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ATTRIBUTION OF CAUSATION AND RESPONSIBILITY
IN THE CONTEXT OF LIFE-THREATENING ILLNESS.

UNIVERSITY OF HAWAII, PH.D., 1978

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ATTRIBUTION OF CAUSATION AND RESPONSIBILITY IN THE
CONTEXT OF LIFE-THREATENING ILLNESS

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT
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By

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ABSTRACT

This study represents the first systematic attempt to assess the attribution of causation and responsibility in two life-threatened contexts: cancer and cardiovascular disease. The 40-item, specially devised for this study, Health/Illness Attribution Locus of Control Scale (HIALOCS) consisting of ten filler, ten internal, ten external, and ten chance items, the 40-item specially devised Health/Illness Questionnaire (HIQ) consisting of demographic information items, past/present illness history questions, word association, and illness behavior items, and the Rotter Locus of Control Scale were administered to 23 cancer subjects, 66 cardiovascular subjects, and 51 normal subjects. In this group design, each group of subjects' comparisons of HIALOCS and Rotter's scale produced statistically non-significant correlations and between group (cancer to normal, cancer to cardiovascular, cardiovascular to normal, and cancer and cardiovascular to normal) comparisons of HIALOCS also failed to reach significance. Principle component analysis and item analysis of HIALOCS did not succeed in validating the four hypothesized dimensions of attribution. Results suggest that HIALOCS be reconsidered as either a unidimensional or multidimensional measure of context-specific attribution, and that research be aimed at evaluating subject selection procedures in order to identify and define specific parameters of life-threatening physical dysfunctions.

While these first results were disappointing, the Health/Illness Attribution Model upon which the study was based is a new approach that continues to require further research. Future research in this area must plan for sufficient time to permit natural occurrence of suitable subjects as well as consider complimentary analog designs along with clinically located studies. The potential benefits of continued investigation of the interface between the social psychology construct of attribution and clinical psychology's application of this important aspect of human behavior are well worth pursuing. The present study represents an initial effort in this direction.

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CHAPTER I

INTRODUCTION

Over the past several years there has been a dramatic increase of interest and research within clinical psychology directed at "non-mentally ill" client populations. Initial research and application have been concentrated on various aspects of the psychosomatic and stress disorders. Much less attention has been given to the major life threatening health dysfunctions; e.g., cancer, heart disease. Research and intervention strategies based on demonstrated psychological principles are in an early developmental stages in relation to life-threatening physical disorders. In addition, the manner in which established psychological approaches can be applied to the general medical setting where many non-psychiatric populations are found is in a transitional phase. As a consequence, there is considerable need for information which explores the parameters of clients who would benefit from psychological services.

Cancer or oncology* patients are one such population. The term cancer is representative of more than 100 different or interrelated diseases characterized by aberrant cell growth. On a national scale, cancer ranks second in incidence and mortality statistics (heart disease is number one and alcoholism is number three). It is a dominant, pervasive

*Oncology is the study of tumors. It is derived from the Greek oncus (tumor) and logos (study).

health problem which possesses the potential for disruption of the economic, social, and personal aspects of living for those afflicted with it. The impact of cancer on the individual, family, health care delivery system, and society as a whole can be devastating. Economic costs per year alone in the United States exceeds tens of billions of dollars (Burkhalter, 1978). Loss of employment and continually rising health care costs also contribute to the impact of cancer on society and the individual.

Amidst these impressive socioeconomic considerations lies the individual who becomes a cancer patient. Identification as a cancer patient precipitates a life altering illness experience that has profound impact on the designated patient, his family, and/or significant others. The nature of the experience has major impact and implication for the person's survival and quality of living.

Many factors may impinge on the cancer experience; e.g. age, sex, type of cancer, belief system about health and illness. How the person determines and views the cause for the disease may also heavily influence the quality of the experience. This attribution of causation and/or responsibility for the illness may interact with treatment and rehabilitation efforts in such a way that optimal quality of living is impeded, facilitated, or stalled. Before it is realistic to draw such inferences, however, it is necessary to determine how persons with a life-threatening illness such as cancer attribute causation and responsibility for

the illness. For this sound base, it becomes reasonable to extend research effort into intervention areas.

I. STATEMENT OF THE PROBLEM

Attribution theory attempts to identify what people think or perceive is the cause of an event. The attribution process is defined as the determination of the relationship between the perception of causation and/or responsibility for an event, act, or occurrence and subsequent behavior. The individual seeks to attribute causation of events as a means of ordering the environment in terms of consistency, prediction, and control.

Persons who are medically diagnosed as having a life-threatening illness such as cancer theoretically initiate an attribution process in an attempt to determine the cause or reason for the disease. Attribution theory, however, has not addressed this process as it may occur with persons who are seriously ill. As a result, it is necessary to extrapolate from existing attribution theory formulations in an attempt to devise a framework within which health/illness attribution processes can be viewed.

II. SURVEY OF THE LITERATURE

Attribution Theory Reviewed

Within the body of literature in social psychology devoted to attribution theory, lies a second concept

intimately related to causation: responsibility. Causality acts as the umbrella concept under which responsibility resides. From a theoretical standpoint, responsibility may be viewed from a causality, legal accountability, or moral accountability perspective (Shaver, 1975). Major attribution theorists and certain researchers focusing on the responsibility component of causation have differentially attended to this issue. Heider (1958) describes the degree of responsibility for an event in relation to the perceiver's needs, social necessity, and the presence or absence of intention. Responsibility is conceptualized as falling into identifiable levels (Heider, 1958; Shaw and Sulzer, 1964). Level I states that a person is responsible for any effect that is connected to him or seems to belong to him. In the second level, the individual is a necessary condition for the event in spite of any lack of intention or overt awareness of possible outcomes. Responsibility in Level III includes the careless commission of events although he may not have foreseen the outcome. Here, moral judgments as well as deficits in intellectual capacity enter into determination of responsibility. A fourth level (also referred to as subjective responsibility) emphasizes responsibility for intended effects only. Level V includes the influences of environmental forces as factors contributing to individual responsibility; i.e., the individual may be subject to coercive environmental elements. According

to Heider's (1958, p. 114) formulation, then, the issue of responsibility "includes the problem of attribution of action."

Jones and Davis (1965) assume that the stimulus person is responsible for his actions but do not directly address the issue of responsibility in the attribution context. Kelley (1967) also does not focus on the responsibility component, but does acknowledge situations in which responsibility is determined by non-causality factors.

Attribution has been broadly defined as a social theory of effect causation which contains an aspect of responsibility. Prior to delving into the research on attribution, a brief theoretical discussion will be presented.

Heider's Germinal Work on Attribution Theory

Heider (1958) formalized a naive psychology of attribution which sought to identify the manner in which the layman might seek to comprehend the behavior of another person. He basically developed a theory that attempts to explain how the "average person" comes to know the causes of events and actions. Central to Heider's position is the emphasis on phenomