle East; and are European Israelis from only one country, one region (e.g., Eastern Europe) or are they from all over Europe. The lack of sensitivity to such slightly more fine grained cultural differences in these studies makes interpretation of these results quite difficult.

As noted above, members of a particular culture have been instilled with some notion about what constitutes acceptable or unacceptable health behavior. Several of the present studies on symptom duration have selected this variable for analysis; however, as could be expected, the investigators used their concepts of what is good (prompt action) and what is bad (delayed action) health behavior to ask questions of these data. With this in mind they focused on the question of whether good health behavior characterizes or follows the same pattern as the general medical habits of an individual. Here it is interesting to note the many times these investigators, in their discussions of medical habits and delay, skirted the issue of culture without seeming to grasp its significance for explanation. King and Leach (1951:225) noted that "the value individuals place on medical care and health are influenced by community attitudes toward illness, family conditionings, contacts with illness, and financial withdrawal." All of these factors are intimately related with cultural systems of value and norm but no mention was made about the possibile implication of such ethnic influences.

Although the studies by King and Leach (1950, 1951), Goldsen et al. (1957), and Goldsen (1963) presented evidence that was contrary to the common belief that patients react to cancer symptoms in a way specific to the disease (implying some continuity in illness coping measures), only Goldsen followed through with further discussion on what she called socialization and cancer diagnosis. In so many words, she defined this process of evaluation in a cultural context when she stated that,

> it seems to me that the data not only of cancer delay studies but others . . . . indicate that the model for the approved social behavior we label as rational action on the part of the laymen is not to expect the individual to react issue by issue, problem by problem, or symptom by symptom (like a diagnostician) but rather to be able to relate each newly arising issue and each newly appearing symptom to a total context of habits, attitudes and values . . . almost a way of life (1963:433).

Here, she was keying in not just on cognition but a special category of cognition that had as its context a particular type of socialization background. Aitken-Swan and Paterson (1955:626) recognized the value of cues given by day-to-day contacts with people in that they either reinforced the person's desire to seek help or reaffirmed other attitudes that resulted in longer durations, thus establishing a relationship between a person's social environment and the behavioral actions taken. Hackett et al. (1973:19) in summing-up his impressions about "delayers" indicated that he felt people pick up this "trait" from parents or siblings who had handled similar situations in such a fashion, thus focusing on a person's immediate social environment where the ground work is laid for illness behavior.

I could continue to pick out various impressionistic statements in these studies which imply that the investigators had some peripheral grasp of the cultural influences on symptom duration but it would be begging the issue. The fact remains that only one of these investigations really addresses the issue that cultural training has anything but a minor influence on how long it takes for a person to seek medical care. In fact there are no other studies reviewed that used such a culturally oriented perspective to understand behaviors related to cancer in general or symptom duration in particular, and this observation has been supported by others, notably Antonovsky and Hartman (1974: 120) and Kegeles (1976:104).

The only study that overtly confronted the relevance of culture as an influence in symptom duration (albeit slightly) was Titchener et al. (1956). This study defined delay as "the procrastination of a person with an outstanding, noticable sign or symptom signifying, in his culture, a deletrious somatic change" (1956:1187). Titchener was aware that a symptom that could cause considerable alarm for a person in one culture might mean something minor or even nothing at all in another culture. In a later comment on the inherent difficulties of obtaining data through patient interviews he made the observation that delay seemed to be a complex form of behavior that was not completely understood or realized by the patient. This observation, in so many words, is an operational effect of culture. People who are not in conflict about their value or norm orientations are seldom if ever consciously aware of their cultural world view since such a framework puts logical boundaries on possible evaluations and subsequent actions. Unfortunately, outside of supporting his central hypothesis that delay "is a form of behavior multiply determined by conscious and unconscious psychological factors that are in operation before, during and after the patients recognition of a sign or symptom" (1956:1193) he did not develop the cultural factor further. Culture as an influence on symptom duration received only minor attention along with "other causes of delay". Whether or not this cursory mention reflects a valid minor correlation or one resulting from design errors in differentiating various cultural groups can not be determined since the authors did not provide any research findings or definable criteria for "culture".

Comments on Past Studies of Delay

In this section I will not attempt to summarize the data and ideas which have been presented in some detail, but rather concentrate on the nature of these studies in regard to their design and methodology and their relevance for further study. First of all, several methodological weaknesses have become obvious in these investigations. Although many of these studies were based on retrospective data, when presenting their conclusions most did not mention the inherent errors in such research. Perhaps the most common weakness was that a large number of investigators failed to provide explicit information on the measures used (e.g., methods for establishing ethnicity or even defining the nature of the sample population). Together with an apparent lack of continuity and comparability between studies, several investigations also failed to provide information necessary to maintain any internal continuity. Such a lack of internal integration seriously impairs the relevance of any conclusions which are put forth by such studies.

A second area of methodological weakness concerns the basic research design in studies attempting to understand symptom duration. While no single study should be expected to deal with all of the possible relevant variables, it should be kept in mind that any motivational factor for symptom duration does not exist in an experimental vacuum. Most of the studies reviewed would appear to be guilty of focusing their research emphases in such a way as to present their case at the exclusion of other possible interpretations. In other words, the concept of multiple causation or influence is not often applied in these investigations.

The third methodological point I would like to make relates to the tendency of these researchers to assume a causal relationship (almost always linear) between a given variable and symptom duration. Several of the studies reviewed appear to be fraught with degrees of logical positivism in that they tend to assume that by merely collecting "X" amount of evidence to support an idea is sufficient to prove that their idea or hypothesis is valid. A common characteristic of many of these studies is to amass a number of statistical results (often intertwined with impressionistic statements) supportive of their hypotheses and then to apply them in a cause and effect relationship to validate certain impressions such as the effectiveness of cancer education programs.

Although several of the studies that have been reviewed provide some very interesting observations and insights on symptom duration, most of them have fallen short of providing an adequate explanation of why people behave the way they do. I fully realize that such variables as a patient's personality or emotional life experiences are of utmost importance in influencing attitudes and behavior towards cancer. Also, I recognize the importance of various sociological and sociodemographic influences on symptom duration. However, there are gaps present in these investigations which confound any attempt at arriving at a complete understanding of the various influences that can affect this phenomenon. With the underlying assumption that behavioral responses to cancer present identifiable regularities in response along cultural models common to groups of similar ethnic origin, some of these gaps may be filled. Unlike the approaches used in the past studies on symptom duration, this present study will be based on concepts drawn from anthropology and will utilize a research orientation appropriate for the study of people as social beings and not as discrete psychological or pathological categories.

CHAPTER III

COLORECTAL CANCER AND SYMPTOM DURATION

In the preceding review of the literature, several investigations on symptom duration and cancer were discussed in light of particular drawbacks in research and methodological design. These drawbacks were seen as seriously undermining the weight of many of the researchers' conclusions. The present study, to be discussed below, represents an effort to circumvent some of these problems in order to obtain a more complete picture of the phenomenon under investigation.

This present study examines the reported time interval between initial observation of symptoms and the seeking of medical treatment using a retrospective hospital record review of deceased cancer patients. The patients are all males and had received their diagnosis and treatment from hospitals under the Veterans Administration system. The main focus of this investigation centers around the role of ethnic differences in affecting the identification of and response to a patient's illness. A major criterion of this study is symptom duration, defined as that time period between the first appearance or recognition of symptoms and medical intervention as initiated by the patient. In sum, this research is concerned with the differential effects of ethnicity on secondary preventive health behaviors pertaining to symptoms for colorectal cancer through an analysis of reported symptom duration prior to diagnosis as a dependent variable. This analysis was generated to explore the possible role of sub-cultural differences in patient response to colorectal cancer. The assumption here is that these responses will present identifiable regularities common to groups of similar ethnic origin. These behavioral responses are therefore in part a reflection of an individual's cultural milieu.

Four hypotheses are presented below to test for the general existence of these behavioral differences. 1) The mean reported symptom duration times for individuals representing different ethnic backgrounds will be significantly different. 2) Persons with a positive family medical history for cancer (i.e., some suspected occurrence on the part of the patient) will exhibit significantly different between ethnic group mean reported symptom duration times. It is also hypothesized that the within ethnic group mean reporting times will be significantly different for persons with a positive family medical history when compared to those with a negative family medical history. 3) Individuals with prior experience of nosologically similar (i.e., cancer related) conditions to the one under study will exhibit significantly different between ethnic group mean reporting times. 4) Of the symptoms found to be significantly related to symptom duration for the sample as a whole, those symptoms reported most often for the present cancer episode will differ in content between ethnic sub-groups. These hypotheses are somewhat general in their predictions of the behavioral responses surrounding the phenomenon of symptom duration due to the fact that there have been no similar studies performed.

Research of this nature has the potential of providing useful insights for both the theoretical and applied domains of the behavioral sciences in general and anthropology in particular. Within the context of an anthropological perspective, such ethnomedical research not only has a potential for testing certain questions about human behavior but also for providing insights into the application of anthropological knowledge to particular medical problems. Unfortunately, by the time many people have become symptomatic for colorectal cancer, the disease has usually transcended the curative benefits of available treatment regimens[4]. Thus, although cures have been reported for such patients, most can be offered little more than pallative care and survival is usually under five years. Because of these developmental characteristics of colonic and rectal carcinoma, this study remains basically a theoretical exercise and can offer little in the way of beneficial insights for the problems of early detection for colorectal cancer _per se_. However, just as cross-cultural research has implied that behavioral similarities exist for ongoing lifeways and health matters in differing societies, behavioral relationships found to exist for one form of cancer do not automatically exclude an application to other cancers when approached in similar contexts. It is also important to note that since little behavioral research has been conducted on colorectal cancer patients, any insights that come to light may in some way prove beneficial for health planning concerns, especially when the magnitude of the colorectal cancer problem is considered.

Although the issue is not free from debate, there appear to be indications that the period of symptom duration has some relationship with a lowered survival potential (poor prognosis) for colorectal cancer patients (Blackwell 1963, Scudamore 1969, Gerard 1975, Potchen 1975, Martin et al 1976).[5] The longer a person takes to seek intervention for symptoms resulting from this form of cancer, the greater is his chance of having a poorer prognosis (Rogers 1974, Copeland 1976, 1977). The estimated number of new cases of colorectal cancer for 1978 has been reported at 102,000 men and women (incidence is roughly equal for sex) with an estimated mortality of 52,000 people (American Cancer Society 1978:9). Approximately 4,000 new cases and 2,000 deaths are expected for the state of Michigan alone in 1978.

Except for skin cancer, colorectal cancer is the most common single malignancy encountered in males and females alike, and is second in males after lung cancer and second in females after breast cancer (Seidman et al 1976, Silverberg 1977). These figures have remained quite stable for some time (Rogers 1974:63) and the estimates have been fairly accurate (e.g., for the 1974 figures the error was 6 per cent). Even with the major emphasis of the national cancer program aimed at enhancing early diagnosis through education and screening programs, the mean reported patient symptom duration for colonic or rectal cancer has been between four and six months, and the precentages of people diagnosed at various levels of disease involvement have remained unchanged for the past thirty to forty years. Since the application of current means of treatment such as surgery and chemotherapy have only a limited ability to improve on colorectal cancer patient prognosis (Muldoon 1977) every efort should be made to bring people to medical care as soon as possible.

Thus, with the limited effectiveness of current treatment and an apparent inability to implement massive screening programs, the behavior of the patient remains one of the few accessable components to the problem of early detection and diagnosis. Although it is somewhat beyond the scope of this present study to confront the various issues that exist between cancer detection and public education about cancer, any additional insights that can be gained through such research are potentially useful in the establishment of a more cost effective cancer control program.

The Sample

As mentioned above, this study involves a retrospective hospital record review of deceased colon and rectum cancer patients. Although this type of study (when compared to a contemporary one with live patients) presents certain problems in regard to an interpretation of the nature of a person's ethnicity and his response to illness, it is the most appropriate approach for a pilot study. The topic of cancer and preventive health behaviors has not been explored from an ethnomedical perspective and as a result there are no tested guidelines from which to base a necessary research design. While this situation does not preclude the development of a useful investigative approach, it does present serious problems when considering the risk to the rights of living subjects. Since recall of past medical events related to the patient's diagnosis is required in addition to standard sociodemographic information, inquiry would have to take place as soon after diagnosis as possible. In the initial phases, cancer as an illness experience seems to entail both a pervading atmosphere of finality and a resulting set of socially and emotionally charged issues for many patients. Considering the potential risk of further disrupting the patient's lives, using past research on acute or some of the less morbid chronic diseases to guide the type of multidirected inquiry needed is simply not adequate. Before living patients are to be subjected to active investigation, the most fruitful avenues of research on this topic should be outlined by a less risky study of patient records. However, it is important to note that this type of pilot study can not serve as a substitute for a more in depth investigation but only as a necessary prerequisite.

It is essential when investigating illness behavior and cancer to control for the type of cancer studied in order to eliminate as much random variation as possible in regard to differences in symptoms, pathological development, and age at onset of the disease. The selection of colonic and rectal cancer meets these requirements and in addition, its extremely high incidence provides a large population of patients from which to sample.

The original population for sampling was to be patients from several private hospitals. Such hospitals would provide a cross section of the general population and thus provide several ethnically definable groups for analysis, in addition to providing data capable of being generalized to the U.S. population as a whole. However, such a data base was not available, and the Veterans Administration Hospitals in Ann Arbor, Allen Park (Detroit), North Chicago, and Hines (Chicago) were used instead[6].

The sample drawn from these four hospitals consists of data based on 135 cases of deceased colon or rectum cancer patients. These cases (all male) were selected according to the following criteria: (1) confirmed diagnosis of colon or rectum cancer; (2) information on the diagnostic visit present in the hospital chart; (3) no delay had occurred between the time the patient presented to a private physician and the time a medical examination was made at one of the hospitals; (4) the patient had not been referred from an institutional facilty (e.g., retirement home or mental institution) since in such a case it could not be certain that the decision to seek care was arrived at solely by the patient; (5) patients had been treated since 1964[7]; (6) data on length of symptoms and symptom duration were present; (7) information on family medical history and personal medical history were desirable, but missing data on these did not preclude the use of the case in the sample; and (8) a form for request of domiciliary care was necessary to report relevant sociodemographic data such as ethnicity, place of birth, and occupation.

Methodology

As previously mentioned, the use of patient records presents several problems in regard to data collection and levels of precision for data interpretation. The research design, in being operationally restricted to data available on the charts, limited the types of variables available for analysis. These contraints on sampling criteria not only made certain assumptions about the data obligatory but also served to limit the sample size. The use of a chart review also raises problems in regard to the precision of the information since the data has passed through several filters during the reporting process. These problems stemming from chart review will be more fully presented below in light of data collection and variable definition.

Each case was reviewed starting with the most recent patient record available back to 1964, the date when most V.A. hospitals up-dated their files by sending all records prior to it to a centralized records warehouse. However, many of the charts between 1964 and 1972 were somewhat terse due to the V.A. policy of reducing patient records to perpetual files (i.e., a skeleton file with little or no sociodemographic information) when five years have elapsed since last contact with the patient or a known date of death. These conditions and the sampling criteria substantially reduced the number of usable cases. Thus, although the original research design called for a random sample, it was decided that in order to obtain an adequate number of cases it would be necessary to use all cases that met the sampling criteria. Even with this compromise, a review of over 500 medical records produced only 135 usable cases from which to base an analysis.

Data on these cases reviewed were recorded on a prepared collection sheet (see Appendix A) that was used to categorize patient related information. These data served as a basis for the final thirty-three variables used in the analysis (see Table I). Information drawn from the form for domiciliary care was the primary source for such sociodemographic information as the patient's ethnicity, occupation, marital status and population size of birth place at

TABLE I.

VARIABLE	VARIABLE VALUE
1. Primary site of cancer	1a. Colon 1b. Rectum
2. Ethnicity of patient	2a. U.S. Black 2b. U.S. Northern White 2c. U.S. Southern White 2d. U.S. White with West European ancestory 2e. U.S. White with East European ancestory
3. Occupation of patient	3a. Blue collar 3b. White collar
4. Marital status	4a. Single or divorced 4b. Married or Widowed
5. Stage of cancer at diagnosis	5a. Dukes' class A lesion 5b. Dukes' class B lesion 5c. Dukes' class C lesion 5d. Dukes' class D lesion
6. Population size of birth place	6a. Rural 1. Under 1,000 2. 1,000 to 9,999 6b. Urban 1. 10,000 to 99,999 2. 100,000 or more
7. Family medical history	7a. No cancer reported 7b. Cancer reported
8. Personal history, occasional medical problems	8a. Absent 8b. Present
9. Personal history, occasional similar medical problems	9a. Absent 9b. Present
10. Personal history, persistant medical problems	10a. Absent 10b. Present
11. Personal history, persistant similar medical problems	11a. Absent 11b. Present
12. Personal history, no unusual medical problems	12a. Absent 12b. Present
13. Personal medical problems frequency of problems	13a. None/occasional problems 13b. Persistant problems
14. Personal medical problems anatomically similar to cancer	14a. Non-ca similarity 14b. Ca similarity
15. Duration of symptoms	15. In reported months
16. Age of patient at diagnosis	16. In months

TABLE I. (continued)

VARIABLE	VARIABLE VALUE
17. VAR-001, Rectal bleeding	17a. Absent
	17b. Present
18. VAR-002, Blood in stools	18a. Absent
	18b. Present
19. VAR-003, Abdominal pain at defecation	19a. Absent
	19b. Present
20. VAR-004, Dull persistant pain	20a. Absent
	20b. Present
21. VAR-005, Crampy abdominal pain	21a. Absent
	21b. Present
22. VAR-006, General body pain	22a. Absent
	22b. Present
23. VAR-007, Diarrhea	23a. Absent
	23b. Present
24. VAR-008, Constipation	24a. Absent
	24b. Present
25. VAR-009, Weight loss	25a. Absent
	25b. Present
26. VAR-010, Shortness of breath	26a. Absent
	26b. Present
27. VAR-011, Weakness	27a. Absent
	27b. Present
28. VAR-012, Palpable abdominal mass	28a. Absent
	28b. Present
29. VAR-013, Distention	29a. Absent
	29b. Present
30. VAR-014, Nausea	30a. Absent
	30b. Present
31. VAR-015, Poor appetite	31a. Absent
	31b. Present
32. VAR-016, Malaize	32a. Absent
	32b. Present
33. VAR-017, Decreased caliber of stools	33a. Absent
	33b. Present

time of birth.

The patient's ethnic background was determined by the following criteria: the reported race of the patient, which in addition to standard Black-White distinctions often listed the patient's nationality; the place of birth for the patient; and, if reported, the birth place of his parents. These criteria resulted in the identification of five "ethnic" groups; (1) U.S. Northern White, (2) U.S. Southern White, (3) U.S. Black (almost all southern born), (4) U.S. White with Western European ancestory (i.e., first or second generation immigrant), and (5) U.S. White with Eastern European ancestory. It should be noted that there were not enough clearly defined origins for the creation of Northern or Southern European categories. The remaining demographic variables of occupation, marital status and population size of birth place were originally divided into four values for each. This was done in order to allow as much flexibility as possible for the generation of new variables should a more in depth analysis be indicated.

These values would be used later to define new variables depending on both their logical and statistical relationships with one another. The reported occupation of the patient was used to classify him as either a blue collar worker (i.e., a skilled or unskilled laborer) or a white collar worker (i.e., self-employed or managerial position). The reduced category for marital status labeled "alone" included those subjects who were reported as single, divorced, or widowed. The second marital category labeled "together" represented those patients who were reported as being married. Once the population size of the subject's birth place at time of birth was established through a review of census reports, the patient was placed into one of four size value categories. A rural population was identified when the size was below 10,000 people and urban when the figure was above 10,000.

Information that pertained to the patient's personal and family medical history was extracted in part from the reports based on his initial diagnostic visit for cancer and from hospital records based on past medical intervention. Family medical history was based on the patient's reported knowledge of the presence or absence of cancer in his family. Patient knowledge about whether or not cancer has occurred in his family was considered more important for analysis than a historically accurate report; therefore, no checks were made on the reliability of his account. In the case where no family history was reported in the records (either negative or positive) it was assumed that the question had not been asked by the interviewing physician and the data were treated as missing.

The variable of personal medical history was divided into four values which resulted from a matrix of the two categories of medical similarity and frequency of medical problems (similarity and frequency of medical problems were also used in the analysis). Medical similarity refers to the occurrence of past conditions with anatomically similar sites (e.g., intestines, stomach, or rectum) and/or experientially similar symptoms to colon or rectum cancer such as blood in stools, diarrhea, or constipation. In terms of medical similarity, a patient's history was scored as either similar or non-similar. The frequency of medical problems refers to the relative occurrence of medical intervention and whether or not the noted medical conditions required any monitoring over time. This category was divided into the two values of occasional problems and persistent problems. The occasional problems were incidental events like heart attacks or episodes of pneumonia and persistent problems were ongoing conditions of a more chronic nature like diabetes mellitus or rheumatoid arthritis. These two categories of medical similarity and frequency were combined to create the four personal history values of: (1) occasional problems not similar; (2) occasional similar problems; (3) persistent problems not similar; and (4) persistent similar problems to colorectal cancer. A fifth personal history value (no problems) was also included to represent those patients who had experienced only the usual child or adult medical problems like appendicitis, accidental injury or various infectious conditions.

Information reported on the initial diagnostic visit records and the pathological reports that followed were used to obtain data on the patient's age at diagnosis, duration of symptoms, the content of those symptoms at presentation, and the stage of cancer involvement at diagnosis. Age at diagnosis was computed by subtracting the date of the patient's birth from the date of his diagnosis and for ease of analysis was recorded in months. The patient's symptom duration time was recorded in months just as reported on the initial visit form. The content of the symptoms presented (see list in Table I) were also recorded just as reported on the initial diagnostic visit charts. The stage of cancer involvement at diagnosis was based on the patient's pathological reports and was divided into the four values of Dukes' class "A", "B", "C", and "D" lesions.

The Dukes' system of classification was specifically developed for the ordering of cancer involvement for colonic and rectal tumors. This involvement represents a pattern of growth from a superficial lesion to distant organ involvement. A class "A" lesion is where a cancerous growth is limited in its invasive process to the mucosa and submucosa of the bowel without penetrating the muscular layers of the bowel wall. Class "B" lesions have penetrated the bowel wall, the serosa, and/or the pericolic fat which surrounds the intestine. Class "C" lesions not only have penetrated all of the bowel wall layers, including the serosa and pericolic fat, but have invaded the regional lymph nodes that are either proximal or distal to the tumor-bearing bowel segment. Sometimes a class "C" lesion can be compounded with additional involvement of an adjacent organ such as the urinary bladder, small bowel segment, prostate or abdominal wall structures. To avoid any confusion, patients who were reported as having regional lymph node involvement only were recorded as class "C" lesion patients. Any individual reported as having an involvement beyond the regional lymph nodes was recorded as a class "D" patient. The Dukes' class "D" lesion represents those patients who have widespread metastases involving such organs as the liver, brain, or lungs.

As can be seen by a comparison of the data sheet (Appendix A) with the list of variables used in the analysis (Table I), there are several variables on which data were gathered but not analyzed. These variables included data on both sociodemographic information and several medically related categories. The sociodemographic variables of education, family size, religion, and economic status were originally considered for analysis but once data collection began it was decided that their frequency and/or reliability or reporting made them inadequate for testing. Information on education and family size were reported in too low a frequency to warrant further consideration. For reasons stated at the end of chapter two, the religious preference of the patient was not used in the analysis. Economic status presented a different situation in that information was present in the form of patient statements about ability to pay for medical care, transportation to and from the hospital, and pension allotments. It was decided that since all of the patients in the sample appeared to be in the same low income level, economic status would not prove to be fruitful for analysis.

The medically related variables of health at diagnosis, date of treatment and stage at treatment, differentiation at diagnosis, and primary tumor type were also found to be either useless or unnecessary for data analysis. The information on date of treatment and stage at treatment were found to be meaningless, since the majority of the cases had been treated within a week of the time of diagnosis by a private physician[8]. Also, it should be added that, of the patients who were listed as seeing a private physician before going to the V.A. Hospital, all received diagnostic consultation and evaluation by hospital based physicians within a matter of days from the date of referral. The variable of differentiation at diagnosis was not useful because over eighty per cent of the sample was reported to have either well or moderately-well differentiated tumors. At present there seems to be some debate between pathologists about what criteria separate these two classifications; therefore, the reliability of reporting was not considered high enough to warrant analysis. The variable of primary tumor type was not used in the analysis sample because all but two patients, who were dropped from the study, were classified under the single type of adenocarcinoma.

A retrospective investigation involves an inductive approach that is particularly prone to problems of precision concerning the implications of data interpretation. This stems from the fact that the researcher has no control over the conditions under which the data were initially recorded. The only way around this handicap is to acknowledge the varied sources of interpretational error and to take them into account when viewing any results from analyses based on such data.

There are several sources of error which could stem from particular sociodemographic variables. For example, although the economic information on the patients indicated that all of them were essentially on the same low income level, there is no way to determine if one patient had access to resources which were unavailable to others. Such differences could affect decisions about obtaining medical intervention. Alternative resources need not always mean material sources but can also represent such resources as access to various social networks. These networks could provide access to alternative consultants who have medical knowledge but who are not formally members of the professional medical community. If individuals used these consultation sources before seeing a physician, their behavior as based on the chart review, would show them taking a longer time to come in than others who did not use the resources. Thus, an error would result such that they would be seen as not seeking care as soon as they actually did.

Another variable which could have a bearing on the decision to seek medical intervention is occupation. Since the reported occupation of the patient does not include any details of what the person's responsibilities were or how long he held the position, considerable variability could be hidden. This hidden variability could, if known, imply certain conditions such as an inability to get along with others or a very strong orientation towards the self rather than other. These conditions could affect the patient's decision to seek care since this act is just as much a social process as it is an individual one. In addition to occupation, marital status could also point to problems in getting along with people (e.g., repeated divorces). However, since there was no available information on frequency of marital status change or marital problems, such situations are not identifiable.

One of the more important sources of imprecision in this study involves the medical categories of family medical history, personal medical history, stage at diagnosis, symptom duration, and the symptoms presented. One factor that can affect these variables is the nature of the doctor-patient relationship as discussed in an earlier chapter. For all the researcher knows, there could have been major conflicts between the personalities of the patient and the physician which could seriously affect the nature of the information reported in the hospital records. These effects could take a variety of forms from intentional misinformation or reticence by the patient to only a sketchy interview by a physician who wants to be rid of a troublesome patient. The physician may or may not notice the situation and, in the event it was obvious, it can not be assumed that comments will be made to demonstrate the situations existence. Therefore, such misinformation could not be controlled for by checking the records for comments about relationship and/or memory problems.

Another source of error ensuing from the doctor-patient encounter could result from certain filtering mechanisms on the part of the physician. A standard filter for all physicians which stems from their contact with general biomedical theory involves certain beliefs and expectations about what information is necessary to record. Such a filter could result in a failure to record data important for behavioral research but considered by the physician to be unimportant (e.g., the other symptoms presented at the diagnostic visit but not recorded). Another more idiosyncratic filter to the physician relates to problems of personality such as discussed above, and also what the doctor thinks of the disease situation and its relevant aspects. This filter can take the form of expectations of how a sick person should behave and what his problems should be. Deviations from these expectations could result in misinformation on the behavior of the patient. For example, symptom duration times might be considered only a very minor preliminary to treatment for the patient and therefore receive only a terse comment in the hospital records.

The last major source of misinformation to be considered for this study is subject recall. Considering the levels and varieties of stress these patients are subject to and their ages, recall becomes a potential source of error that needs to be recognized. Although reports were made about poor memories, it can not be assumed that all patients with poor memories were properly identified. In cases where the patient was so identified the case was dropped from the sample. It was assumed that a subjective belief by the patient about family history or symptoms and their duration would be sufficient for analysis of his behavioral response. However, if the patient fails to remember facts that lead to his health seeking behavior, several problems in interpretation can arise, especially if the patient has not been identified as having a poor memory. Problems in patient recall can also generate errors in the reported symptom duration intervals. While symptom duration reporting may be less of a problem for error than family history because of the nature of the questions asked by a physician, it can still lead to errors in interpretations about the patient's behavioral response.

Analysis

Once the data collection was completed, the thirty-three variables to be tested (Table I) were prepared for computerized data analysis. One form of this analysis was a program that produced various descriptive statistics such as frequencies and group means, this was used to obtain a general profile of the sample distribution for each variable separately.

In order to determine if the ethnic groups identified represented statistically separate groups in terms of mean duration time, an analysis of variance was performed. The results of this test were considered to be significant at the five per cent level. Although t-tests are normally performed when the question concerns a comparison of means for the sample groups, they are statistically useful only when testing the means of two groups. Since the variable of ethnicity was composed of five groups the t-test could not be reliably employed[9]. An analysis of variance is based on the condition that if the means of subgroups are greatly different, the variance of the combined groups is much larger than the variances of the separate groups. This type of analysis rests on a separation of the variance of all the observations into parts (ethnic groups), each of which measures variability attributable to some specific source (mean symptom duration time).

Migration tendencies in between group relationships for the five ethnic groups were checked by using a oneway analysis of variance in the format of a posteriori contrast tests. These contrasts provided a multiple range test for the mean duration times of the ethnic groups and as a result, group them into homogeneous subsets. A subset was considered homogeneous when the means of the first and last group differed by less than the critical value for a subset of that size. Although a five per cent level was necessary for significance, the program used provided several tests of differing degrees of conservativeness at both the .05 and .10 levels. This flexibility made it possible to observe segregation characteristics for the groups should their case sizes be increased.

An analysis of variance for between group mean duration times was also performed on the variables of age at diagnosis and stage at diagnosis to determine if either of these variables demonstrated any significant relationship with symptom duration. Before the variances of the within variable groups were considered to be indicative of any heterogeneity, the probability of the F-ratio needed to meet or exceed an alpha level of .05. Once this analysis was performed, a posteriori contrast tests were computed to check for any trends in heterogeneity. Age at diagnosis was seen as a possible confounding variable which could mask possible relationships between the other tested variables and symptom duration time. Stage at diagnosis was checked for similar reasons and to see if length of duration had any correlation with disease involvement.

In addition to the analyses of variance performed above, similar procedures were used on the variables of occupation, marital status, and population size of birth place. These analyses were necessary to determine the most fruitful value combinations to be used in the formation of the dichotomous categories of each variable. As was the case for ethnicity, age and stage at diagnosis, a ninety-five per cent confidence level was needed before any heterogeneous relationships were considered significant. *A posteriori* contrasts were then performed to provide a more descriptive representation of any trends in heterogeneity.

Once these above analyses were computed, t-tests were performed on the dichotomous values of all relevant variables to see if any showed a significant relationship in terms of reported mean duration times. The results were not considered significant unless the t-values fell at the five per cent level or less. All variables which showed a significant relationship with duration and those included in the stated hypotheses were then subjected to a second series of t-tests for means when controlling for ethnic background. These tests were performed to determine if the previous significant relationship held when applied to within ethnic group classifications. Any variables that maintained a significant relationship with duration as per ethnic group were then to be subjected to another t-test of mean time for each of the matching values of the variables between the ethnic groups.

These first t-tests on within variable group means were performed on the sociodemographic variables of occupation, marital status, and population size of birth place. The two values for occupation (i.e., blue collar and white collar) were seen as representing differences in terms of income, education, and ability of opportunity to accept various levels of responsibility, etc., and the test was performed to check for any effect of labor classification on reporting time. Marital status was tested to see if it made any difference whether a person was married or not married (i.e., single, divorced, or widowed). These within variable groups were seen as possible indicators of different sets of social, emotional, and economic responsibilities and considerations. The values for population size of birth place (i.e., rural and urban) were considered valuable for testing because of their use in past health related research. They were also seen as representing basic differences in access to medical information and institutionalized medical care; and differences in the level of assimilation of biomedical knowledge and the maintenance of more traditional medical beliefs.

In addition to the above mentioned sociodemographic variables, the first round of t-tests were also performed on the several medical variables of family medical history, personal medical history, and the symptoms presented at the diagnostic visit. The two values for family history (i.e., cancer, no cancer) were seen as respectively representing the presence or lack of particular concerns regarding cancer. The reported presence of cancer was seen as an indicator of both an awareness by the patient of the possibility of having cancer, and the possible knowledge of what the disease may entail in terms of medical, social, and economic costs. A comparison between the presence and absence of these concerns was hypothesized to have a significant relationship with reported symptom duration such that the means for these two values would be different.

The values for personal medical history (i.e., frequency of problems and similarity of problems) were also hypothesized to result in significantly different reported mean duration times. The frequency of problems was seen as an indicator of an individual's exposure to the medical system, and their inclination towards medical care. Medical similarity was seen as an indicator of an individual's exposure to similar symptoms as those for the present illness episode. This exposure was considered as a possible factor in either heightening or lowering the perceptual threshold of the patient for such symptoms. The following group mean comparisons were therefore expected to demonstrate significant relationships: (1) presence of medical similarity versus absence of similarity; (2) occasional problems versus persistent problems; and (3) occasional similar problems versus persistent similar problems.

The within variable means for each symptom presented (i.e., when present versus when not reported) were compared to check for any relationship with duration time. As was the case for the above mentioned variables, this first battery of t-tests was considered preliminary to a test of between ethnic group differences for each variable. Although the within variable test focused upon the presence and absence of the symptom, the primary concern here is with the presence of the symptom. It was suspected that the presence of particular symptoms by their interrelationship with past medical experiences and social orientations (i.e., an individual's ethnic background in conjunction with their family medical history and/or personal medical history) will result in significantly different mean duration times when compared with their mutually exclusive counterparts. This first set of tests was simply a means of establishing which symptoms should be analyzed at a deeper level of relationship with reported duration time.

When sample sizes are small as in the case of this investigation, the depth of analysis becomes somewhat limited because of reduced cell sizes. In effect, these small cell sizes when analyzed have considerable error in data interpretation. In order to circumvent this handicap, a log linear model was employed. This procedure is an analog to analysis of variance and involves the use of cross-product ratios of particular dichotomous variables contained within a 2 X 2 table format (Goodman 1965, 1972, and Marascuilo and McSweeney 1977). In order for this analysis to be performed it was necessary to transform the continuous dependent variable of reported symptom duration into a discrete variable with only two values. This transformation was accomplished by dividing the reported symptom duration times into categories based on the median duration time. The median duration was used instead of the mean duration time because the distribution of this variable was skewed to the left of a normal curve. By using the median as a point of comparison, the sample was broken into two evenly weighted groups. Unlike earlier delay studies, there was no predetermined time marker for analysis. The two categories of median duration are: (1) less than or equal to the median; and (2) greater than the median. The median of the sample was three months (the correspondence to Pack and Gallo's 1938 time marker is only coincidental).

The log linear model used here computes statistical values which indicate the nature of the relationships between four main elements; symptom duration, ethnicity, the frequency of variable reporting, and the reported values for that variable. These relationships, which are listed in a ratio format, are between: (1) reported symptom duration and ethnic background; (2) frequency of reported variable and background; (3) the reported variable values and symptom duration; and (4) the interaction between ethnicity, reported variable value, and symptom duration. A fifth permutation includes the relationship between ethnicity and the reported variable values. Although the ratio values for this relationship will be given in the tables, they are useful at only the most descriptive level of interpretation about the sample. This stems from the fact that these ratios for ethnicity and variable value can not be statistically tested separately. They merely result from the computation of the ratio values for the interaction effects.

The first relationship between reported symptom duration and ethnicity concerns the overall main effects of ethnicity on reporting time. This relationship is of particular interest because it tests the main hypothesis of the study. The second relationship on frequency of reported variable and ethnicity provides information about whether or not the first listed (i.e., in a test format) value of the variable occurs equally between ethnic groups. This listed value is arbitrary and is dependent only on the convention used by the researcher. For example, either the presence or the absence of a symptom could be used since they are mutually exclusive categories. This test is essential before proceeding with any other tests on the variable in question. If the variable was unevenly distributed among the sample, here considered to be a ratio of 2:1 or greater, it would be meaningless to compare between ethnic group relationships. To do this would be like comparing the relationships between two separate populations. The third relationship indicates the association between each of the listed variable values and reporting time. For example, this test would be appropriate for such questions as: do people who have reported rectal bleeding tend to report before the median time or after, and how do they compare to people who have not reported such bleeding? The last relationship on the interaction between ethnicity, reported variable value, and duration time will be the keystone for discussing the relationships for each variable. This test provides ratio values representing the interaction between a listed variable value with a given ethnic group in terms of reporting before or after the median.

The ratio values are computed by taking the cross-product ratio from the 2 X 2 table for the variable in question. This odds ratio which is labeled (g) will in all references involve the ratio of one analytical category to another where the second category is equal to one. The statistical significance of this odds ratio is computed by taking Goodman's gamma (g), which is the natural log of the odds ratio, and dividing it by the standard deviation for the table under consideration. This procedure results in a standard score which, when looked up in a Z score distribution table, indicates the alpha level. Thus the overall procedure involves an odds ratio which indicates how the sample relates to particular variables and then computes a statistical test for this ratio in terms of a standard score. The interaction effect, although more involved than the first three tests because it is an odds ratio of an odds ratio, is tested statistically by a similar procedure which takes into account the increased complexity of the relationship. For examples of this procedure, see Appendix B.

Results

In discussing the results of the preceding analyses, various figures and tables will be used in addition to the text. These figures and tables will be found throughout this chapter. The reporting of these results will be presented in the following sequence: (1) the sample distribution; (2) the reulsts from tests involving the continuous dependent variable of reported symptom duration; and (3) the results from tests on reported sypmtom duration as a discrete variable.

The Sample Distribution

The sample distribution for patients reported to have either colonic or rectal carcinoma was fairly even with only a few more colon cases than rectum cases (Figure 1., Table II). Seventy cases or 52 per cent of the sample were reported as having colon cancer, while sixty-five cases or forty-eight per cent were reported to have rectal cancer.

The distribution of the sample by the five categories for ethnicity indicated that by far the majority of patients were Northern U.S. White (60 cases) while the smallest group was Southern U.S. White (13 cases)(Figure 2., Table IIIa). The second largest group reported was U.S. Black (28 cases) followed by people with Eastern European ancestory (19 cases)

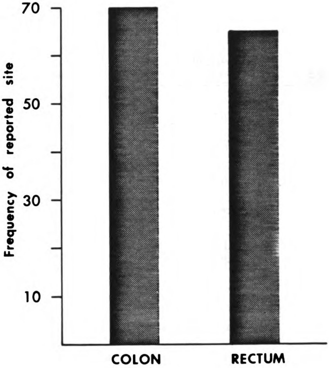


Figure 1
Distribution of cancer sites (N=135)

TABLE II.

PRIMARY SITE OF CANCER

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. COLON	70	51.9	51.9
2. RECTUM	65	48.1	100.0
TOTAL	135	100.0	

TABLE IIIa.

ETHNICITY OF PATIENT

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. NORTH US WHITE	60	44.4	44.4
2. SOUTH US WHITE	13	9.6	54.0
3. US BLACK	28	20.8	74.8
4. US WEST EUROPE	15	11.1	85.9
5. US EAST EUROPE	19	14.1	100.0
TOTAL	135	100.0	

TABLE IIIb.

ETHNICITY OF PATIENT

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. US WHITE	107	79.2	79.2
2. US BLACK	28	20.8	100.0
	135	100.0	

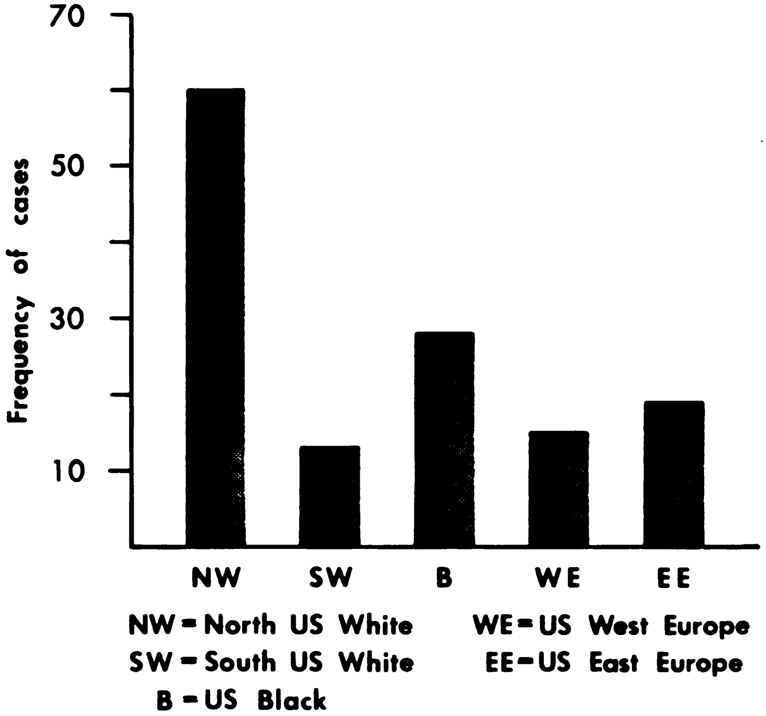


Figure 2
Distribution of ethnic groups (N=135)

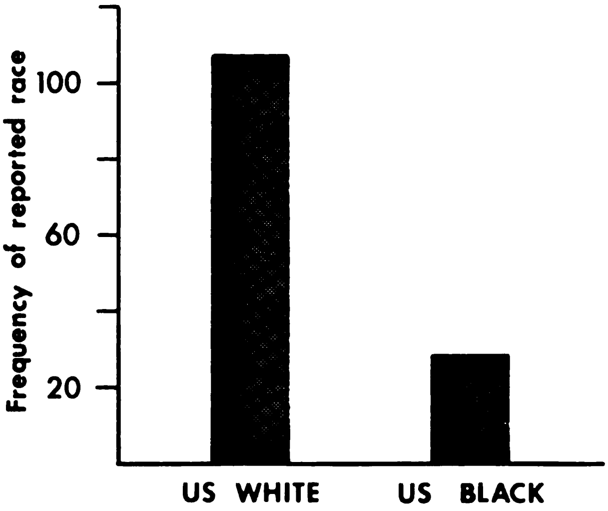


Figure 3
Distribution of subjects by race (N=135)

and then people with Western European ancestory (15 cases). When simply considering the Black-White racial distribution (Figure 3., Table IIIb) the frequency of Whites to Blacks was almost 4:1. The distribution by race of site (Figure 4., Table IIIc) showed that while rectal cancer represented the majority of White cases (57 per cent), it comprised the minority of cases for Blacks (36 per cent).

The distribution for occupational status indicated that the largest number of patients (over 50 per cent) were classed as unskilled laborers (63 cases)(Figure 5., Table IV). The second largest group was people who were self-employed (31 cases) followed by skilled laborers (25 cases) and people occupying managerial positions (8 cases). When occupation was divided into the categories of blue collar worker (BC) and white collar worker (WC) the (BC) workers out numbered the (WC) workers by more than two to one with 88 and 39 cases respectively. Both of these distributions had eight cases missing because of inadequate data.

The distribution of the variable marital status (Figure 6., Table V) showed that a majority of the patients were married at diagnosis (78 cases). Following the married category were the groups representing: divorced (23 cases), single/never married (21 cases), and widowed patients (13 cases). When marital status was divided into the categories of alone (A) and together (T), the (T) group was only slightly larger than the (A) group at fifty-eight and forty-two per cent respectively.

Figure 4
Distribution of cancer site by race

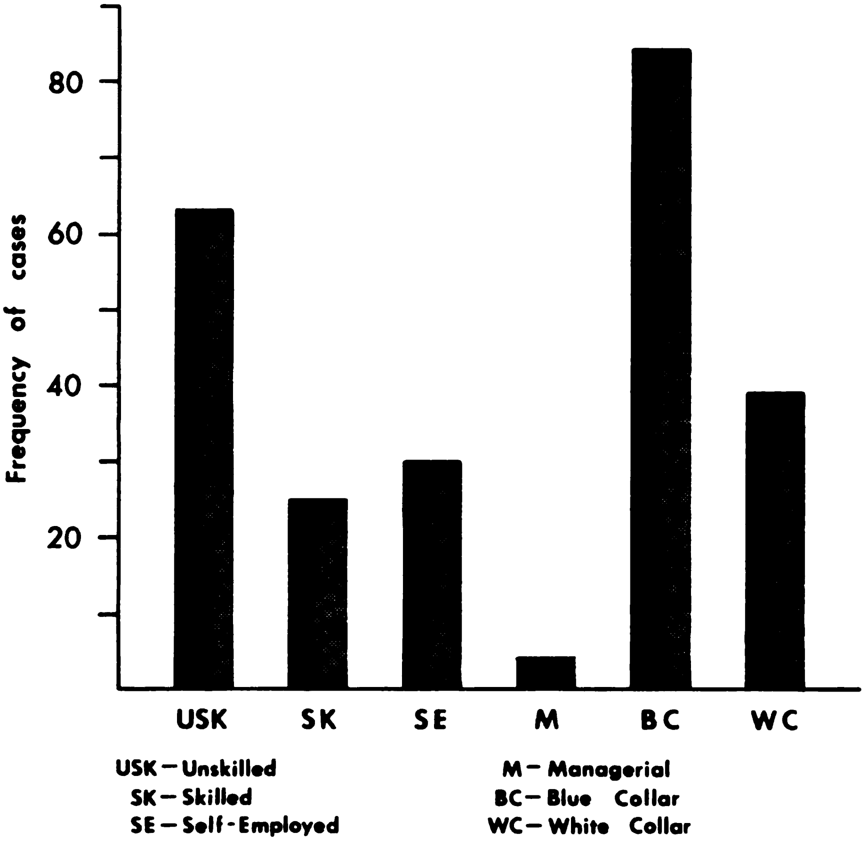


Figure 5
Distribution by occupation (N=127)

TABLE IIIc.

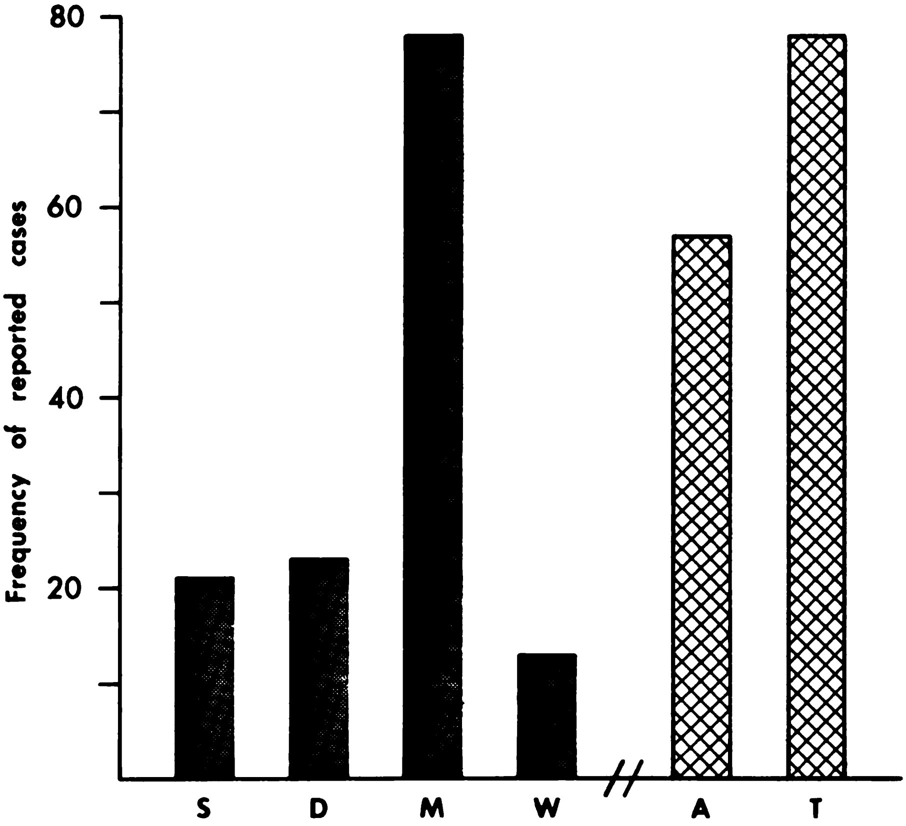
ETHNICITY BY SITE

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ. (%) BY ETHNIC	RELATIVE FREQ. (%) BY SAMPLE
1. US WHITE			
a. COLON	46	43.0	34.1
b. RECTUM	61	57.0	45.2
2. US BLACK			
a. COLON	18	64.3	13.0
b. RECTUM	10	35.7	7.4
TOTAL	135		

TABLE IV.

OCCUPATION OF PATIENT

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ. (%)	ADJUSTED FREQ. (%)	CUMULATIVE ADJUSTED FREQUENCY
1. BLUE COLLAR	88	65.2	69.3	
a. UNSKILLED	(63)	(46.7)	(49.6)	49.6
b. SKILLED	(25)	(18.5)	(19.7)	69.3
2. WHITE COLLAR	39	28.9	30.7	
a. SELF-EMPLYD	(31)	(23.0)	(24.4)	93.7
b. MANAGERIAL	(8)	(5.9)	(6.3)	100.0
3. OUT OF RANGE	8	5.9	MISSING	
TOTAL	135	100.0	100.0	



S–Single
D–Divorced
M–Married

W–Widowed
A–Alone
T–Together

Figure 6
Distribution by marital status (N=135)

TABLE V.

MARITAL STATUS OF PATIENT

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. ALONE	57	42.2	
a. SINGLE	(21)	(15.6)	15.6
b. DIVORCED	(23)	(17.0)	32.6
c. WIDOWED	(13)	(9.6)	42.2
2. TOGETHER			
a. MARRIED	(78)	(57.8)	100.0
TOTAL	135	100.0	

TABLE VI.

POPULATION SIZE OF BIRTH PLACE

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. RURAL	45	33.3	51.7	
a. UNDER 1000	(21)	(15.6)	(24.1)	24.1
b. 1000-9999	(24)	(17.8)	(27.6)	51.7
2. URBAN	42	31.1	48.3	
c. 10000-99999	(16)	(11.8)	(18.4)	70.1
d. OVER 100000	(26)	(19.3)	(29.9)	100.0
3. OUT OF RANGE	48	35.6	MISSING	
TOTAL	135	100.0	100.0	

TABLE VII.

AGE AT DIAGNOSIS

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. 30-35	1	.7	.7
2. 25-40	1	.7	1.5
3. 40-45	6	4.4	5.9
4. 45-50	12	8.9	14.8
5. 50-55	6	4.4	19.3
6. 55-60	23	17.0	36.3
7. 60-65	20	14.8	51.1
8. 65-70	18	13.3	64.4
9. 70-75	18	13.3	77.8
10. 75-80	19	14.1	91.9
11. 80-85	9	6.7	98.5
12. 85-90	2	1.5	100.0
TOTAL	135	100.0	

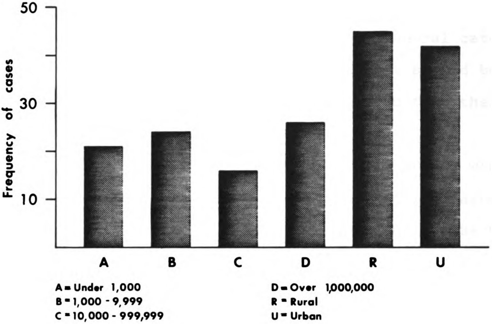


Figure 7
Distribution of population by birth place (N=87)

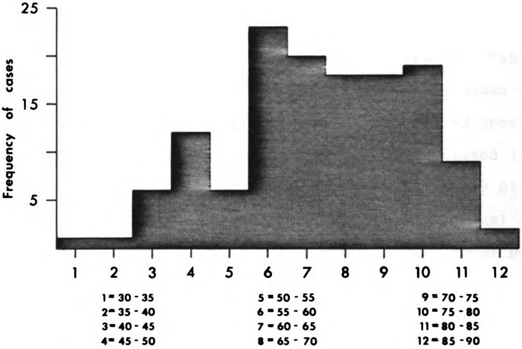


Figure 8
Distribution of age at diagnosis (N=135)

Population size of birth place at birth (Figure 7., Table VI) was rather evenly distributed for both the explicit category of size and the more general category of rural-urban population type. However, it should be noted that forty-eight cases had to be excluded from these distributions because of inadequate data.

Age at diagnosis (Figure 8., Table VII) was found to have a mean value of 65 years and a median value of 64 years with a minimum and maximum age of 32 and 86 years respectively. The distribution indicates a minor peak at the 45-50 year age range with the major peak at the 55-60 year age range. Following this main frequency peak there is a plateau until the 80-85 year age range.

The distribution for the stage at diagnosis (Figure 9., Table VIII) indicates that, with the exception of the reporting of Dukes' class "A" lesions, the variable is evenly reported.

Differentiation at diagnosis (Figure 10., Table IX) had a distribution in which almost half of the cases were classified as well differentiated (67 cases) and another thirty per cent were moderately-well differentiated (41 cases). The remaining three classes of moderately differentiated (8 cases), poorly differentiated (14 cases) and undifferentiated (2 cases) made up only twenty-four per cent of the sample with three cases missing.

Family medical history (Figure 11., Table X) indicated that the reported absence of cancer in an

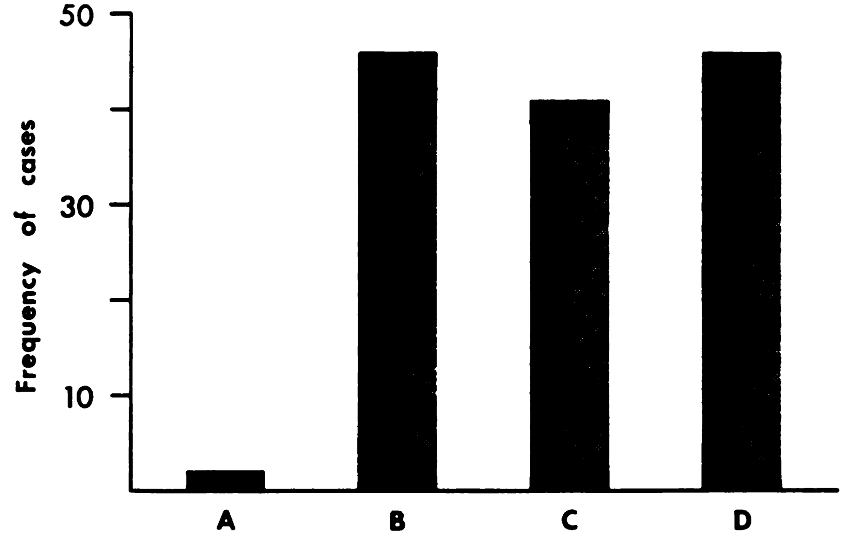


Figure 9
Distribution of Dukes' stage at diagnosis (N=135)

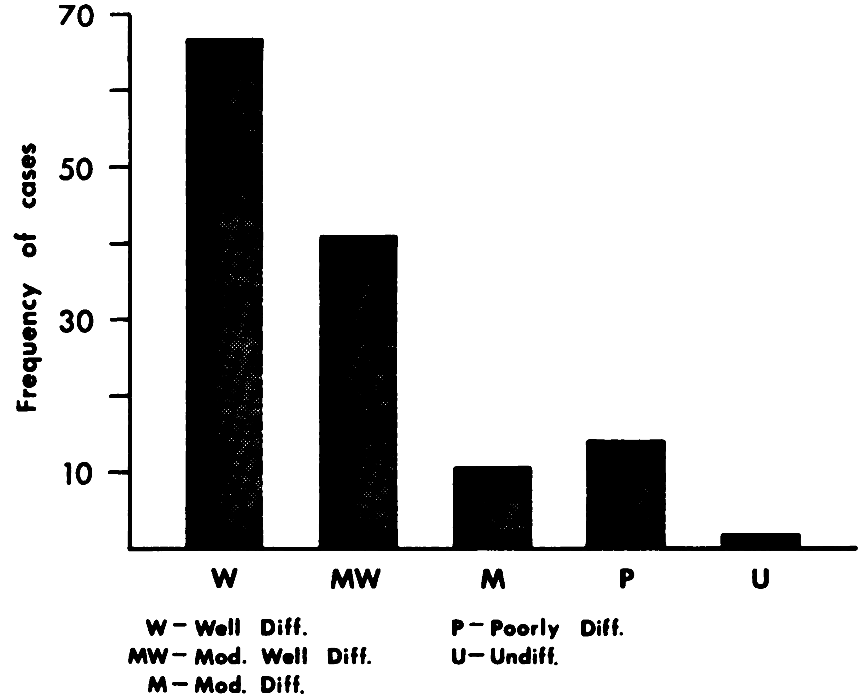


Figure 10
Distribution of differentiation at diagnosis (N=132)

TABLE VIII.

STAGE AT DIAGNOSIS

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	CUMULATIVE RELATIVE FREQ.(%)
1. DUKES' A	2	1.5	1.5
2. DUKES' B	46	34.1	35.6
3. DUKES' C	41	30.4	65.9
4. DUKES' D	46	34.1	100.0
TOTAL	135	100.0	

TABLE IX.

DIFFERENTIATION AT DIAGNOSIS

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. WELL DIFF.	67	49.5	50.8	50.8
2. MOD-WELL DIFF.	41	30.4	31.1	81.8
3. MOD DIFF.	8	5.9	6.1	87.9
4. POORLY DIFF.	14	10.4	10.5	98.5
5. UNDIFF.	2	1.5	1.5	100.0
6. OUT OF RANGE	3	2.2	MISSING	
TOTAL	135	100.0	100.0	

TABLE X.

FAMILY MEDICAL HISTORY

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. NO CANCER	81	60.0	74.3	74.3
2. CANCER	28	20.7	25.7	100.0
3. OUT OF RANGE	26	19.3	MISSING	
TOTAL	135	100.0	100.0	

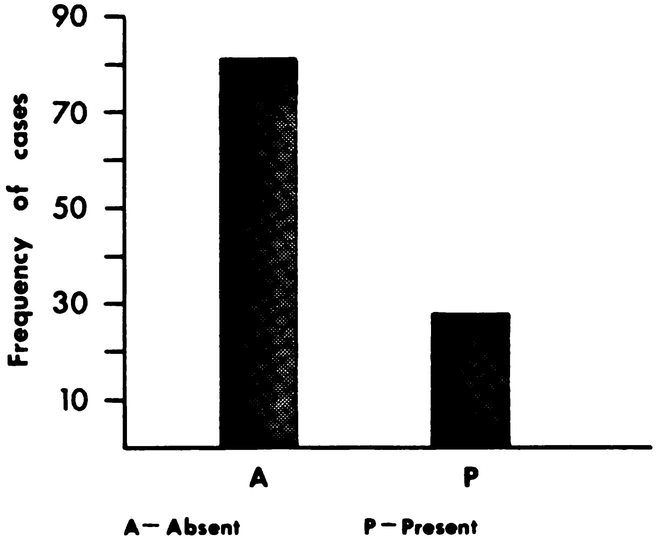


Figure 11
Distribution of reported cancer in family (N=109)

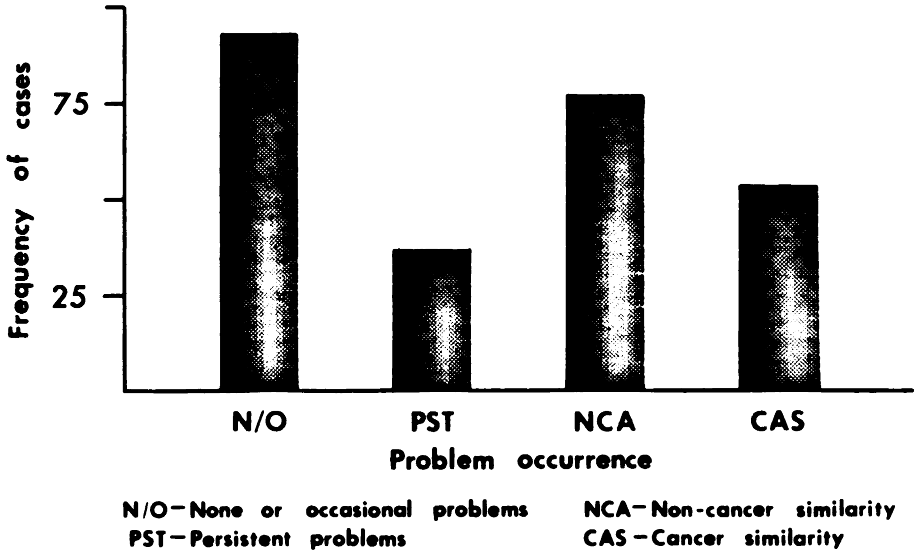


Figure 12
Distribution of personal medical problems (N=130)

individual's family was almost three times as frequent as its reported presence in the rest of the sample with 81 and 28 cases respectively. Information on this variable was not always present and twenty-six cases were recorded as missing.

Personal medical history was separated into the four main elements of: occasional problems, persistent problems, no problems/usual adult and child conditions, and personal medical problems (five cases missing). The distribution for occasional medical problems (Tables XIa and XIb) indicated that individual's with no similar occasional problems (51 cases) were half again as frequent as those patients who were reported as having similar problems (35 cases). The distribution for patients with persistent problems (Tables XIc and XId) indicated that non-similar persistent problems (37 cases) were reported most frequently for the sample with an increase over similar problems (21 cases) of 76 per cent. The distribution for no reported unusual problems indicated that only 22 per cent of the sample or 29 cases had gone through life without any unusual medical problems (Table XIe).

Personal medical problems (Figure 12., Table XIf and XIg) includes problem occurrence and medical similarity. The distribution of the problem occurrence showed that by far the majority of patients had only occasional problems or nothing unusual at all. The distribution for similar medical problems to cancer indicated that 50 per cent more patients were recorded to have non-similar problems than

TABLE XI.

PERSONAL MEDICAL HISTORY:

XIa. OCCASIONAL MEDICAL PROBLEMS NON-SIMILAR

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	79	58.5	60.8	60.8
2. PRESENT	51	37.8	39.2	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

XIb. OCCASIONAL MEDICAL PROBLEMS SIMILAR

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	95	70.4	73.1	73.1
2. PRESENT	35	25.9	26.9	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

XIc. PERSISTANT MEDICAL PROBLEMS NON-SIMILAR

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	93	68.9	71.5	71.5
2. PRESENT	37	27.4	28.5	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

XId. PERSISTANT MEDICAL PROBLEMS SIMILAR

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	109	80.7	83.8	83.8
2. PRESENT	21	15.6	16.2	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

TABLE XI. (continued)

XIe. NO REPORTED UNUSUAL PROBLEMS

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	101	74.8	77.7	77.7
2. PRESENT	29	21.5	22.3	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

XIf. PERSONAL MEDICAL PROBLEMS

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. ABSENT	93	68.9	71.5	71.5
2. PRESENT	37	27.4	28.5	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

XIg. PERSONAL MEDICAL SIMILARITY

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)	ADJUSTED FREQ.(%)	CUMULATIVE ADJUSTED FREQ. (%)
1. NON-CA RELATED	77	57.0	59.2	59.2
2. CA RELATED	53	39.3	40.8	100.0
3. OUT OF RANGE	5	3.7	MISSING	
TOTAL	135	100.0	100.0	

similar ones with 77 and 53 cases respectively.

The distribution of reported symptoms (Figure 13., Table XII) indicated three symptom groupings that could be isolated by their frequency of reporting from the remaining nine symptoms. The first group consisted of the two symptoms; weight loss (i) with 71 cases, and rectal bleeding (a) with 70 cases. The second group was more than twenty-three per cent lower in frequency than rectal bleeding and included the symptoms: dull persistent pain (d) with 57 cases, constipation (h) with 54 cases, and diarrhea (g) with 53 cases. The third group was only fifty per cent of group one and only 75 per cent of group two and included the symptoms: weakness (k) with 34 cases, nausea (n) with 28 cases, and poor appetite (o) with 28 cases. Of the remaining nine symptoms, the highest frequency was 16 cases and the lowest was 8 cases (for a symptom distribution by race see Table XIII).

A X^2 was used here to determine if the symptoms within each observed cluster covaried or were merely an artifact of reporting and therefore random in their occurrence. In this case with one degree of freedom, the critical value for X^2 for an alpha of .05 was 3.84 and for an alpha of .01 it was 6.63. When the first group (rectal bleeding and weight loss) was tested the results indicated no covariance with a X^2=.20. In the second group, although diarrhea was not found to covary with either constipation (X^2=.60) or dull persistent pain (X^2=.70), constipation and

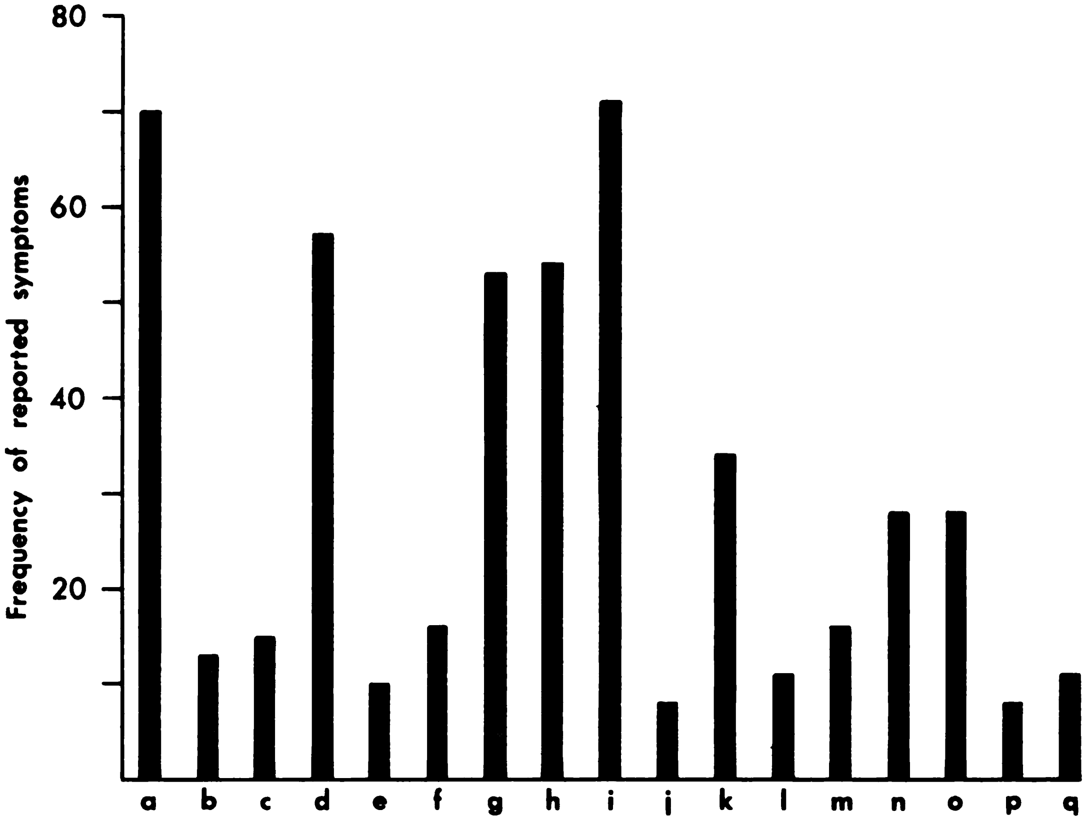


Figure 13
Distribution of reported symptoms (See Table XII for definitions) (N=135)

TABLE XII.

SYMPTOMS PRESENTED AT DIAGNOSIS

VALUE		ABSOLUTE FREQ.	RELATIVE FREQ.(%)
XIIa. RECTAL BLEEDING			
1. ABSENT		65	48.1
2. PRESENT		70	51.9
	TOTAL	135	100.0
XIIb. BLOOD IN STOOLS			
1. ABSENT		122	90.4
2. PRESENT		13	9.6
	TOTAL	135	100.0
XIIc. ABDM. PAIN AT DEF.			
1. ABSENT		120	88.9
2. PRESENT		15	11.1
	TOTAL	135	100.0
XIId. DULL PERSIST. PAIN			
1. ABSENT		78	57.8
2. PRESENT		57	42.2
	TOTAL	135	100.0
XIIe. CRAMPY ABDM. PAIN			
1. ABSENT		125	92.6
2. PRESENT		10	7.4
	TOTAL	135	100.0
XIIf. GENERAL BODY PAIN			
1. ABSENT		119	88.1
2. PRESENT		16	11.9
	TOTAL	135	100.0
XIIg. DIARRHEA			
1. ABSENT		82	60.7
2. PRESENT		53	39.3
	TOTAL	135	100.0
XIIh. CONSTIPATION			
1. ABSENT		81	60.0
2. PRESENT		54	40.0
	TOTAL	135	100.0
XIIi. WEIGHT LOSS			
1. ABSENT		64	47.4
2. PRESENT		71	52.6
	TOTAL	135	100.0

TABLE XII. (continued)

VALUE	ABSOLUTE FREQ.	RELATIVE FREQ.(%)
XIIj. SHORTNESS OF BREATH		
1. ABSENT	127	94.1
2. PRESENT	8	5.9
TOTAL	135	100.0
XIIk. WEAKNESS		
1. ABSENT	101	74.8
2. PRESENT	34	25.2
TOTAL	135	100.0
XIIl. PALPABLE MASS		
1. ABSENT	124	91.9
2. PRESENT	11	8.1
TOTAL	135	100.0
XIIm. DISTENTION		
1. ABSENT	119	88.1
2. PRESENT	16	11.9
	135	100.0
XXIn. NAUSEA		
1. ABSENT	107	79.3
2. PRESENT	28	20.7
TOTAL	135	100.0
XIIo. POOR APPETITE		
1. ABSENT	107	79.3
2. PRESENT	28	20.7
TOTAL	135	100.0
XIIp. MALAIZE		
1. ABSENT	127	94.1
2. PRESENT	8	5.9
TOTAL	135	100.0
XIIq. DECRSD. CALIBER STOOLS		
1. ABSENT	124	91.9
2. PRESENT	11	8.1
TOTAL	135	100.0

TABLE XIII.

SYMPTOM DISTRIBUTION BY RACE

SYMPTOM	RACE	ABSOLUTE FREQ.	RELATIVE FREQ.(%) BY RACE	CUMULATIVE FREQ. (%)	
1. RECTAL BLEEDING	W	55	13.8		
	B	16	14.9	14.1	14.1
2. BLOOD IN STOOL	W	11	3.0		
	B	3	2.8	2.8	16.9
3. ABDOMINAL PAIN AT DEFECATION	W	13	3.3		
	B	1	.9	2.8	19.7
4. DULL PERSISTANT PAIN	W	46	11.6		
	B	11	10.3	11.3	31.0
5. CRAMPY ABDOMINAL PAIN	W	6	1.5		
	B	4	3.7	2.0	33.0
6. GENERAL BODY PAIN	W	12	3.0		
	B	4	3.7	3.2	36.2
7. DIARRHEA	W	44	11.1		
	B	9	8.4	10.5	46.7
8. CONSTIPATION	W	46	11.6		
	B	8	7.5	10.7	57.4
9. WEIGHT LOSS	W	59	14.9		
	B	12	11.2	14.1	71.5
10. SHORTNESS OF BREATH	W	5	1.2		
	B	3	2.8	1.6	73.1
11. WEAKNESS	W	26	6.5		
	B	8	7.5	6.7	79.8
12. PALPABLE MASS	W	9	2.3		
	B	2	1.9	2.2	82.0
13. DISTENTION	W	15	3.8		
	B	2	1.9	3.4	85.4
14. NAUSEA	W	17	4.3		
	B	10	9.3	5.3	90.7
15. POOR APPETITE	W	21	5.3		
	B	7	6.5	5.5	96.2
16. MALAIZE	W	4	1.0		
	B	4	3.7	1.6	97.8
17 DECREASED CALIBER OF STOOLS	W	8	2.0		
	B	3	2.8	2.2	100.0

dull persistent pain were found to covary (X^2=4.38) with an alpha of .05. Tests on the third group indicated that nausea and poor appetite covaried with a (corrected) X_c^2=16.27 that was highly significant, whereas weakness was found to occur at random and independent of poor appetite (X^2=.50) and, by statistical inference, nausea.

Reported symptom duration (Figure 14., Table XIV) had a mean of five months, a median of a little over three months and a standard deviation of five months. This distribution was heavily weighted to the left with a minimum duration of one week and a maximum duration of thirty months. Although it may be the result of the way people in this culture estimate and round time, there appear to be four frequency peaks: at one, three, six, and tweleve months. The most frequently reported duration time was one month or less with 33 cases; followed by three and six months with 19 cases each; two months with 15 cases; four months with 13 cases; and twelve months with 10 cases.

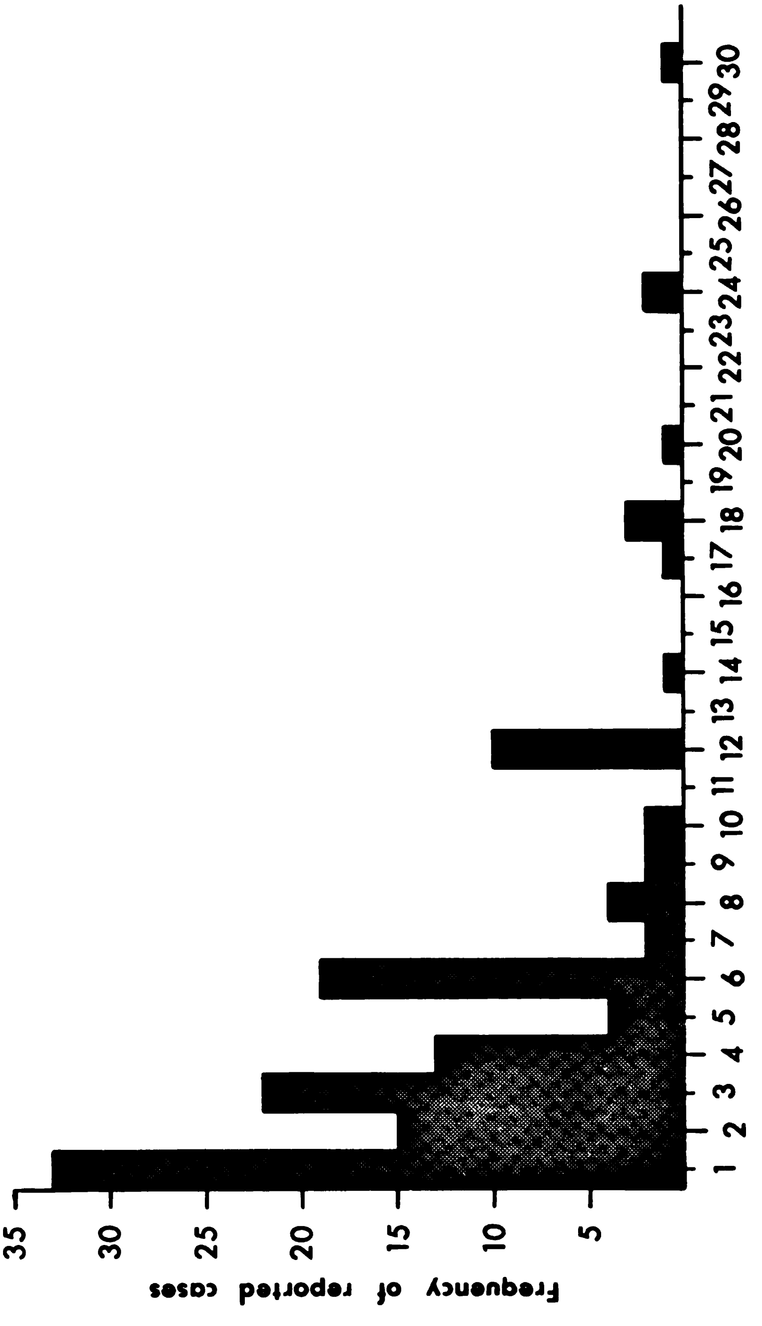


Figure 14
Distribution of duration of symptoms in months (N=135)

TABLE XIV.

REPORTED SYMPTOM DURATION PRIOR TO DIAGNOSIS

VALUE IN MONTHS	ABSOLUTE FREQ.	RELATIVE FREQ. (%)	CUMULATIVE RELATIVE FREQ. (%)
1.00	33	24.4	24.4
2.00	15	11.1	35.5
3.00	22	16.3	51.8
4.00	13	9.6	61.4
5.00	4	3.0	64.4
6.00	19	14.1	78.5
7.00	2	1.5	80.0
8.00	4	3.0	83.0
9.00	2	1.5	84.5
10.00	2	1.5	86.0
11.00	**	****	86.0
12.00	10	7.4	93.4
13.00	**	****	93.4
14.00	1	.7	94.1
15.00	**	****	94.1
16.00	**	****	94.1
17.00	1	.7	94.8
18.00	3	2.2	97.0
19.00	**	****	97.0
20.00	1	.7	97.7
24.00	2	1.5	99.2
30.00	1	.7	99.9
TOTAL	135	100.0	

MEAN = 5.07 MONTHS
MEDIAN = 3.29 MONTHS
STD DEV = 5.09 MONTHS

Symptom Duration As A Continuous Variable

The results from a oneway analysis of variance on symptom duration time by ethnic background (Table XV) indicated that the groups under consideration had significantly different variances and mean duration times. The F statistic has a .03 significance level with an F-ratio of 2.76.

Two *a posteriori* contrast tests were also performed on the ethnic groups and symptom duration to provide a better descriptive picture of how they were distributed. The first of these tests was run at a significance of .05 and the second has run at a significance level of .10 to discover any possible trends or shifting relationships. The results of the first contrast test with an alpha of .05 (Table XVa) indicated that while the Black and Northern White groups were not homogeneous, the Southern White, West European and East European groups could not be differentiated from either the Black or the Northern White groups. The results of the second test run at an alpha of .10 (Table XVb) indicated a trend for a heterogeneous relationship between the Black group on one side and the Northern and Southern White groups on the other; however, the West and East European groups still could not be differentiated from the previously defined Black and White groups.

Considering the above results it was decided to collapse the groups into the categories of U.S. Black, U.S. White (NW and SW), and U.S. European (WE and EE). The

TABLE XV.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON REPORTED DURATION OF SYMPTOMS BY ETHNIC BACKGROUND.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	4	300.34	75.09	2.76	.03
WITHIN GROUPS	130	3532.72	27.17		
TOTAL	134	3833.06			

GROUP	N	$\overline{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. (NW)	60	6.36	6.54	.84	.25	30.00	4.67 -- 8.05
2. (SW)	13	5.71	5.07	1.36	1.00	18.00	2.78 -- 8.64
3. (B)	28	2.60	3.34	.63	.25	17.00	1.30 -- 3.89
4. (WE)	15	3.88	3.18	.82	.25	12.00	2.12 -- 5.64
5. (EE)	19	4.80	3.60	.83	.25	12.00	3.07 -- 6.54

TABLE XVa.

RESULTS OF MULTIPLE RANGE TEST, TUKEY-B AT AN ALPHA OF .05.

SUBSET 1

GROUP	GRP (B)	GRP (WE)	GRP (EE)	GRP (SW)
MEAN	2.60	3.88	4.80	5.71

SUBSET 2

GROUP	GRP (WE)	GRP (EE)	GRP (SW)	GRP (NW)
MEAN	3.88	4.80	5.71	6.36

TABLE XVb.

RESULTS OF MULTIPLE RANGE TEST, DUNCAN AT AN ALPHA OF .10.

SUBSET 1

GROUP	GRP (B)	GRP (WE)	GRP (EE)
MEAN	2.60	3.88	4.80

GROUP	GRP (WE)	GRP (EE)	GRP (SW)	GRP (NW)
MEAN	3.88	4.80	5.71	6.36

results of an analysis of variance on these three groups (Table XVI) showed an F-ratio of 5.12 at an alpha value of .007. When the multiple range test for the five per cent level was performed as above, the results (Table XVa) indicated that the Europeans still overlapped the White and Black groups. A more liberal contrast test was run at an alpha of .10 to see if the European group would shift towards the White group and the opposite was observed. The European group appears more homogeneous to the Black rather than the White group, albeit with very little statistical significance.

It was decided to collapse the European group in with the U.S. White group. Here the meaningful significance was considered more important than the statistical significance. Not only did the groups logically break down this way but with a further inspection of their means, they separated in a way that was expected. In fact when the standard deviations for the groups are considered, it could be hypothesized that with a larger sample size, the Europeans would segregate into a subset separate from both Blacks and Whites. With the only logical heterogeneous groups being White and Black the remaining tests were performed in light of these racial groupings. A oneway analysis of variance on these two groups indicated that they were heterogeneous for reported symptom duration with an alpha of .008 (Table XVII). Even with the tendency for the European group to pull the White values closer to the Black group values, their

TABLE XVI

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON REPORTED DURATION OF SYMPTOMS BY ETHNIC BACKGROUND

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	2	272.92	136.46	5.12	.007
WITHIN GROUPS	132	3520.14	26.67		
TOTAL	134	3793.06			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. (B)	28	2.60	3.34	.63	.25	17.00	1.30 -- 3.89
2. (W)	73	6.15	6.28	.73	.25	30.00	4.68 -- 7.61
3. (E)	34	4.36	3.36	.57	.25	12.00	3.20 -- 5.51
TOTAL	135	4.96			.25	30.00	

TABLE XVIa.

RESULTS OF MULTIPLE RANGE TEST, TUKEY-B AT AN ALPHA OF .05.

SUBSET 1

GROUP	GRP (B)	GRP (E)
MEAN	2.60	4.36

SUBSET 2

GROUP	GRP (E)	GRP (W)
MEAN	4.36	6.15

TABLE XVIb.

RESULTS OF MULTIPLE RANGE TEST, DUNCAN AT AN ALPHA OF .10.

SUBSET 1

GROUP	GRP (B)	GRP (E)
MEAN	2.60	4.36

GROUP	GRP (W)
MEAN	6.15

TABLE XVII

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON REPORTED DURATION OF SYMPTOMS BY ETHNIC BACKGROUND.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	197.55	197.55	7.31	.008
WITHIN GROUPS	133	3595.51	27.03		
TOTAL	134	3793.06			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. US BLACK	28	2.60	3.34	.63	.25	17.00	1.30 -- 3.89
2. US WHITE	107	5.58	5.58	.54	.25	30.00	4.51 -- 6.65
TOTAL	135				.25	30.00	

TABLE XVIIIa.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON OCCUPATION BY REPORTED SYMPTOM DURATION.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	299.13	99.71	3.38	.021
WITHIN GROUPS	112	3299.40			
TOTAL	115	3598.53			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFICENCE LIMITS
1. SKILLED	60	6.36	6.54	.84	.25	30.00	4.67 -- 8.05
2. UNSKILLED	14	5.71	5.07	1.36	1.00	18.00	2.78 -- 8.64
3. S-EMPLD	27	2.55	3.39	.65	.25	17.00	1.20 -- 3.89
4. W-COLLAR	15	3.88	3.18	.82	.25	12.00	2.12 -- 5.64
TOTAL	116	5.07			.25	30.00	

placement within the White group did not inhibit the observance of a strong racial difference in duration times. The distribution of reported symptom duration times as a function of the per cent reporting per racial group is presented in Figure 15.

Analysis of variance for occupation by duration (Table XVIIIa) indicated that the variances were heterogeneous (p=.021). The labor classification with the longest duration was skilled workers and the shortest mean duration was represented by patients who were self-employed. An _a posteriori_ contrast test on these four groups (Table XVIIIb) showed a tendency for self-employed and white collar workers to group together and for skilled and unskilled workers to group together. The average difference between these groups means was three months.

A oneway analysis of variance on marital status (Table XIXa) showed a tendency toward heterogeneity of value means with an alpha of .06. However, the results of an _a posteriori_ contrast test indicated that all marital values belonged in the same subset (Table XIXb) at the five per cent level with married patients having the longest mean duration and widowed patients having the shortest duration.

The results of a oneway analysis of variance on age at diagnosis by duration (Table XXa) indicated that the age groups were homogeneous in regard to duration with an F-ratio of 1.15 and an alpha of .327. In addition to these results, an _a posteriori_ test performed on these data indicated that

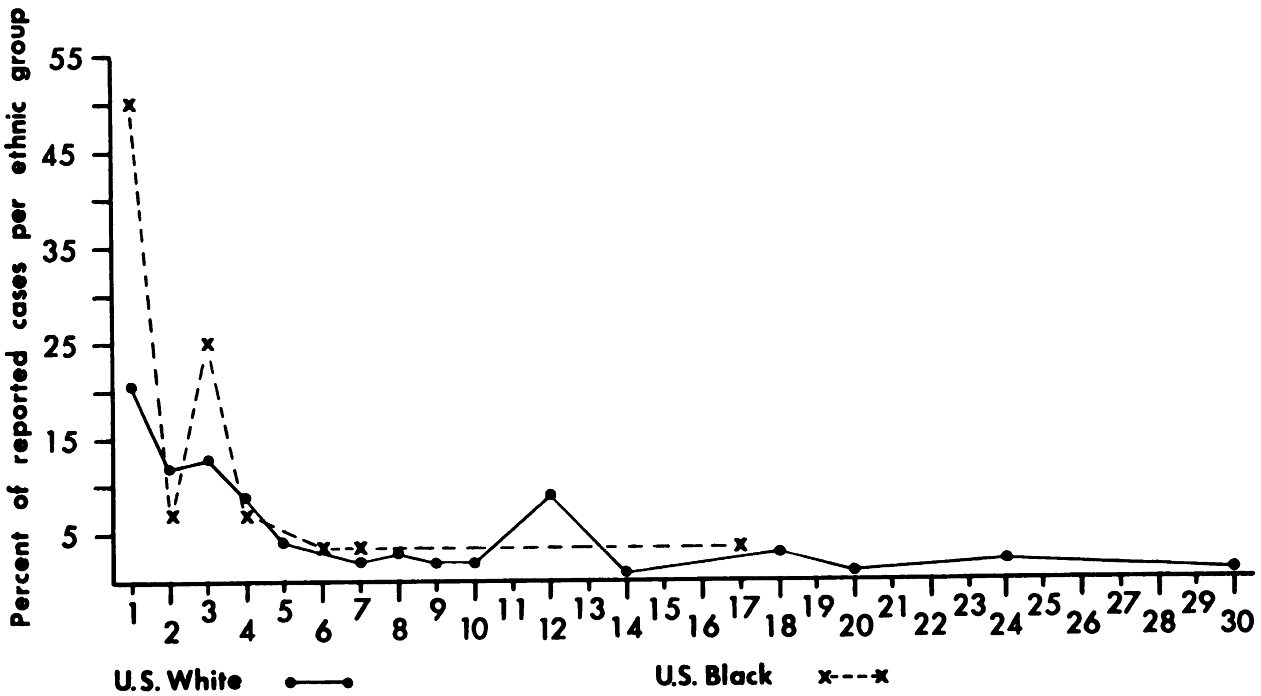


Figure 15
Distribution of duration of symptoms in months by percent of ethnic group

TABLE XVIIIb.

RESULTS OF MULTIPLE RANGE TEST, TUKEY-B AT AN ALPHA OF .05.

SUBSET 1

GROUP	GRP (S-E)	GRP (W-C)	GRP (USK)
MEAN	2.55	3.88	5.71

SUBSET 2

GROUP	GRP (W-C)	GRP (USK)	GRP (SKD)
MEAN	3.88	5.71	6.36

TABLE XIXa.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON MARITAL STATUS BY REPORTED SYMPTOM DURATION.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB
BETWEEN GROUPS	3	206.97	68.99	2.49	.063
WITHIN GROUPS	131	3626.09	27.68		
TOTAL	134	3833.06			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. SINGLE	21	3.00	3.56	.78	.25	12.00	1.37 -- 4.61
2. MARRIED	78	5.87	5.44	.62	.25	24.00	4.65 -- 7.10
3. DIVORCED	23	5.30	6.86	1.43	.25	30.00	2.34 -- 8.27
4. WIDOWED	13	2.85	2.14	.59	.25	6.00	1.55 -- 4.14
TOTAL	135	5.04			.25	30.00	

TABLE XIXb.

RESULTS OF MULTIPLE RANGE TEST, TUKEY-B AT AN ALPHA OF .05.

SUBSET 1

GROUP	GRP (W)	GRP (S)	GRP (D)	GRP (M)
MEAN	2.85	3.00	5.30	5.87

SUBSET 2

GROUP	*******	*******	*******	*******
MEAN				

TABLE XXa.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON REPORTED DURATION OF SYMPTOMS BY AGE AT DIAGNOSIS.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	11	354.63	32.24	1.15	.327
WITHIN GROUPS	123	3438.44			
TOTAL	135	3793.06			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. (30-35)	1	6.00	0.00	0.00	6.00	6.00	6.00 - 6.00
2. (35-40)	1	3.50	0.00	0.00	3.50	3.50	3.50 - 3.50
3. (40-45)	6	2.08	.92	.37	1.00	3.00	1.12 - 3.04
4. (45-50)	12	5.27	7.97	2.30	.25	30.00	.20 - 10.34
5. (50-55)	6	8.21	7.78	3.18	.25	18.00	.04 - 16.28
6. (55-60)	23	4.17	3.64	.76	.25	12.00	2.60 - 5.75
7. (60-65)	20	4.85	4.29	.96	.25	12.00	2.84 - 6.86
8. (65-70)	18	6.83	7.70	1.81	.25	24.00	3.00 - 10.66
9. (70-75)	18	3.82	3.23	.76	.25	12.00	2.21 - 5.42
10. (75-80)	19	6.64	5.61	1.29	.25	20.00	3.94 - 9.35
11. (80-85)	9	2.17	2.20	.73	.25	6.00	.47 - 3.86
12. (85-90)	2	2.50	.71	.50	.25	3.00	-3.85 - 8.85
TOTAL	135	4.96			.25	30.00	

TABLE XXb.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON AGE AT DIAGNOSIS BY ETHNIC BACKGROUND.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB
BETWEEN GROUPS	1	291.49	291.49	.17	.681
WITHIN GROUPS	133	227984.91	1714.17		
TOTAL	134	228276.40			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. US BLACK	28	63.64	15.05	2.85	36.08	85.50	57.62 -- 69.29
2. US WHITE	107	64.50	11.02	1.06	31.58	86.33	62.39 -- 66.61
TOTAL	135	64.28			31.58	86.33	

all age groups occupied the same subset at the five per cent level. A second analysis of variance was performed on age at diagnosis by ethnic group (Table XXb) and indicated that the age groups were homogeneous in terms of their variances and means when ethnicity was controlled. The mean age for Black cancer patients was 63.5 years and for White patients it was 64.5 years.

A oneway analysis of variance on stage at diagnosis by duration (Table XXI) showed that the variance between stage classifications were equal. A similar result was also obtained through an _a posteriori_ test which groups all stage classifications into a single subset at a ninety-five per cent confidence level.

A test of variance for population size of birth place at time of birth (Table XXIIa) showed the variance to be homogeneous (p=.95). And, an _a posteriori_ test (Table XXIIb) supported this finding by placing all values into the same subset at the five per cent level.

Comparisons of within variable group mean duration times based on all cases in the sample were computed by t-test procedures (Tables XXIII and XXIV) and the results are presented below. The variables which demonstrated a significant relationship with reported symptom duration time at a five per cent level or less are: poor appetite (p=.000), ethnic background (p=.001), nausea (p=.001), shortness of breath (p=.003), primary site (p=.008), marital status (p=.03), occasional similar medical problems (p=.04),

TABLE XXI.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON REPORTED DURATION OF SYMPTOMS BY STAGE AT DIAGNOSIS.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	3	97.99	32.66	1.15	.332
WITHIN GROUPS	130	3694.14	28.42		
TOTAL	133	3792.13			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. (A)	2	2.50	2.12	1.50	1.00	4.00	-16.56 -- 21.56
2. (B)	46	5.55	6.23	.92	.25	30.00	3.70 -- 7.40
3. (C)	40	5.64	6.14	.97	.25	24.00	3.68 -- 7.61
4. (D)	46	3.91	3.24	.48	.25	12.00	2.94 -- 4.87
TOTAL	134	4.97			.25	30.00	

TABLE XXIIa.

RESULTS OF ONEWAY ANALYSIS OF VARIANCE ON POPULATION SIZE OF BIRTH PLACE BY REPORTED SYMPTOM DURATION.

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB
BETWEEN GROUPS	3	12.05	4.02	.11	.955
WITHIN GROUPS	83	3061.61	36.89		
TOTAL	86	3073.66			

GROUP	N	$\bar{X}$	S	S.E.	MIN	MAX	95% CONFIDENCE LIMITS
1. UNDER 1,000	21	5.86	6.05	1.32	.25	24.00	3.10 -- 8.61
2. 1,000-99,999	24	5.98	7.69	1.57	.25	30.00	2.73 -- 9.22
3. 10,000-999,999	16	5.03	5.10	1.27	.25	18.00	2.31 -- 7.75
4. OVER 1,000,000	26	5.32	4.81	.94	.25	20.00	3.37 -- 7.26
TOTAL	87	5.58			.25	30.00	

TABLE XXIIb.

RESULTS OF MULTIPLE RANGE TEST, TUKEY-B AT AN ALPHA OF .05.

```
SUBSET 1

GROUP                GRP (3)      GRP (4)      GRP (1)     GRP (2)
MEAN                   5.03         5.32         5.86        5.98
------------------------------------------------------------------

SUBSET 2

GROUP                *******      *******      *******     *******
MEAN
```

TABLE XXIII

BETWEEN GROUP VARIANCES OF ALL VARIABLES SELECTED FOR STUDY AS GENERATED BY T-TEST PROCEDURES.

VARIABLE	GRP	GRP SIZE	F	p/F	GRP VAR
1. ETHNIC	US BLACK	28	2.79	.003	≠
Ethnicity	US WHITE	107			
2. OCCUPAT	B-COLLAR	90	1.09	.789	=
Occupation	W-COLLAR	37			
3. MARITAL	ALONE	57	1.35	.238	=
Status	TOGETHER	78			
4. POPSIZE	LT 10000	45	1.99	.029	≠
Birth Plce	GT 10000	42			
5. FAMHIST	NO CA	81	1.75	.102	=
Family ca	CA	28			
6. PERMDPR	NONE/OCAS	93	1.01	1.000	=
Fq. Probs.	PERSSTNT	37			
7. PERMDRL	NON-CA	77	1.37	.234	=
Ca Related	CA RELTD	53			
8. PHOCCPR	-	79	1.54	.087	=
Ocas. Prb.	+	51			
9. PHOCCRL	-	95	2.28	.008	≠
Ocas. Rltd.	+	35			
10. PHPRST	-	93	1.59	.080	=
Perst. Prb.	+	37			
11. PHPRSRL	-	109	1.95	.080	=
Perst. Rltd.	+	21			
12. NO PROB	-	101	1.71	.105	=
	+	29			
13. AGEDIAG	GT/E 771	70	1.07	.777	=
Mean Age	LT 771	65			
14. VAR 001	-	65	1.99	.006	≠
Rec. Bleed	+	70			
15. VAR 002	-	122	1.49	.274	=
Blood/Stool	+	13			
16. VAR 003	-	120	1.43	.302	=
Abdm. Pain	+	15			
17. VAR 004	-	78	1.53	.082	=
Dull Prst P	+	57			
18. VAR 005	-	125	2.26	.181	=
Crampy P	+	10			

TABLE XXIII (continued)

VARIABLE	GRP	GRP SIZE	F	p/F	GRP VAR
19. VAR 006	-	119	1.60	.298	=
Genrl Bdy P	+	16			
20. VAR 007	-	82	1.58	.064	=
Diarrhea	+	53			
21. VAR 008	-	81	1.73	.026	≠
Constption	+	54			
22. VAR 009	-	64	2.42	.000	≠
Weght. Loss	+	71			
23. VAR 010	-	127	7.54	.009	≠
S.O.B.	+	8			
24. VAR 011	-	101	1.74	.072	=
Weakness	+	34			
25. VAR 012	-	124	2.40	.127	=
Plpble. Mass	+	11			
26. VAR 013	-	119	1.52	.219	=
Distention	+	16			
27. VAR 014	-	107	3.83	.000	≠
Nausea	+	28			
28. VAR 015	-	107	5.07	.000	≠
Poor Appite	+	28			
29. VAR 016	-	127	1.72	.458	=
Malaize	+	8			
30. VAR 017	-	124	2.90	.006	≠
Dec. Calibr.	+	11			
31. STAGEDX	DUKES 3&4	86	1.56	.072	=
Dukes Stage	DUKES 1&2	49			
32. PRIMSITE	COLON	70	2.87	.000	≠
Primary Site	RECTUM	65			

TABLE XXIV.

STATISTICAL RELATIONSHIP OF VARIABLE MEANS FOR THE CONTINUOUS DEPENDENT VARIABLE OF SYMPTOM DURATION, GENERATED BY T-TEST PROCEDURES.

VARIABLE	GROUP	GRP SIZE	GRP MEAN	GRP S.D.	T	df.	p/T	GRP VAR
1. ETHNIC	US BLACK	28	2.60	3.34	-3.60	71.14	.001	≠
Ethnicity	US WHITE	107	5.58	5.58				
2. OCCUPAT	B-COLLAR	90	4.49	5.48	.60	125.00	.955	=
Occupation	W-COLLAR	37	4.93	5.25				
3. MARITAL	ALONE	57	3.80	4.78	-2.20	133.00	.030	=
Status	TOGETHER	78	5.81	5.54				
4. POPSIZE	LT 10000	45	5.70	6.86	.39	79.46	.699	≠
Birth Plce	GT 10000	42	5.21	4.87				
5. FAMHIST	NO CA	81	4.64	5.19	- .23	107.00	.822	=
Family Ca	CA	28	4.88	3.92				
6. PERMDPR	NONE/OCAS	93	4.68	4.92	- .18	128.00	.860	=
Fq. Probs.	PERSSTNT	37	4.85	4.90				
7. PERMDRL	NON-CA	77	5.14	5.18	1.14	128.00	.256	=
Ca Related	CA RELATD	53	4.14	4.43				
8. PHOCCPR	-	79	4.25	4.44	-1.39	128.00	.167	=
Ocas. Prb.	+	51	5.47	5.47				
9. PHOCCRL	-	95	5.18	5.27	2.08	91.71	.040	≠
Ocas. Rlt.	+	35	3.51	3.49				
10. PHPRST	-	93	4.47	4.54	- .97	128.00	.333	=
Perst. Prb.	+	37	5.39	5.72				
11. PHPRSRL	-	109	4.84	5.11	.56	128.00	.574	=
Perst. Rlt.	+	21	4.18	3.66				
12. NO PROB	-	101	4.73	5.16	.02	128.00	.985	=
	+	29	4.72	3.92				
13. AGEDIAG	GT/E 771	70	5.12	5.43	.36	133.00	.721	=
Mean Age	LT 771	65	4.79	5.22				
14. VAR 001	-	65	4.06	4.28	-1.95	124.53	.054	≠
Rec. Bleed	+	70	5.80	6.04				
15. VAR 002	-	122	4.89	5.22	- .46	133.00	.644	=
Blood/Stool	+	15	6.77	6.20				
16. VAR 003	-	120	4.74	5.19	-1.40	133.00	.165	=
Abdm. Pain	+	15	6.77	6.20				
17. VAR 004	-	78	4.85	4.82	- .30	133.00	.767	=
Dull Prst P	+	57	5.12	5.97				
18. VAR 005	-	125	4.99	5.44	.24	133.00	.812	=
Crampy Pain	+	10	4.56	3.62				

TABLE XXIV (continued)

VARIABLE	GROUP	GRP SIZE	GRP MEAN	GRP S.D.	T	df.	p/T	GRP VAR
19. VAR 006 Genrl Bdy P	- +	119 16	4.96 5.00	5.46 4.31	- .03	133.00	.976	=
20. VAR 007 Diarrhea	- +	82 53	4.26 6.06	4.76 5.98	-1.94	133.00	.055	=
21. VAR 008 Constption.	- +	81 54	4.17 6.16	4.62 6.08	-2.05	92.57	.044	≠
22. VAR 009 Seght. Loss	- +	64 71	5.15 4.79	6.42 4.13	.38	105.55	.702	≠
23. VAR 010 S.O.B.	- +	127 8	5.14 2.12	5.42 1.97	3.56	15.04	.003	≠
24. VAR 011 Weakness	- +	101 34	4.93 5.06	5.65 4.28	- .12	133.00	.904	=
25. VAR 012 Plpble. Mass	- +	124 11	5.10 3.43	5.44 3.51	1.00	133.00	.321	=
26. VAR 013 Distention	- +	119 16	4.96 4.95	5.19 6.39	.01	133.00	.994	=
27. VAR 014 Nausea	- +	107 28	5.54 2.76	5.66 2.89	3.60	81.16	.001	≠
28. VAR 015 Poor Appite	- +	107 28	5.58 2.60	5.68 2.89	4.10	100.95	.000	≠
29. VAR 016 Malaize	- +	127 8	5.05 3.59	5.39 4.11	.75	133.00	.455	=
30. VAR 017 Dec. Calibr.	- +	124 11	4.66 8.39	4.90 8.34	-1.46	10.62	.172	≠
31. STAGEDX Dukes State	DUKES 3&4 DUKES 1&2	86 49	4.72 5.40	4.86 6.08	- .72	133.00	.475	=
32. PRMSITE Primary Site	COLON RECTUM	70 65	3.78 6.40	3.78 6.40	-2.69	102.53	.008	≠

constipation (p=.044). In addition to these above listed variables there were two marginally significant variables: rectal bleeding (p=.054), and diarrhea (p=.055). These variables were grouped into either symptom or non-symptom classes and were categorized as to whether they speeded or slowed detection (see Figures 16 and 17 below).

Symptom	Speeds Detection	Slows Detection
Rectal Bleeding		*****
Diarrhea		*****
Constipation		*****
Shortness of Breath	*****	
Nausea	*****	
Poor Appetite	*****	

Figure 16. Symptom profile for detection

Non-Symptom Variable	Speeds Detection	Slows Detection
Marital Status (Married)		*****
Primary Site (Rectum)		*****
Occasional Similar Prbms.	*****	
Ethnic Group (Black)	*****	

Figure 17. Non-symptom profile for detection

These profiles would suggest that for this sample a patient with a slow detection rate would tend to be White, married, with a medical history of occasional similar problems, diagnosed with rectal cancer, and having the symptoms of rectal bleeding, diarrhea, and/or constipation. A patient with a speedy detection rate would tend to be Black, unmarried, without a personal medical history of occasional similar problems, diagnosed with colonic cancer, and having any of the following symptoms of shortness of breath, nausea, and poor appetite. It is interesting to note that when the ethnic groups were compared, the relationship for symptom and non-symptom profiles were the same. A X^2 test of independence was performed here to determine if any of the variables in these profiles covaried with ethnic background. As in the tests of independence for the previously discussed symptom clusters, the critical values for chi square in alphas of .05 and .01 are 3.84 and 6.63 respectively. Rectal bleeding was found to occur independent of ethnic group (X^2=.04) as was diarrhea (X^2=.75), constipation (X^2=2.17), shortness of breath (X^2=1.45), and primary site (X^2=2.17). However, the symptom of nausea (X_c^2=6.76) highly significant with an alpha of .01, and poor appetite by inference were found to occur more often among Whites than Blacks.

The remaining twenty-two variables tested did not show a significant relationship with reported duration time at the five per cent critical level. This group of variables included both sociodemographic and medically related variables. The sociodemographic variables included: population size of birth place (p=.699), age at diagnosis (p=.721), and patient occupation (p=.955). The medical history variables were: occasional similar problems (p=.167), medical similarity (p=-256), persistent medical problems (p=.333), persistent similar medical problems (p=.574), frequency of medical problems (p=.86), and no unusual problems (p=.985). Family medical history was also not significantly related to duration (p=.822). Stage at diagnosis was tested with one group representing stages "A" and "B" and the other being stages "C" and "D", and was not significant (p=.475). The remaining eleven variables that showed no relationship with duration were: abdominal pain at defecation (p=.644); decreased caliber of stools (p=.455); blood in stools (p=.644); weight loss (p=.702); dull persistent pain (p=.767); crampy abdominal pain (p=.812); weakness (p=.904); general body pain (p=.976); and distention (p=.994).

A second series of group mean comparisons was made on those variables relevant to the previously stated hypotheses and those that showed a significant relationship with duration time from the first series of t-tests (see Tables XXVa, XXVb, XXVIa, and XXVIb). Out of the twelve tested variables for Blacks and Whites, there are four that were relevant to the stated hypotheses. These four variables are family medical history, medical similarity, persistent similar medical problems, and occasional similar medical problems. Of these four variables only occasional similar medical problems was previously found to have any significant relationship with duration time. The results of this second

TABLE XXVa.

RESULTS OF T-TEST PROCEDURES ON VARIABLES DEMONSTRATING A SIGNIFICANT RELATIONSHIP WITH "CONTINUOUS" DURATION, AND ALL VARIABLES INCLUDED IN HYPOTHESES (*). BETWEEN GROUP VARIANCES FOR WITHIN ETHNIC GROUP MEANS BY SYMPTOM DURATION.

A. U.S. BLACK

VARIABLE	GRP	GRP SIZE	F	p/F	GRP VAR
1. MARITAL	ALONE	12	4.41	.017	≠
Status	TOGETHER	16			
2. PRMSITE	COLON	17	5.68	.003	≠
Primary Site	RECTUM	10			
*3. FAMHIST	NO CA	19	9.75	.040	≠
Family Ca	CA	5			
*4. PERMDRL	NON-CA	17	8.21	.000	≠
Ca Related	CA RLTD	11			
*5. PHOCCRL	-	19	9.22	.000	≠
Ocas. Rlt.	+	9			
*6. PHPRSRL	-	26	0.00	1.000	=
Perst. Rlt.	+	2			
7. VAR 001	-	13	3.30	.045	≠
Rec. Bleed	+	15			
8. VAR 007	-	19	2.48	.192	=
Diarrhea	+	9			
9. VAR 008	-	19	8.32	.000	≠
Constption.	+	9			
10. VAR 010	-	25	1.20	1.000	=
S.O.B.	+	3			
11. VAR 014	-	18	4.00	.039	≠
Nausea	+	10			
12. VAR 015	-	21	2.90	.190	=
Poor Appite.	+	7			

B. U.S. WHITE

1. MARITAL	ALONE	45	1.17	.596	=
Status	TOGETHER	62			
2. PRMSITE	COLON	52	2.61	.001	≠
Primary Site	RECTUM	55			
*3. FAMHIST	NO CA	62	1.87	.106	=
Family Ca	CA	23			
*4. PERMDRL	NON-CA	60	1.66	.088	=
Ca Related	CA RTLD	42			

TABLE XXVa. (continued)

B. U.S. WHITE

VARIABLE	GRP	GRP SIZE	F	p/F	GRP VAR
*5. PHOCCRL	-	76	4.19	.000	≠
Ocas. Rlt.	+	26			
*6. PHPRSRL	-	83	2.24	.056	=
Perst. Rlt.	+	19			
7. VAR 001	-	52	1.89	.024	≠
Rec. Bleed	+	55			
8. VAR 007	-	63	1.66	.066	=
Diarrhea	+	44			
9. VAR 008	-	62	1.54	.119	=
Consption.	+	45			
10. VAR 010	-	102	17.46	.012	≠
S.O.B.	+	5			
11. VAR 014	-	89	3.46	.006	≠
Nausea	+	18			
23. VAR 015	-	86	5.46	.000	≠
Poor Appite.	+	21			

TABLE XXVb.

RESULTS OF T-TEST PROCEDURES ON VARIABLES CONTAINED WITHIN HYPOTHESES. BETWEEN GROUP VARIANCES FOR BETWEEN ETHNIC GROUP MEANS BY SYMPTOM DURATION.

VARIABLE	GRP	GRP SIZE	F	p/B	GRP VAR
1. FAMHIST	+ BLACK	5	10.75	.033	≠
Family Ca.	+ WHITE	23			
2. PERMDRL	+ BLACK	11	1.34	.482	=
Ca. Related	+ WHITE	42			
3. PHOCCRL	+ BLACK	9	3.87	.009	≠
Ocas. Rlt.	+ WHITE	26			
4. PHPRSRL	+ BLACK	2	0.00	1.000	=
Perst. Rlt.	+ WHITE	19			

TABLE XXVIa.

RESULTS OF T-TEST PROCEDURES ON VARIABLES DEMONSTRATING A SIGNIFICANT RELATIONSHIP WITH "CONTINUOUS" DURATION, AND ALL VARIABLES INCLUDED IN HYPOTHESES (*). WITHIN ETHNIC GROUP MEANS BY SYMPTOM DURATION.

A. U.S. BLACK

VARIABLE	GROUP	GRP SIZE	GRP MEAN	GRP S.D.	T	df.	2 p/T	GRP VAR
1. MARITAL	ALONE	12	2.27	1.97	- .49	22.62	.632	≠
Status	TOGETHER	16	2.84	4.13				
2. PRMSITE	COLON	17	2.04	2.07	- .83	10.90	.425	≠
Primary Site	RECTUM	10	3.40	4.93				
*3. FAMHIST	NO CA	19	2.99	3.81	1.10	20.65	.282	≠
Family Ca.	CA	5	1.85	1.22				
*4. PERMDRL	NON-CA	17	2.28	1.74	- .52	11.59	.612	≠
Ca Related	CA RELTD	11	3.09	4.98				
*5. PHOCCRL	-	19	2.07	1.76	- .91	8.83	.388	≠
Ocas. Rlt.	+	9	3.72	5.34				
*6. PHPRSRL	-	26	2.78	3.40	1.03	26.00	.311	=
Perst. Rlt.	+	2	.25	0.00				
7. VAR 001	-	13	2.27	2.27	- .50	22.33	.624	≠
Rec. Bleed	+	15	2.88	4.11				
8. VAR 007	-	19	2.36	3.74	- .55	26.00	.585	=
Diarrhea	+	9	3.11	2.38				
9. VAR 008	-	19	1.93	1.80	-1.16	8.92	.276	≠
Constption.	+	9	4.00	5.20				
10. VAR 010	-	25	2.62	3.42	.10	26.00	.923	=
S.O.B.	+	3	2.42	3.13				
11. VAR 014	-	18	3.19	3.83	1.53	25.85	.137	≠
Nausea	+	10	1.52	1.91				
12. VAR 015	-	21	3.04	3.59	1.21	26.00	.237	=
Poor Appite.	+	7	1.29	2.11				

B. U.S. WHITE

1. MARITAL	ALONE	45	4.21	5.30	-2.31	105.00	.030	=
Status	TOGETHER	62	6.58	5.65				
2. PRMSITE	COLON	52	4.34	4.04	-2.31	90.84	.023	≠
Primary Site	RECTUM	55	6.75	6.53				
*3. FAMHIST	NO CA	62	5.15	5.47	- .32	83.00	.753	=
Family Ca.	CA	23	5.54	4.00				
*4. PERMDRL	NON-CA	60	5.94	5.54	1.50	100.00	.137	=
Ca. Related	CA RLTD	42	4.42	4.30				

TABLE XXVIa. (continued)

VARIABLE	GROUP	GRP SIZE	GRP MEAN	GRP S.D.	T	df.	2 p/T	GRP VAR
*5. PHOCCRL	-	76	5.96	5.56	3.02	87.76	.003	≠
Ocas. Rlt.	+	26	3.44	2.72				
*6. PHPRSRL	-	83	5.48	5.39	.68	100.00	.496	=
Perst. Rlt	+	19	4.59	3.60				
7. VAR 001	-	52	4.50	4.56	-1.99	98.65	.050	≠
Rec. Bleed	+	55	6.60	6.26				
8. VAR 007	-	63	4.83	4.90	-1.68	105.00	.095	=
Diarrhea	+	44	6.66	6.32				
9. VAR 008	-	62	4.85	5.00	-1.60	105.00	.112	=
Constption.	+	45	6.20	6.20				
10. VAR 010	-	102	5.76	5.64	4.63	13.39	.000	≠
S.O.B.	+	5	1.95	1.35				
11. VAR 014	-	89	6.01	5.87	2.65	44.84	.011	≠
Nausea	+	18	3.44	3.15				
12. VAR 015	-	86	6.20	5.94	3.74	76.76	.000	≠
Poor Appite.	+	21	3.04	2.54				

TABLE XXVIb.

RESULTS OF T-TEST PROCEDURES ON VARIABLES CONTAINED WITHIN HYPOTHESES. BETWEEN ETHNIC GROUP MEANS BY SYMPTOM DURATION.

VARIABLE	GROUP	GRP SIZE	GRP MEAN	GRP S.D.	T	df.	p/T	GRP VAR
1. FAMHIST	+ BLACK	5	1.85	1.22	-3.71	22.35	.001	≠
Family Ca.	+ WHITE	23	5.54	4.00				
2. PERMDRL	+ BLACK	11	3.09	4.98	- .88	51.00	.382	=
Ca. Related	+ WHITE	42	4.42	4.30				
3. PHOCCRL	+ BLACK	9	3.72	5.34	.15	9.47	.884	≠
Ocas. Rlt.	+ WHITE	26	3.44	2.72				
4. PHPRSRL	+ BLACK	2	.25	0.00	-1.67	19.00	.112	=
Perst. Rlt.	+ WHITE	19	4.59	3.60				

series of t-tests will first be presented for U.S. Blacks and then for U.S. Whites.

None of the twelve variables tested within the Black group of patients (N=28) indicated any significant relationship with symptom duration time. The significance levels for the four hypothesis related variables were: family medical history (p=.282); medical similarity (p=.612); persistent similar problems (p=.311); and occasional similar problems (p=.388). The remaining eight variables were: nausea (p=.137); poor appetite (p=.237); constipation (p=.624); marital status (p=.632); and shortness of breath (p=.923).

For the White group of patients (N=107), there were a number of significant relationships noted. The test results for the hypothesis related variables were: family medical history (p=.753); medical similarity (p=.137); persistent similar problems (p=.496). The fourth related variable of occasional similar problems was found to be highly significant (p=.003) with the mean time for its presence being two and one half months shorter than for the conditions absence.

Of the eight remaining variables tested for the White group, six were found to be significantly related to duration time. The symptom of poor appetite was highly significant (p=.000) with the mean reported duration for its presence being three months shorter than for its absence. Shortness of breath was also found to be highly significant (p=.000) with the mean reported duration for its presence being almost four months shorter than for its absence. Nausea was significant (p=.01) with the mean reported time for its presence being almost four months shorter than for its absence. Nausea was significant (p=.011) with the mean reported time for its presence being almost three months shorter than for its absence. The variable of primary site (p=.023) indicated that the mean reported time for White colon patients was almost two and a half months shorter than for White rectal patients. Marital status was shown to be significant (p=.03) with single, divorced, and widowed patients having a mean that was two months shorter than for patients reported as being married. The symptom of rectal bleeding (p=.05) showed a mean time for its presence as being two months longer than for its absence. The final two symptoms of diarrhea and constipation were both non-significant with alpha levels of (p=.095) and (p=.112) respectively.

Following up on observations noted by Snow (1978a: 81), the compound symptom of nausea/poor appetite (used together because of indicated covariance) and the symptom of weight loss were used to test for possible cultural differences in reporting times within and between racial groups. As mentioned earlier, low income Blacks tend to classify symptoms as natural or unnatural relative to their medical belief system. In order to test whether this natural-unnatural classification had any relationship with duration time two groups of Blacks and Whites were compared (Table XXVII). The first group reported a weight loss and poor appetite or nausea. In the second group the patients reported a weight loss but no nausea or poor appetite. A comparison of the two Black groups showed that the natural condition of weight loss and poor appetite/nausea had a mean duration time that was considerable less than the unnatural condition of weight loss with normal appetite. The same directional relationship existed for the two White groups but the difference was not as large. Also, while the ranges of duration times for the Black groups were almost mutually exclusive this was not the case for the White groups. Although the tests were not statistically significant a chi square test of independence for the Blacks indicated that the relationship between the occurrence of poor appetite and duration time (before or after the median) was not random (X^2=3.7 at a .05 level).

TABLE XXVII--Effects of normal appetite and loss of appetite with weight loss on symptom duration time.

RACE	N	POOR APPETITE NAUSEA	$\bar{X}$	S.D.	RANGE	SIGNF.
BLACK	5	+	1.1	1.13	.25 - 3.00	
	7	-	5.7	5.20	2.50 - 17.00	p=.45
WHITE	20	+	4.0	2.65	.25 - 12.00	
	37	-	5.9	4.73	.50 - 24.00	p=.90

A final series of t-tests were performed on the between ethnic group relationships for the four hypothetically related variables of: 1) positive family medical history; 2) presence of similar medical problems; 3) presence of occasional similar medical problems; and 4) presence or persistent similar medical problems. Family medical history was found to be highly significant (p=.001) with the Blacks tending to report in almost four months sooner than the Whites (Black N=5, White N=23). The remaining three variables were not found to be significantly related to reported duration and their test results are: presence of similar medical problems (p=.382); presence of occasional similar medical problems (p=.884); and presence of persistent similar medical problems (p=.112).

Symptom Duration as a Discrete Variable

In presenting these results, any mention of symptom duration will be in the context of before or equal to, or after the median. That is before or after a three month time marker.

The results from this log linear procedure include an analysis of the relationship between reported symptom duration and ethnic background; variable occurrence by ethnic background; the variable under consideration by reported symptom duration; and the interaction between ethnic background, reported variable value, and reported symptom duration.

The log linear analysis of reported symptom duration by ethnic background indicated that in this sample Blacks appear to be four times more likely to report before the median than Whites. This relationship was highly significant with an alpha of .002 (Table XXVIII).

The analysis of the relationship between variable occurrence and ethnic background involved the nine variables shown to be significant by the first battery of t-tests and four other variables that had approached significance (i.e., an alpha less than .30). In order for a variable to be considered to have occurred more often for one group than the other, a g value of less than .49 or greater than 1.9 was necessary (for a complete listing of the computed values see Table XXIX). Out of the fourteen variables tested by this analysis, four were shown to be significant at the five per cent level. These four variables were: nausea, decreased caliber of stools, persistant similar problems, and occasional medical problems.

With an alpha of .016, the symptom of nausea was indicated to be three times more likely to be reported for Whites than for Blacks. The symptom of decreased caliber of stools was shown to be significant (p=.027) and the results indicated that this symptom was four times more likely to be reported by Whites than Blacks. The condition of persistant similar problems was shown to be occurring evenly among Blacks and Whites and was significant (p=.045). Occasional problems were significant with an alpha of .049 and were shown to be twice as likely to be reported by Blacks than Whites. The remaining ten variables were not found to be significant and include: primary site (p=.171);

TABLE XXVIII.

RESULTS OF CROSS-PRODUCT RATIO ANALYSIS: DURATION OF SYMPTOMS (ABOVE/BELOW MEDIAN) BY ETHNIC GROUP.

ETHNICITY	(g)	(S.D.)	(Z)	(p/Z)	(STAT. DECSN.)
1. U.S. BLACK	4.18	4.99	2.87	.002	S.
2. U.S. WHITE	.24				

(g)= Gamma or cross-product ratio based on a Black to White comparison (i.e., the Black gamma is the reciprocal of the White gamma).
(S.D.)= Standard deviation for the 2 X 2 table values.
(Z)= Standard score for reported gamma.
(p/Z)= Probability for A score.
(STAT. DECSN.)= Statistical decision.
S= Significant relationship
NS= Nonsignificant relationship

TABLE XXIX

MAIN EFFECTS FOR VARIABLE OCCURANCE BY ETHNICITY. HERE GAMMA REPRESENTS THE RATIO OF OCCURANCE FOR BLACKS GIVEN THE FIRST LISTED VARIABLE VALUE.

VARIABLE	VAR VALUE	(g)	(S.D.)	(Z)	(p/Z)	(STAT. DECSN.)
*1. PRMSITE Primary Site	COLON RECTUM	1.90	.439	1.47	.071	N.S.
*2. MARITAL Status	ALONE TOGETHER	.97	.474	-.07	.472	N.S.
3. PERMDRL Ca. Related	NON-CA CA RLTD	1.08	.436	.18	.429	N.S.
4. PHOCCPR Ocas. Prb.	- +	2.22	.480	1.66	.049	S.
5. PHPRSRL Perst. Rlt.	- +	.78	.465	1.69	.045	S.
*6. VAR 001 Rec. Blood	- +	.92	.425	-.20	.421	N.S.
7. VAR 003 Abdm. Pain	- +	1.80	.791	.74	.230	N.S.
*8. VAR 007 Diarrhea	- +	1.47	.450	.86	.195	N.S.
*9. VAR 008 Constption.	- +	1.53	.450	.95	.171	N.S.
*10. VAR 010 S.O.B.	- +	.40	.764	-1.17	.121	N.S.
*11. VAR 014 Nausea	- +	.36	.471	-2.14	.016	S.
*12. VAR 015 Poor Appite.	- +	.73	.500	-.62	.268	N.S.
13. VAR 017 Dec. Calibr.	- +	.25	.713	-1.93	.027	S.
*14. PHOCCRL Ocas. Rltd.	- +	.84	.480	-.35	.360	N.S.

(*) Variables that showed a significant relationship by t-test. All other variables were significant at least at the .25 level.

shortness of breath (p=.121); constipation (p=.171); diarrhea (p=.195); abdominal pain at defecation (p=.230); poor appetite (p=.268); occasional similar problems (p=.360); rectal bleeding (p=.421); similar medical problems (p=.429); and marital status (p=.472).

In an analysis of the relationship between a particular value of the variable and reported symptom duration (Table XXIX), eight out of fourteen variables were found to show a significant relationship. These variables were: constipation, persistent similar problems, occasional similar problems, diarrhea, marital status, nausea, decreased caliber of stools, and poor appetite. Of these eight variables, four seemed to be correlated with a slowness in detection: constipation, diarrhea, marital status (married), and decreased caliber of stools. The remaining four variables of: persistent similar medical problems, occasional similar problems, nausea, and poor appetite seemed to correspond with a speedy detection (Figure 18).

Variable	Speedy Detection	Slow Detection
Constipation		******
Diarrhea		******
Marital Status (married)		******
Decreased Caliber Stools		******
Persistent Similar Prblms.	******	
Occasional Similar Prblms.	******	
Nausea	******	
Poor Appetite	******	

Figure 18. Discrete variable profile for detection

TABLE XXX.

MAIN EFFECTS FOR VARIABLE VALUE BY THE DISCRETE VARIABLE SYMPTOM DURATION. HERE, GAMMA REPRESENTS THE RATIO FOR BEFORE MEDIAN REPORTING GIVEN THE FIRST LISTED VARIABLE VALUE.

VARIABLE	VALUE	(g)	(S.D.)	(Z)	(p/Z)	(STAT. DESCN.)
*1. PRMSITE Primary Site	COLON RECTUM	1.46	.346	1.10	.136	N.S.
*2. MARITAL Status	ALONE TOGETHER	1.95	.377	1.78	.038	S.
3. PERMDRL Ca. Related	NON-CA CA RLTD	.77	.360	-.74	.230	N.S.
4. PHOCCPR Ocas. Prb.	- +	1.27	.361	.67	.250	N.S.
5. PHPRSRL Perst. Rlt.	- +	.37	.421	-2.38	.009	S.
*6. VAR 001 Rec. Bleed.	- +	1.49	.345	1.16	.123	N.S.
7. VAR 003 Abdm. Pain	- +	1.83	.558	1.09	.138	N.S.
*8. VAR 007 Diarrhea	- +	2.20	.359	2.20	.014	S.
*9. VAR 008 Constption.	- +	2.67	.362	2.72	.003	S.
*10. VAR 010 S.O.B.	- +	.36	.836	-1.22	.111	N.S.
*11. VAR 014 Nausea	- +	.46	.449	-1.72	.043	S.
*12. VAR 015 Poor Appite.	- +	.46	.449	-1.71	.044	S.
13. VAR 017 Dec. Calibr.	- +	3.34	.701	1.72	.043	S.
*14. PHOCCRL Ocas. Rltd.	- +	.45	.42	-1.92	.030	S.

The symptom of constipation was significant with an alpha of .003 and the test indication here was that in the presence of this symptom people were almost three times as likely to report in after the median time than when it was absent. Diarrhea was significant (p=.014) and in its presence people were shown to be twice as likely to report in after the median time than when it was absent. Marital status was significant at an alpha of .038 and the results for the variable indicated that married people were twice as likely as single, widowed or divorced patients to report in after the median time. The symptom of decreased caliber of stools with an alpha of .043 was indicated for people to be three times more likely to report in after the median time when it was present than when it was absent.

Persistent similar problems was found to be signficant (p=.009) and when present people were almost three times as likely to report in before the median than in its absence. Occasional similar medical problems seemed to create a situation where people were twice as likely to report in before the median in its presence than in its absence. Both of the symptoms of nausea (p=.043) and poor appetite (p=.044) when present caused people to be twice as likely to report in before the median than if either of them were absent.

The six remaining variables were not found to have a significant relationship with median duration reporting. These six variables were: shortness of breath (p=.111);

rectal bleeding (p=.123); primary site (p=.136); abdominal pain at defecation (p=.138); medical similarity (p=.230); and occasional medical problems (p=.250).

The final series of log linear procedures concerns the interaction between ethnic background, variable value, and reported symptom duration (Table XXX). Three g-values were used (g-1, g-2, g-3). The g-1 values represents the main effects for ethnic background given the first listed value of the variable. The g-2 value refers to the main effects of ethnicity given the second listed value of the variable. The g-3 value represents the interaction effects between these variables and reported symptom duration. Thirteen out of the fourteen variables tested were found to not be significant for the interaction relationships.

The only variable that was demonstrated to have a significant interaction relationship was the personal medical history variable of persistent similar problems. This variable was significant (p=.011) and the test results implied that Blacks (in the absence of persistent similar problems) are considerably more likely to report in before the median time than Whites.

The thirteen variables shown to not have a significant relationship in terms of the interaction effects are: shortness of breath (p=.095); occasional similar problems (p=.101); medical similarity (p=.156); rectal bleeding (p=.230); decreased caliber of stools (p=.236); marital status (p=.255); nausea (p=.264); occasional medical

TABLE XXXI.

INTERACTION EFFECTS BETWEEN ETHNICITY AND LISTED VARIABLES BY THE DISCRETE VARIABLE OF SYMPTOM DURATION. HERE, THERE ARE THREE GAMMAS PRESENTED: (1) MAIN EFFECTS FOR ETHNICITY GIVEN THE FIRST VARIABLE VALUE; (2) MAIN EFFECTS FOR ETHNICITY GIVEN THE SECOND VARIABLE VALUE; AND (3) INTERACTION EFFECTS. THE REMAINING STATISTICS REFER TO THE INTERACTION GAMMA.

VARIABLE	VAR VALUE	1 (g)	2 (g)	3 (g)	(SD)	(Z)	(p/Z)	(S.DECS.)
1. PRMSITE Primary Site	COLON RECTUM	3.50	5.57	.63	1.05	.44	.330	N.S.
2. MARITAL Status	ALONE TOGETHER	5.00	12.32	.41	1.37	.66	.255	N.S.
3. PERMDRL Ca. Related	NON-CA CA RTLD	6.10	2.20	2.77	1.01	1.01	.156	N.S.
4. PHOCCPR Ocas. Prb.	- +	4.55	2.62	1.74	1.08	.51	.305	N.S.
5. PHPRSRL Perst. Rlt.	- +	10.22	.88	11.61	1.07	2.29	.011	S.
6. VAR 001 Rec. Bleed	- +	2.86	6.00	.48	1.00	- .74	.230	N.S.
7. VAR 003 Abdm. Pain	- +	3.48	****	****	****	****	****	****
8. VAR 007 Diarrhea	- +	7.73	1.99	3.89	1.08	1.26	.104	N.S.
9. VAR 008 Constption.	- +	4.11	4.00	1.03	1.03	.03	.488	N.S.
10. VAR 010 S.O.B.	- +	4.87	.50	9.73	1.74	-1.31	.095	N.S.
11. VAR 014 Nausea	- +	3.19	7.20	.44	1.29	- .63	.264	N.S.
12. VAR 015 Poor Appite.	- +	4.24	3.69	1.15	1.30	.11	.456	N.S.
13. VAR 017 Dec. Calibr.	- +	4.08	14.00	.29	1.71	- .72	.236	N.S.
14. PHOCCRL Ocas. Rltd.	- +	7.74	1.50	5.16	1.28	1.28	.101	N.S.

(****)= Statistic unavailable due to insufficient data.

problems (p=.305); primary site (p=.330); poor appetite (p=.456); and constipation (p=.488).

Discussion

The most important finding in the preceding analysis was that Black veterans with colorectal cancer used health care facilities sooner than White veterans with colorectal cancer[10]. Thus, an important question that arises from this analysis is: why are the Black patients coming in sooner for medical care than White patients? Although a difference in reporting between these two groups was expected, it was expected that White veterans would have utilized the health facilities more readily than the Blacks. This was because of the commonly held notion that Blacks utilize care facilities less than do Whites[11-12]. With this unexpected shift in utilization, two additional questions also arise: is this pattern of utilization limited to V.A. hospitals; and, is this pattern limited to colonic and rectal cancer or to gastro-intestional conditions in general? Unfortunately, questions such as these are not resolvable by the analytic tools available in a pilot study such as the one presented here. The limited nature of available data for this study permitted only a general illumination of such differences, not the rationale behind them. However, one can generate hypotheses for testing in future research which may provide some explanations for the nature of such differences.

The first step would be to check if these differences in care patterns existed only within V.A. hospitals or among all types of hospitals for various medical conditions and ethnic groups. If future research indicated that this pattern of care use was different for non-V.A. hospitals, questions should be directed toward such factors as socioeconomic status or any of the other characteristics which differentiate veterans from the rest of society (e.g., military medical care and education). If it is indicated that such patterns are limited to colorectal cancer or general gastro-intestinal conditions, questions should focus on symptomatologies and ethnicity.

Two main hypotheses can be generated to test some of these possible contributing factors in the Black-White utilization gap. 1) Persons who have used low cost health services in the past should have shorter mean duration times when using similar services than those who have not had this prior experience. Here the context in question is the use of services for such low cost facilities as V.A. hospitals by persons who at this time are all in the same economic situation. Proportionally, Blacks are more often represented in the lower income classes than Whites in the United States. Therefore, it would be expected that Black veterans are more likely to have had a history (prior to entering the service) of low income status than White veterans and thus more readily use such low cost facilities. 2) The direction of the relationship between Black and White mean duration times for colorectal cancer (or gastro-intestinal conditions in general) differs from the direction of the relationship between Black and White mean durations for other medical conditions. In other words, the symptomatologies existing for colorectal cancer (or other G-I conditions) have received a different emphasis in concern with low income Blacks versus Whites. A logical extension of this would be that these concerns would not be equal for other conditions with different symptoms or anatomical locations (e.g., general cold symptoms like fever or sore throat, and skeletal conditions with the symptoms of joint pain or swelling).

Although there are a number of factors that could not be checked for effects on the observed relationships between ethnicity, symptom duration and the other variables in the study, it was possible to identify and test three potentially confounding factors. These factors were represented by the variables of site of cancer, age at diagnosis, and stage at diagnosis.

The variable of primary site was found to be related to symptom duration for the sample in general and for the White but not the Black group. In all relationships, colon patients took less time to seek care than rectal cancer patients. For the White patients, those with colon cancer had a mean duration that was two and one half months shorter than rectal cancer patients. While not a significant variable among Blacks, the Black colon cancer patients did have a mean duration that was shorter than the Black rectal cancer patients. Since other studies have also noted this trend, it was decided to test for the existence of any relationship between site and the other variables in the study. These tests had a format very similar to those conducted for the listed variables in the study and ethnicity (i.e., t-test comparison of means). The results indicated that cancer site was not a significant contributor to the observed differences between the ethnic groups. Also, it is important to note that in all tests involving a comparison between the two sites, the variances were shown to be heterogeneous. Since this significant relationship was present for duration as a continuous variable and not as a discrete one it is suggested that a likely source of this difference is due to extreme duration times for rectal cancer patients in general. However, since only one Black patient was observed to take longer than seven months to seek care, this suggestion is made with a degree of caution. Whether this relationship represents factors such as differential symptom perception, concern over the anatomical location of the symptoms, or the physiological function of the symptom site is uncertain at this time. In order to reduce some of this confusion it is suggested that future studies should not lump colonic and rectal cancers together as colorectal cancer has been handled so often in the past. In future investigations that include colon or rectal cancer patients, care should be taken to get adequate numbers of patients for each site so that both cancers can be analyzed separately.

The results of analyses of variance on age at diagnosis were significant in that they showed age to be unrelated to symptom duration or ethnic background. Age had been seen as a possible confounding variable in that it would have been a factor in such relationships as symptom onset, symptom tolerance, concern over health status, or any of several other relationships which could effect duration time.

With stage at diagnosis representing a measure of cancer involvement, there was a possibility that it could cloud the interpretation of the studies results by affecting such factors as symptom severity, onset, or content. The tests performed on this variable focused on two levels: by comparing between site data (i.e., colon versus rectum), and within site data (e.g., ascending, descending, and sigmoid colon). The results from all testing indicated that stage at diagnosis had no correlation with symptom duration, thus discounting it as a potential problem for interpretation. To be sure, there are many aspects of this situation that could introduce errors into the above interpretation, for example, small sample sizes for some colon sites, differential growth rates for tumors, the effects of patient recall and the various filtering mechanisms previously discussed. Should the effects of any of these sources of random variation be reduced by modifications in research design, it is quite possible that a correlation between duration and stage at diagnosis could be uncovered. For example, the use of a prospective study could reduce some of the noise created by problems in patient recall and physician filtering of data. However, until such information comes to light the present finding of no correlation between stage at diagnosis and reported symptom duration would seem to have serious implications for the planning of early detection programs. These data indicate that a person has an equal chance of being diagnosed with stage "B", "C", or "D" cancers regardless of whether he reported within one month or twelve. If this is indeed the case, it would seem that funding for cancer education to bring people in as soon as possible for symptoms of colonic or rectal carcinoma would be better put to use in the development of various cancer screening programs and thus increase access to asymptomatic individuals.

The observed relationships between duration and the variables in the study for the entire sample appear to have been strangely determined by the relationships between each variable and the duration among White patients. There are two possible explanations for this which are not mutually exclusive. First, it could result from the small sample size of the Black population. Secondly, with so many Blacks reporting so early, the within variable mean comparisons for this group could have been significantly affected by a restriction on the total range of possible variability. In order to separate these effects a larger sample of Blacks is clearly indicated.

From the analysis on the variable of marital status a trend was noted such that single, divorced, or widowed patients tended to report earlier than patients who were married. The differences between these two categories of married and unmarried may have stemmed from the effects of factors such as multiple member households, the economic costs of lost work time, or even occupational status (e.g., different perceptions of job responsibility). Although tests on the effects of multiple member households were not possible, patients who were reported as married may have more factors operating on them to retard seeking care than patients who may have had only themselves to look after (i.e., single, divorced, or widowed). Tests for the effects of economic cost of work loss were checked by comparing retired married patients with non-retired married patients (determined by age at diagnosis being below 65 years or 65 and above). Although the results indicated that non-retired patients had a mean duration of about a month less than retired patients the difference was not statistically significant ($p=.41$). The results on tests on occupational status were also nonsignificant ($p=.5$), albeit the mean for blue collar workers was one month less than the mean for white collar workers. Considering the fact that a significant relationship for marital status and duration was indicated, this variable should be further investigated in future studies. Such a study should be conducted on subjects for which there are more detailed data on such issues as household composition, employment, and income.

Several hypotheses could be suggested to further test for the possible effects of these issues in future studies. 1) The mean symptom duration time for married patients of households including members other than the married couple will be significantly longer than for married patients with only two member households. This hypothesis would emphasize increased economic and social responsibilities on the male in large households versus small households. 2) Individuals whose spouse is employed will have significantly shorter mean duration times than persons whose spouse is not working. In this hypothesis the emphasis on economic costs would be further refined.
3) Blue collar patient mean duration times will be significantly shorter than white collar patient mean duration times.

The results of the preceding analysis indicate that a person's past personal medical history may prove to be a valuable key to understanding why he responds to a given medical condition in a particular way. In this study, the presence of occasional similar problems was found to enhance one's likelihood of a speedy detection. This finding was also found for persistent similar problems, although the relationship is considered less significant than for occasional similar problems because only two Black patients were reported to have a presence of a persistent similar problem history. In other words, this correlation of persistent similar problems and a speedy detection is suggested to be an artifact of sample size, especially since such a finding was not corroborated by the non-parametric testing. Although a further investigation into the influences of personal medical history is clearly indicated, a more refined method of listing past medical experiences will be required. One of the problems with the present study was that the only information available was from hospital charts, which did not include any detailed data on private practice care for the patient. Obviously, people do not report to a hospital for every medical problem and by restricting one's information base to these charts a considerable amount of experiencial data could be beyond reach. It is suggested that a more indepth study involving illness episodes obtained through interviewing methods would be the most efficient and meaningful way of obtaining the necessary information for analysis.

The finding of a significant correlation between seven symptoms and duration time is most interesting considering that the studies reviewed reported no such relationships. However, of these seven correlations, the relationships for two symptoms (shortness of breath and decreased caliber of stools) may be spurious because of a small sample size. Only six per cent of the sample reported having a shortness of breath and only eight per cent reported having decreased caliber of stools. Also, the two symptoms of nausea and poor appetite (which have similar correlations with duration time) covary and thus effectively represent one symptom type and not two as previously defined.

When analyses were performed on the combined symptom of nausea/poor appetite and the symptom of weight loss (see pages 164-65) some very illuminating trends were observed. As previously mentioned, low income Blacks tend to classify medical conditions into one of two categories: natural and, unnatural. When weight loss occurs in conjunction with eating less they tend to view such a situation as a natural event; however, when weight loss occurs when eating has been normal, they consider it quite unnatural and possible the result of root work or evil influences. It was observed that for the Black patients, the natural condition correlated with a speedy detection whereas the unnatural condition correlated with a slower detection. Although a similar trend in mean duration differences could be noted for the White patients, a comparison of the ranges for duration per condition and racial group revealed that the White patients had considerable overlap while the Black patient ranges were almost mutually exclusive. Even though the differences in group means for the Black groups were not statistically significant, a chi square test of independence indicated that the trend was not random. Considering the literature on low income Black medical beliefs and these symptoms it could be suggested that natural conditions are more readily brought to the attention of orthodox practioners than unnatural conditions because of perceived domains of control for healers. In other words, alternative treatment may be sought before going to Western physicians because the more traditional practioners are thought to be more effective in cases of unnatural etiologies. While these observed differences in reporting certainly suffer from problems of sample size and could result from other non-ethnically related factors; such a phenomena readily lends itself to cultural explanation.

Another aspect of symptom reporting behavior which might result from the influence of various cultural differences is the apparent grouping of reporting times about particular time markers (i.e., three, six and twelve months). It is quite possible that some unconscious selection of culturally emphasized time intervals may result from physician filtering mechanisms, patient recall, or problems occuring in the doctor-patient relationship. For example, if a patient reported some vague time interval a physician might record the duration time in a time frame familiar to the physician. Conversely, in order not to appear uninformed, unconcerned, or just to have a response to questions, the patient might conceivably fabricate some time interval familiar to him if he is not sure of a definite duration time for his symptoms. In either situation the wrong duration time is reported and the chances of obtaining an erroneous result from analyses of symptom duration are increased. As mentioned earlier, the use of a prospective study might reduce the effects of such variables by obtaining information directly from the patient and the physician without relying on chart sources. As the above discussions would seem to indicate, further research emphasizing such sub-cultural issues is clearly warranted in further detail.

The symptoms of diarrhea and constipation could not be anchored to any specific sub-cultural medical beliefs and seem to indicate a broader more socially oriented trend for American veterans in general. The relationship between these symptoms and a slower detection rate was found to be significant only for the sample in general and not for either of the racial groups in particular. People with diarrhea were only one half as likely to report in before the three month median time, and those with constipation were only one third as likely to report in before the median when compared to those without the respective symptoms. It is possible that patients with these symptoms (perhaps more so than for any of the other symptoms) are quite susceptable to commercially advertised (over-the-counter) treatments (e.g., Exlax, enemas, Kaopectate). Thus, such a trend could be a reflection of some broader social influences involving concepts of health and self-medication which tend to be supported through the advertising campaigns of various American pharmaceutical companies. As Kutner et al (1958: 97) have noted, "often the symptoms of cancer are indefinite, commonly mimicking the symptoms of a variety of other insignificant ailments." The vague etiologies of symptoms like diarrhea and constipation may indeed readily lend themselves to the application of health care practices which have become firmly entrenched in the general American society. For example, there are ample data on the overdependence on laxatives for Whites in general (National Analysts 1972) and for Blacks in particular (Snow 1978b).

Conclusions

Of the four originally proposed hypotheses, only one was retained with any strong statistical significance. The main hypothesis concerning ethnic group difference by mean reported symptom duration time was retained. This may be the first report of any strong correlation between duration and ethnicity. It is quite possible that this relationship was more amenable to analysis here because only one general cancer type was present in the sample. With more refined instruments for establishing ethnicity within White patient populations, further subtle ethnic differences in illness response may become evident.

The second hypothesis involving significant differences between group mean duration times for a positive family medical history was retained with some reservations. Although the means were shown to be significantly different in terms of reported duration time, the extremely small group sizes coupled with the overall ethnic influence toward shorter duration times made it difficult to put much weight behind the results. The corollary to this hypothesis regarding within ethnic group mean differences for positive versus negative family histories was rejected. Also, since no relationship was observed in regard to this hypothesis and the sample in general, the finding of Cobb _et_ _al_ (1954: 17) of longer duration for positive histories was not substantiated. However, it is quite possible that with a larger sample size and better ethnic identification that such differences may become more distinct.

The third hypothesis concerning between ethnic group mean duration differences for prior experience of nosologically similar conditions and the corollary to this were rejected. However, for the sample in general this variable of personal medical history was indicated as a potentially useful instrument for analyzing duration time (i.e., the correlations for occasional and persistent similar problems). Considering these implications and the observations of Goldsen (1953) and King and Leach (1950) on illness response, personal medical history should be further tested under more controlled conditions before any decision is made about its potential usefulness.

The fourth hypothesis on symptom content relative to each ethnic group could not be tested due to inadequate data stemming from problems in sample size. However, it is interesting to note that when comparing the racial groups in terms of a general symptom index (Table XIII) they appeared to be roughly similar in content and order of occurrence.

The purpose of this pilot study was to determine if there existed any ethnically related differences in medical care seeking behavior (as measured by reported symptom duration time). In addition to the ethnic differences, several potentially fruitful avenues for further research have been identified, including family medical history, personal medical history, and such relationships as family and work related dynamics. The potential usefulness for more indepth culturally oriented research is further indicated by the fact that these differences were observed in sketchy hospital records. If such behaviorally related indications can be drawn from terse data sources like medical charts it could be suggested that studies involving living patients would provide an even better picture of how culture may influence illness responses in the case of cancer. Such future research would be designed to study the ways in which people cope in terms of their feelings with cancer. The sample criteria for such a study could involve people who are still active in everyday affairs, whose illness is not immediately terminal, and whose diagnoses are limited to only a few types of cancers. The major thrust of this study would involve the use of various psychological instruments for measuring such concepts as self-esteem, social avoidance and distress, locus of control and definitions of self. In addition to these and other psychological measures would be included instruments for measuring such sociodemographic variables as ethnic background, household compositions, marital relationships, socioeconomic status, and various aspects of past personal and family medical history. With more refined categories for ethnic background, and detailed information on medical histories (including symptom presented at diagnosis from the patients point of view) coupled with additional socio-demographic and psychological data, the issues presented in the delay literature could be more meaningfully approached.

This pilot study has supported the premise that health and illness do not result simply from an individual's state of being. It has been pointed out that health and illness are intimately connected with the way in which people construct reality and with the way they interact with their social environment. Additional studies on living people should bring these issues into a clearer focus than was possible in the symptom duration pilot study. Although this pilot study was somewhat removed from the ground of social interaction, it has served as a useful data base for the generation of additional potentially more fruitful research.

APPENDICES

APPENDIX A.

DATA RECORD SHEET

Case # ____________

1. Primary site ( ) Colon ________________
   ( ) Rectum ________________
2. Ethnicity ( ) White
   ( ) Black
   ( ) Spanish surname
   ( ) Other ________________
3. Patient sex ( ) Male
   ( ) Female
4. Occupation ______________________________________
5. Education ______________________________________
6. Marital status ( ) Single
   ( ) Married
   ( ) Divorced
   ( ) Widowed
7. Children ______________________________________
8. Religion ______________________________________
9. Date of birth _____ _____ _____ _____ (month/yr.)
10. Place of birth (parents) ________________________
    ____
11. Place of birth (patient) ________________________

12. Date of death _____ _____ _____ _____ (month/yr.)

13. Date of diag. _____ _____ _____ _____ (month/yr.)

14. Date of Rx _____ _____ _____ _____ (month/yr.)

15. Stage at Rx ______________________________

16. Stage at diagnosis
( ) Dukes A
( ) Dukes B
( ) Dukes C
( ) Dukes D

17. Differentiation at diagnosis
( ) Well differentiated
( ) Moderately-well differentiated
( ) Moderately differentiated
( ) Poorly differentiated
( ) Undifferentiated

18. Primary tumor type
( ) Adenocarcinoma
( ) Mucinous Adenocarcinoma
( ) Basaloid Carcinoma
( ) Muco-Epidermoid Carcinoma
( ) Signet-Ring Cell Carcinoma
( ) Squamous cell Carcinoma
( ) Adenosquamous Carcinoma
( ) Undifferentiated Carcinoma
( ) Unclassified Carcinoma
( ) Other ________________

19. Diagnostic comments ______________________________

____

20. Secondary involvement
( ) At diagnosis
( ) After primary Rx _________

____

21. Relative health at diagnosis

( ) Good (no complications)

( ) Fair (minor complications)

( ) Poor (complications requiring monitoring)

( ) Other ______________________

22. Personal medical history

( ) Usual childhood and adult medical problems

( ) Occasional crises requiring intervention

( ) Occasional crises anatomically similar to present cancer

( ) Persistant problems requiring monitoring

( ) Persistant problems anatomically related to cancer

( ) Other ______________________

23. Family medical history

( ) No occurrence

( ) Occurrence of cancer ________

____

24. Symptoms presented

( ) Rectal bleeding

( ) Constipation

( ) Weakness

( ) Abdominal or rectal pain at defecation

( ) Other_______________

( ) Diarrhea

( ) Weight loss

( ) Palpable abdominal mass

( ) Dull and persistant abdominal pain

25. Duration of symptoms (in months) ________

APPENDIX B.

EXAMPLE OF GOODMAN'S PROCEDURE, USING THE SYMPTOM OF RECTAL BLEEDING FOR ILLUSTRATION

RECTAL BLEEDING (VAR 001)

VALUE 1. ETHNIC
Symptom absence by
reporting time.

-	B	W	
↓	10	28	38
↑	3	24	27
	13	52	65

VALUE 2. ETHNIC
Symptom presence
by reporting time.

+	B	W	
↓	12	22	34
↑	3	33	36
	15	55	70

MAIN EFFECTS 1.
Symptom by
reporting time.

	-	+	
B	38	34	72
W	27	36	63
	65	70	135

MAIN EFFECTS 2.
Symptom occurrence
by ETHNICITY

	-	+	
B	13	15	28
W	52	55	107
	65	70	135

MAIN EFFECTS 3.
Ethnic by reporting
time.

	B	W	
↓	22	50	72
↑	6	57	63
	28	107	135

Key:

B = Black Patients reporting.
W = White Patients reporting.
↓ = Before or on the Median time.
↑ = After the Median time.
- = Absence of symptom.
+ = Presence of symptom.

	X_{11}	X_{21}	X_{11+21}
	X_{12}	X_{22}	X_{12+22}
	X_{11} + X_{12}	X_{21} + X_{22}	X_{11+12} $+21+22$

APPENDIX B (continued)

1. MAIN EFFECTS FOR RECTAL BLEEDING:

$$g = \frac{X_{11} \cdot X_{22}}{X_{12} \cdot X_{21}} = \frac{38 \times 36}{27 \times 34} = \underline{\underline{1.49}}$$

People are 1½ times more likely to report in before the median given the symptom is absent rather than present. (The inverse g for presence would be .67 indicating that the presence of the symptom causes people to delay although it is a small proportion).

$\hat{g} = 1.49 \log_{12} = \underline{.399}$

$$\text{Variance } (\hat{\delta}) = \frac{1}{X_{11}} + \frac{1}{X_{12}} + \frac{1}{X_{21}} = \frac{1}{38} + \frac{1}{36} + \frac{1}{27} + \frac{1}{36} = \underline{.119}$$

$\text{Standard Dev.} = \sqrt{\text{variance}} = \underline{.345}$

$$\text{Standard score (Z)} = \frac{\hat{g} - 0}{\text{S. D.}} = \frac{.399 - 0}{.345} = \underline{\text{1.16 Not Sig. at P .05}}$$

2. MAIN EFFECTS FOR SYMPTOM OCCURRENCE:

$$g = \frac{13 \times 55}{52 \times 15} = \underline{.917}$$

The symptom of rectal bleeding occurs, in the sample, a little more frequently in Whites than in Blacks but the difference is not remarkable.

$\hat{g} = .917 \log_{12} = \underline{-.087}$

$$\text{Variance} = \frac{1}{13} + \frac{1}{15} + \frac{1}{52} + \frac{1}{55} = \underline{.181}$$

Standard Dev. = .425

$$\text{Z score} = \frac{-.087 - 0}{.425} = \underline{\text{-.205 Not Sig. at P .05}}$$

3. MAIN EFFECTS FOR ETHNICITY:

$$g = \frac{22 \times 57}{6 \times 50} = \underline{4.18}$$

Given that the patient is Black, he is a little over 4 times more likely to report in before the median than if he was White.

$\hat{g} = 4.18 \log_{12} = \underline{1.43}$

$$\text{Variance} = \frac{1}{22} + \frac{1}{60} + \frac{1}{6} + \frac{1}{57} = \underline{.250}$$

Standard Dev. = $\underline{.500}$

APPENDIX B (continued)

$$\text{Z score} = \frac{1.43 - 0}{.500} = \underline{2.86 \text{ Significant at P= .002}}$$

4. MAIN EFFECTS FOR ETHNICITY AND PRESENCE OR ABSENCE OF RECTAL BLEEDING (USED FOR COMPUTING INTERACTION EFFECTS).

a. Absence of rectal bleeding:

$$g= \frac{10 \times 24}{3 \times 28} = \underline{2.86}$$

Given the absence of rectal bleeding, Blacks are almost 3 times more likely to report in before the median than Whites.

$$\hat{g}= 2.86 \log_{12} = \underline{1.05}$$

$$\text{Variance} = \frac{1}{10} + \frac{1}{28} + \frac{1}{3} + \frac{1}{24} = \underline{.511}$$

$$\text{Standard Dev.} = \underline{.715}$$

$$\text{Z score} = \frac{1.79 - 0}{.715} = \underline{1.47 \text{ Significant at P= .071}}$$

b. Presence of rectal bleeding:

$$g= \frac{12 \times 33}{3 \times 22} = \underline{6.00}$$

Given the presence of rectal bleeding, Blacks are 6 times more likely to report in before than median than Whites.

$$\hat{g}= 6.00 \log_{12} = \underline{1.79}$$

$$\text{Variance} = \frac{1}{12} + \frac{1}{22} + \frac{1}{3} + \frac{1}{33} = \underline{.492}$$

$$\text{Standard Dev.} = \underline{.702}$$

$$\text{Z score} = \frac{1.79 - 0}{.702} = \underline{2.55 \text{ Significant at P= .005}}$$

5. INTERACTION EFFECTS BETWEEN ETHNICITY AND THE SYMPTOM OF RECTAL BLEEDING

$$g= \frac{g \text{ (SK -)}}{g \text{ (SK +)}} = \frac{2.86}{6.00} = \underline{.477}$$

When controlling for the overall ethnicity effect, Blacks tend to report later than Whites given the symptom of rectal bleeding is present. (Whites with rectal bleeding are twice (2.10) as likely to report in before the median than Blacks with rectal bleeding).

APPENDIX B (continued)

$\hat{g} = .477 \log_{12} = \underline{-.741}$

$\text{Variance} = \hat{\gamma}\ (\text{Symptom absence}) + \hat{\gamma}\ (\text{Symptom presence})$

$$= \frac{1}{10} + \frac{1}{28} + \frac{1}{3} + \frac{1}{24} + \frac{1}{12} + \frac{1}{22} + \frac{1}{3} + \frac{1}{33} = \underline{1.003}$$

$\text{Standard Dev.} = \underline{1.001}$

$$\text{Z score} = \frac{-.741 - 0}{1.001} = \underline{-.74\ \text{Not Significant at P}\quad .05}$$

FOOTNOTES

FOOTNOTES

1. The use of the word postponed is not intended to imply an intentional act of delay on the part of the patient, but merely that some time has elapsed between the onset of symptoms and the patient's first diagnostic visit.

2. There appears to be a considerable degree of debate on whether or not early diagnosis has a definite impact on patient prognosis. On the one hand, delay in diagnosis and treatment of malignancy has been indicated as being significant in reducing a patient's cure potential for cancer in general (Blackwell 1963:3, Lynch and Krush 1968:204, Antonovsky and Hartman 1974:98, American Cancer Society 1978) and for colorectal cancer in particular (Scudamore 1969, Potchen 1975:5, Martin et al 1976:430). On the other hand, studies such as Copeland et al (1968) for colorectal cancer and Haagensen (1971) for breast cancer found no significant changes in prognoses with delay. To be sure, one of the problems which confounds the issue lies in the relationship between the tumor and the host. Depending on the activity level of the tumor and the resistance of the host, a number of results are possible. For example, a person with a slow growing tumor that waited eight months before seeking intervention may have the same prognosis as a person (with a fast growing tumor) who waited two months. Logically if one considers the known aspects of the natural history of solid tumors (as is the case with colorectal cancer) early intervention would seem to provide more benefits than costs for the patient (Scudamore 1969). In this case a tumor begins in situ (the most responsive state for treatment) and in time proceeds to involve more and more of the host until distant organs such as the lungs, brain, and spinal cord are also affected. Once the malignancy has reached the lymphatic or circulatory system (a prerequisite for metastasis) current treatment regimens appear to have little effect on survival.

3. In this case, triviality does not refer to slow growing tumors, but to the patient's perception of the lesion.

4. Martin et al (1976:428-431) in discussing the national percentages for patients treated at certain stages of cancer involvement reported that 10% were class "A" patients, while class "B", "C", and "D" patients represented 30-40%, 25-30%, and 20-25% respectively (for a complete discussion of this classification system see pages 89-90). The five year survival rates for "A", "B", "C" lesions was reported at 95%, 65%, 30%, and for class "D" lesion patients it is virtually nill.

Since class "A" patients are rarely symptomatic and class "C" and "D" patients can expect little in the way of extended life spans from current treatment, and benefits that may stem from studies such as this pilot investigation would be small if any at all. However, considering the large numbers of people expected to develop this cancer, class "B" patients, with their 65% five year survival rates, represent a segment of the population which could indeed benefit from such studies.

5. It has been reported (Martin et al 1976:430) that among class "D" patients who were originally diagnosed as class "A", "B", or "C", the survival from time of metastatic development was longest among original class "A" patients, intermediate for class "B" and shortest for class "C" patients. This would seem to imply that persons diagnosed at less invasive stages tend to have a better prognosis than those diagnosed at more invasive stages.

6. Unfortunately, due to the prevailing opinions of several hospital administrators, this sampling was not possible. Whether this refusal to grant access reflects a general tendency to comply with the privacy act of 1974 or is in response to such issues as malpractice suits is uncertain. However, the fact remains that regardless of the tack taken by the researchers, any request for access to complete medical records was uncategorically denied. Fortunately, several administrators in charge of the V.A. hospitals were more open to the possible benefits that could be obtained through unconventional (non-biomedically oriented) research.

7. According to one of the resident pathologists at Allen Park in Detroit (Wheatherbee 1978) using diagnostic information back to 1964 would not impose any problems in regard to differing techniques and reliability of diagnosis.

8. By private physician, I do not mean to imply that the patient was seeing the doctor on a regular basis, for this cannot be discerned from the available information. This useage simply means that the initial diagnosis normally came from a physician working outside of the V.A. hospital.

9. If one used t-tests to investigate the differences of the five means there would be ten t-values to compute. This sort of multiple testing would in effect inflate the alpha error and increase one's chances of rejecting the hypothesis of equal means when in fact it should have been retained. If the hypothesis that all five

means are equal is rejected when some one of the ten t-values exceed the selected critical value of 5 per cent, this hypothesis will be rejected with a chance which may be many times the level of significance .05.

10. A certain degree of caution whould be exercised when considering sucn a result because of possible sampling error. The chances of such an error in this study have been inflated because sampling was not random (i.e., all Blacks that fit the sample criteria were selected for analysis). Such an error could present a picture of Black medical responses which in reality do not represent responses common to the Black population at large.

11. Rivlin in reviewing current health care utilization data from vital and health statistical surveys observed that "non-whites were significantly less likely to see a physician and slightly less likely to enter a hospital than the white majority" (1977:11). Evidence in support of this observation in the case of low income urban Blacks and Whites has also been presented by Hulka, Kupper and Cassel (1972:307). Also, a review by Haynes (1975), that makes a finer distinction for the non-white class, has provided additional support for such observations on the "health gap" between American White and Black patients. Haynes noted that "in 1970, 50 per cent of Blacks and 70 per cent of Whites reported seeing a physician during the year" (1975:19), and that although there has been an increase in care utilization for both groups since the 1963-1964 national survey, the gap has remained the same. In regard to hospital utilization he noted that a larger proportion of Whites had reported care episodes in short stay hospitals (10.2% for Whites and 8.2% for Blacks) and that these differences were the greatest between White and Black males and in persons 45 years and older (1975:24).

12. While there appears to be a fairly strong case for considering the medical beliefs of low income Blacks as an essentially homogeneous system, it seems to be less so in the case of White low income patients (at least in this study). Trends noted in the data indicated that if the sample size were larger for the Southern and European Whites, their differences would have become significant in relation to the Northern White group. The implication here is that the White group would be less homogeneous in regard to medical response behavior than the Black group. Such a high level of variation in response for the White group would seem to lessen any difference between Blacks and Whites thus increasing the importance of the observed difference, especially since it was in the opposite direction expected.

LIST OF REFERENCES

LIST OF REFERENCES

American Cancer Society
1978 Cancer statistics 1978. New York, American Cancer Society Publications.

Adams, R. N. and A. J. Rubel
1967 Sickness and social relations. Handbook of Middle American Indians 6: 333-56. Austin, University of Texas Press.

Aitken-Swan, J. and R. Paterson
1955 The cancer patient: delay in seeking advice. British Medical Journal 1: 623-27.

Alland, A.
1970 The cancer problem from the standpoint of the practicing physician in the small community. Minnesota Medicine 32: 65-9.

Antonovsky, A.
1972 Comparison of examinees in breast cancer detection clinics in Haifa and Jerusalem. Harefuah 83: 598-603. (Hebrew)

Antonovsky, A. and H. Hartman
1974 Delay in the detection of cancer: a review of the literature. Health Ed. Mong. 2(2): 98-128.

Atkinson, D.
1962 Magic, myth and medicine. London, Routledge and Kegan.

Bar-Meir, A. and A. Davies
1960 Delay in the detection of cancer of the digestive tract. Harefuah 59: 317-23. (Hebrew)

Bates, F. and I. Ariel
1948 Delay in treatment of cancer. Illinois Medical Journal (cited in Blackwell 1963. The literature of delay in seeking medical care for chronic illness. Health Ed. Mong. 16: 3-31).

Bateson, G.
1965 Naven: a survey of the problems suggested by a composite picture of the culture of a New Guinea tribe drawn from three points of view. Stanford, Stanford University Press.

Benedict, R.
1959 Patterns of culture. Boston, Houghton-Mifflin.

Blackwell, B.
1963 The literature of delay in seeking medical care for chronic illness. Health Ed. Mong. 16: 3-31.

1964 Anticipated premedical care activities of upper middle class adults and their implications for health education practice. Health Ed. Mong. 17(17): 36.

Bohannon, P.
1973 Rethinking culture: a project for current anthropologists. CA 14(4): 357-65.

Braund, R. and G. Binkley
1942 A plea for the earlier diagnosis of rectal cancer. New York State Journal Med. 42: 33-7.

Breslow, L. and J. Hochstim
1964 Sociocultural aspects of cervical cytology in Alameda County, California. Public Health Report 79: 107-112.

Burdick, D. and F. Chantry
1954 Central New York Surgical Society Survey on breast carcinoma, 1920-1952. Cancer 7: 47-53.

Cameron, A. and J. Hinton
1968 Delay in seeking treatment for mammary tumors. Cancer 21: 1121-1126.

Cameron, V. K.
1930 Folk beliefs pertaining to health of the southern Negro. Unpublished Masters thesis. Department of Sociology, Northwestern University.

Cobb, B., et al.
1954 Patient-responsible delay of treatment in cancer. Cancer 7: 920-26.

Coburn, B. and C. Pope
1974 Socioeconomic status and preventative health behavior. J. Health Soc. Behavior 15: 67-78.

Cockerham, W.
1978 Medical sociology. Englewood Cliffs, NJ, Prentice-Hall.

Comstock, G. and K. Partridge
1972 Church attendance and health. J. Chronic Disease 25: 665-72.

Cooper, E. and P. Smith
1975 Bladder cancer: prognostic factors and assessment of response to treatment. Cancer therapy: prognostic factors and criteria of response. M. Staquet, ed. New York, Raven Press.

Copeland, M.
1976 Efforts in cancer diagnosis: national task forces--Large bowel cancer. J. Surg. Oncology 8: 555-63.

1977 Personal communication.

Copeland, M. et al.
1968 Prognostic factors in carcinoma of the colon and rectum. Am. J. Surg. 116: 875-81.

Currier, R.
1966 The hot-cold syndrome and symbolic balance in Mexican and Spanish American folk medicine. Ethnology 5: 251-63.

DeLawter, D.
1948 Culpability for delay in management of cancer. In Antonovsky and Hartman, 1974. Health Ed. Mong. 2(2): 98-128.

Dubos, R.
1973 Man adapting. New Haven, Yale University Press.

Eardley, A.
1974 Triggers to action: a study of what makes women seek advice for breast conditions. Intl. J. Health Ed. 17: 256-65.

Ehrenreich, B. and J. Ehrenreich
1971 The American health empire: power, profits and politics. A report from the health policy advisory center (Health-PAC). New York, Vintage Books.

Eisenberg, L.
1977 Disease and illness. Culture, Med. Psych. 1(1): 9-23.

Engel, G.
1977 The need for a new medical model: a challenge for biomedicine. Science 196(4286): 129-36.

Enelow, A.
1976 Group influences on health behavior: a social learning perspective. Cancer: the behavioral dimensions. J. Cullen, et al., eds, New York, Raven Press.

Fabrega, H.
1971 Medical anthropology. Biennial review of anthropology. B. Siegal, ed. Stanford, Stanford University Press.

1974 Disease and social behavior: an interdisciplinary perspective. Cambridge, M.I.T. Press.

1975 The need for an ethnomedical science. 189: 969-975.

1977a Group differences in the structure of illness. Culture, Medicine and Psychiatry 1: 379-94.

1977b The scope of ethnomedical science. Culture, Medicine and Psychiatry 1(2): 201-8.

Fabrega, H. and P. Manning
1972 Self and body. Paper presented at the Third Annual Conference in Social Science and Medicine, Elsinore, Denmark, August, 1972.

Fabrega, H. and M. Zucker
1977 Comparisons of illness episodes in the pluralistic setting. J. Psychosom. Med. 39(5): 325-43.

Farr, C.
1919 Delay in the treatment of cancer. American Journal Med. Sci. 157(Jan.): 34-5.

Fink, R., et al.
1968 The reluctant participant in a breast cancer screening program. Public Health Report 83: 479-90.

Firth, R.
1957 Health planning and community organization. Health Education Journal 15: 118-25.

Fisher, S.
1967 Motivation for patient delay. Arch. Gen. Psychiat. 16: 676-78.

Foster, G.
1961 Public health and behavioral science: the problems of teamwork. American Journal of Public Health 51(9): 1286-93.

Freidson, E.
1970 Profession of medicine: a study of the sociology of applied knowledge. New York, Harper and Row.

Gans, H.
1962 The urban villagers. New York, The Free Press.

Geertz, C.
1957 Ritual and social change: a Javanese example. American Anthropologist 59: 32-54.

1968 The impact of the concept of culture on the concept of man. Man in adaptation: the cultural present. Y. Cohen, ed. Chicago, Aldine.

1973 Religion as a cultural system. The interpretation of cultures: selected essays. C. Geertz, ed. New York, Basic Books.

Gerard, A.
1975 Carcinoma of the colon and rectum: prognostic factors and criteria of response. Cancer therapy: prognostic factors and criteria of response. M Staquet, ed. New York, Raven Books.

Gibson, C.
1915 Cancer surgery. Am. J. Surg. 29: 374-77.

Glick, L.
1967 Medicine as a enthnographic category: the Gimi of the New Guinea highlands. Ethnology 6: 31-56.

Goldsen, R.
1953 Factors related to delay in seeking diagnosis for the danger signals of cancer. In Kutner et al., eds., 1958. Ithaca, New York, Social Science Research Center, Cornell University.

1963 Patient delay in seeking cancer diagnosis: behavioral aspects.. J. Chronic Disease 16: 427-36.

Goldsen, R., P. Gerhardt and V. Handy
1957 Some factors related to patient delay in seeking diagnosis for cancer symptoms. Cancer 10(1):1-7

Goodman, L. A.
1965 On the multivariate analysis of three dichotomous variables. Am. J. Sociology 71: 290-301.

1972 A general model for the analysis of surveys. Am. J. Sociology 77(6): 1135-86.

Gray, D. and G. Ward
1952 Delay in diagnosis of carcinoma of the stomach. Am. J. Surg. 83: 524-26.

Grushka, T. and R. Steintz
1955 Delays in diagnosis and treatment of cancer of the female breast. In Antonovsky and Hartman, 1974. Harefuah 49: 6-8.

Guiss, L.
1955 Mass roentgenographic screening as a lung-cancer control measure. Cancer 8: 219-36.

Hackett, T., N. Cassem and J. Raker
1973 Patient delay in cancer. New Eng. J. Med. 289(1): 14-20.

Haggerty, R.
1965 Family diagnosis: research methods and their reliability for studies of the medical social unit, the family. Am. J. Public Health 55: 1521-33.

Hallover, D.
1972 Illness behavior--an experimental investigation. J. Chron. Dis. 25: 599-610.

Hallowell, I.
1953 Culture personality and society. Anthropology today, A. Kroeber, ed. Chicago, University of Chicago Press.

1963 Ojibwa world view and diease. Man's image of medicine and anthropology. I. Galdston, ed. New York, International Universities Press.

Hammerschlag, C.
1964 Breast symptoms and patient delay: psychological variables involved. Cancer 17: 1480-85.

Harms, C., J. Plaut, and A. Oughterson
1943 Delay in the treatment of cancer. JAMA 121(5): 335-38.

Harwood, A.
1971 The hot-cold theory of disease: implications treatment of Puerto Rican patients. JAMA 216(7) 1153-58.

Haynes, M. A.
1975 The gap in health states between black and white Americans. Textbook of black related diseases. A. Williams, ed. New York, McGraw Hill Book Co.

Henderson, J.
1966 Denial and regression as factors in the delay of patients with cancer presenting themselves to the physician. Annals New York Acad. Science 125: 856-64.

Henderson, J., et al.
1958 A psychiatric investigation of the delay factor in patient doctor presentation in cancer. J. Psychosom. Res. 3:27-41.

Hetherington, R. and C. Hopkins
1969 Symptom sensitivity: its social and cultural correlates. Health Serv. Res. 4: 63-75.

Hillard, J. and W. Rockwell
1978 Dysesthesia, witchcraft and conversion reaction: a case successfully treated with psychotherapy. JAMA 241: 1742-44.

Hochstrausser, D. and J. Tapp
1970 Social anthropology and public health. Anthropology and the behavioral and health sciences. O. von Merring and L. Kasden, eds. Pittsburgh, University of Pittsburgh Press.

Hollingshead, A. and F. Redlich
1958 Social class and mental illness. New York, John Wiley and Sons.

Howson, J.
1948 Pelvic cancer delay. Am. J. Obstet. Gynecol. 55: 538-40.

Hulka, B., L. Kupper and J. Cassel
1972 Determinants of physician utilization: approach to a service-oriented classification of symptoms. Medical Care 10(4): 300-9.

Hughes, E.
1976 Long-term study of large-bowel cancer. Med. J. Australia 2:365-68.

Imperato, P.
1969 Traditional attitudes towards measles in the republic of Mali. Trans. Royal Society Tropical Med. Hygiene 63: 768-80.

Ingham, J.
1970 On Mexican folk medicine. American Anthropologist 72: 76-87.

Kegeles, S.
1969 A field experimental attempt to change beliefs and behavior of women in an urban ghetto. J. Health Social Behavior 10: 115-25.

1973 Behavioral sciences data and approaches relevant to the development of education programs in cancer. Health Ed. Mong. 36: 18-33.

1976 Relationship of sociocultural factors to cancer. Cancer: the behavioral dimensions. J. Cullen, B. Fox, and R. Isom, eds. New York, Raven Press.

Kegeles, S., et al.
1965 Survey of beliefs about cancer detection and taking Papanicolaon tests. Public Health Report 80: 815-23.

Kelly, J. and C. Thieme
1967 Impact of public education about cancer on detection and treatment of cancer of the breast by surgery. Cancer 20: 260-62.

Kiev, A., ed.
1964 Magic, faith and healing. New York, Glencoe.

King, R. and J. Leach
1950 Factors contributing to delay by patients seeking medical care. Cancer 3: 571-79.

Kleinman, A.
1974 Cognitive structures of traditional medical systems: ordering, explaining and interpreting the human experience of illness. Ethnomedizin III, ½ (1974/1975): 27-49.

1975 Social, cultural, and historical themes in the study of medicine in Chinese societies: problems and prospects for the comparative study of medicine and psychiatry. Medicine in Chinese cultures: comparative studies of health care in Chinese and other societies. U.S. DHEW, DHEW publication no. (NIH) 75-653. Washington, D.C., U.S. Government Printing Office.

1977 Editorial: Culture and illness: a question of models. Culture Med. Psychiatry 1(3): 229-31.

Koos, E.
1954 The health of regionville. New York, Columbia University Press.

Kroeber, A.
1957 Style and civilizations. Ithaca, Cornell University Press.

Kroeber, A. and C. Kluckhohn
1952 Culture: a critical review of concepts and definitions. Vintage Books.

Kutner, B. and G. Gordon
1961 Seeking care for cancer. J. Health Hum. Behav. 2: 128-45.

Kutner, B., H. Makover, and A. Oppenheim
1958 Delay in diagnosis and the treatment of cancer: a critical analysis of the literature. J. Chron. Dis. 7: 95-120.

Leach, J. and G. Robbins
1947 Delay in the diagnosis of cancer. JAMA 135: 5-8.

Levin, A.
1947 Certain factors influencing cancer curability. Southern Med. J. 40: 259-61.

Lieban, R.
1962 The dangerous Ingkantos: illness and social control in a Philippine community. American Anthropologist 64: 306-12.

1973 Medical anthropology. Handbook of social and cultural anthropology. J. Honigmann, ed. Chicago, Rand McNally and Co.

Litman, T.
1974 The family as a basic unit in health and medical care: a social-behavioral overview. Soc. Sci. Med. 8: 495-519.

Logan, M.
1978 Humoral medicine in Guatemala and peasant acceptance of modern medicine. Health and the human condition: perspectives on medical anthropology. M. Logan and C. Hunt, eds. North Scituate, Mass., Duxbary Press.

Lynch, H. and A. Krush
1968 Attitudes and delay in cancer detection. Arch. Environ. Health 17: 204-09.

Mabry, J.
1964 Medicine and the family. J. Marriage and the Family 26: 160-65.

MacDonald, E. J.
1947 Changing reasons for cancer patient delay. Connecticut Health Bull. 61: 99

MacDonald, I.
1951 Biological predeterminism in human cancer. Surg. Gynecol. Obstet. 92: 443-52.

Marascuilo, L. and M. McSweeney
1977 Nonparametric and distribution-free methods for the social sciences. Monetery, Brooks and Cole.

Martin, R. G. et al.
1976 Gastrointestinal cancer. Cancer patient care at M. D. Anderson Hospital and Tumor Institute. R. Clark and C. Howe, eds. Chicago, Yearbook Medical Pub. Inc.

McCullough, J. and V. Gilbertsen
1969 Motivational factors in persons seeking early diagnosis of cancer: a preliminary report. Geriatrics 24: 117-25.

McKinley, J.
1972 Some approaches and problems in the study of the use of services--an overview. J. Health Soc. Behav. 13(2): 115-52.

Mechanic, D.
1974 Social psychologic factors affecting the presentation of bodily complaints. Health and the social environment, P. Insel and R. Moos, eds. Lexington, Mass., D.C. Heath.

Messing, S.
1976 Emics and etics of health problems in Ethiopia. Medical anthropology, F. Grallig and H. Haley, eds. Paris, Mouton.

Miner, H.
1960 Culture change under pressure: a Hausa case. Human Organization 19(3): 164-67.

Monk, M., A. Lilienfeld, and A. Mendeloff
1962 Preliminary report of a epidemiologic study of cancers of the colon and rectum. Paper presented at meeting of epidemiology section, American Public Health Association (cited in Comstock and Partridge 1972, Church attendance and health. J. Chron. Dis. 25: 665-72).

Moses, R. and N. Cividali
1966 Differential levels of awareness of illness: their relation to some salient features in cancer patients. Annals N. Y. Acad. Sci. 125: 984-94.

Mossetli, C., et. al.
1970 Sociocultural aspects and motivational reactions of populations involved in mass educational programs for the early diagnosis of tumors of the female genital organs. Minerva Med. 61: 4973-90. (Italian)

Muldoon, J. P.
1977 The role of surgery in colon and rectal cancer. Paper presented at a symposium on colon and rectal cancer, St. Mary's Hospital, November 1977, Grand Rapids, Michigan.

Nash, J.
1967 The logic of behavior: curing in a Mayan Indian town. Human Organization 26: 132-40.

National Analysts, Inc.
1972 A study of health practices and opinions (final report). National Technical Information Service, U.S. Dept. Commerce., Springfield, Va.

O'Frake, C.
1961 The diagnosis of disease among the Subanun of Mindanao. American Anthropologist 63: 113-32.

1977 The diagnosis of disease among the Subanun of Mindano. Culture, disease and healing: studies in medical anthropology. D. Landy, ed. New York, Maxmillan.

Opler, M.
1945 Themes as dynamic forces in culture. Am. J. Soc. 51: 198-206.

1961 Ethnic differences in behavior and health practices. The family: a focal point for health education. I Galdson, ed. New York, New York Acad. Med.

Pack, G., and J. Gallo
1938 The culpability for delay in the treatment of cancer. Am. J. Cancer 33(July): 443-62.

Paterson, R.
1955 Why do cancer patients delay? Canadian Med. Assoc. J. 73(12): 931-39.

Paul, B., ed.
1955 Health, culture and community. New York, Russell Sage Foundation.

Paul, B.
1963 Anthropological perspectives on medicine and public health. Annals Am. Acd. Polt. Soc. Sci. 346: 34-43.

Pellegrino, E. D.
1963 Medicine, history and the idea of man. Medicine and society. J. Clausen and R. Strauss, eds. The Annals of the American Academy of Political and Social Science 346: 9-20.

Pless, I. and B. Satterwhite
1973 A measure of family functioning and its application. Soc. Sci. Med. 7: 613-21.

Potchen, E. J.
1975 A community based study of colorectal cancer control. Project sponsored by M.S.U. Dept. of Radiology (in progress).

Preston, R.
1966 Edward Sapier's anthropology: style, structure and method. American Anthropologist 68: 1105-28.

Price-Wiliams, D.
1962 A case-study of ideas concerning disease among the Tiv. Africa 32: 123-31.

Reznekoff, M.
1955 Motivational factors in persons attending a cancer detection center. Cancer 8: 454-58.

Rivlin, A. M.
1977 Health differentials between white and non-white Americans: a background paper. Congress of the United States. Washington, DC, U.S. Government Printing Office.

Robbins, G., et al.
1950 Delay in diagnosis and treatment of cancer. JAMA 143: 346-48.

1953 Delay in the diagnosis and treatment of physicians with cancer. Cancer 6:624-26.

1959 The significance of early treatment of breast cancer: changes correlated with the cancer education programs of 1940-55. Cancer 12: 688-92.

Rogers, A.
1974 Cancer of the colon: magnitude of the problem and clinical aspects. Selected topics of cancer: current concepts. K. Charyulu and A. Sudarsanam, eds. New York, Intercontinental Medical Book Corp.

Rubel, A.
1960 Concepts of disease in Mexican-American culture. American Anthropologist 62: 795-814.

1964 The epidemiology of a folk illness: susto in Hispanic America. Ethnology 3: 268-83.

Sandifer, W. and B. Pritchett
1958 Psychologic reactions causing delay in treatment of cancer of the cervix. J. Obstet. Gynecol. Br. Commonwealth 11:82-88.

Scheffey, L.
1953 The delay period in the diagnosis of pelvic malignancy. Obstet. Gyn. 1: 554-63.

Scotch, N.
1963 Medical anthropology. Biennial review of anthropology. B. Siegel, ed. Stanford, Stanford University Press.

Scudamore, B.
1969 Cancer of the colon and rectum: general aspects, diagnosis, treatment and prognosis; a review. Dis. Colon Rect. 12: 105-14.

Seidman, H., E. Silverberg, and A. Holleb
1976 Cancer statistics, 1976 a comparison of White and Black populations. American Cancer Society, Professional Education Publications.

Seijas, H.
1973 An approach to the study of medical aspects of culture. Current Anthropology 14(5): 544-45.

Shapiro, S., et al.
1967 Periodic breast cancer screening in reducing mortality from breast cancer. JAMA 215: 1777-85.

Shedden, W.
1939 Carcinoma of the rectum and sigmoid. Am. J. Surg. 44: 482-511.

Shuval, J.
1970 Social functions of medical practice. San Francisco, Jossey-Bass Inc.

Silverberg, E.
1977 Cancer statistics, 1977. Cancer 27(1): 26-41.

Simmons, C. and E. Daland
1920 Cancer factors entering into delay in its surgical treatment. Boston Med. Surg. J. 183(September): 298-306.

1924 Cancer: delay in surgical treatment. Boston Med. Surg. J. 190(January): 15-19.

Simmons, O.
1953 Popular and modern medicine in mestizo communities of coastal Peru and Chile. J. Am. Folklore 66: 57-71.

Smith, F.
1935 Factors causing delay in operative therapy of carcinoma. Surg. Gynecol. Obst. 60: 45-53.

Snow, L. F.
1974 Folk medical beliefs and their implications for care of patients: a review based on studies among black Americans. Annals of Internal Medicine 81(1): 92-6.

1977 Popular medicine in a black neighborhood. Ethnic medicine in the Southwest. E. Spicer, ed. Tucson, University of Arizona Press.

1978a Sorcerers, saints and charlatans: black folk healers in urban America. Culture, Medicine and Psychiatry 2: 69-106.

1978b Personal communication.

Soost, H. and H. Thomas
1969 Delayed treatment of carcinoma of uterine body in cervix: incidence and causes. Dtsch. Med. Wes. 94: 633-38.

Staiano, K. V.
1974 The integration of modern medicine into a system of folk beliefs: study of patients in a clinic serving a low-income community. (unpublished manuscript)

Stearns, H.
1950 Discussion of A. Diddle, genital cancer among women. Am. J. Obstet. and Gynecol. 59: 1381-82.

Sugar, M. and C. Watkins
1961 Some observations about patients with a breast mass. Cancer 14: 979-88.

Titchener, J., et al.
1956 Problem of delay in seeking medical care. JAMA 160: 1187-93.

Turner, V.
1968 The drums of affliction. London, Oxford University Press.

Wainwright, J. M.
1911 The reduction of cancer mortality. New York Journal of Medicine 95(December 9, 1911): 1165-68.

Waitzkin, H. and J. Stolckle
1972 The communication of information about illness. Adv. Psychosom. Med. 8: 180-215.

Wakefield, J.
1969 Social and education factors affecting the early diagnosis of cancer. In Antonovsky and Hartman, 1974. Schweizerische Medizinische Wochenschrift 99: 828-33.

Wax, M.
1970 Sociology. Anthropology and the behavioral and health sciences. O. von Mering and L. Kasden, eds. Pittsburgh, University of Pittsburgh Press.

Wheatherbee, R.
1978 Personal communication.

Whitten, N.
1962 Contemporary patterns of malign occultism among Negroes in North Carolina. J. Am. Folklore 75: 311-25.

Williams, R. A., ed.
1975 Textbook of black related diseases. New York, McGraw Hill Book Co.

Wintrob, R.
1973 The influence of others: witchcraft and rootwork as explanations of behavior disturbances. J. of Nervous and Mental Disease 150(5): 318-26.

Wintrob, R., R. Fox and E. O'Brien
1971 Rootwork beliefs and psychiatric disorder among blacks in a northern United States city. Paper presented at the Vth World Congress of Psychiatry, Mexico City.

Wolff, B. and S. Langley
1968 Cultural factors and the response to pain: a review. American Anthropologist 70: 494-501.

Worden, J. and A. Weisman
1975 Psycho-social components of lagtime in cancer diagnosis. J. Psychosomatic Res. 19: 69-79.

Vargas, L.
1976 Reflections. Medical anthropology. F. Gralliz and H. Haley, eds. Paris, Mouton.

Young, A.
1975 Why Amhara get Kuregnga: sickness and possession in a Ethiopian Zar cult. American Ethnologist 2: 567-84.

1976 Some implications of medical beliefs and practices for social anthropology. American Anthropologist 78(1): 5-24.

Youngman, N.
1947 Psychological aspects of the early diagnosis of cancer. Med. J. Australia 34: 581-87.

Zborowski, M.
1952 Cultural components in response to pain. J. Soc. Issues 8:16-30.

1969 People in pain. San Francisco, Jossey-Bass.

Zola, I.
1966 Culture and symptoms: an analysis of patients presenting complaints. Am. Soc. Rev. 31: 615-30.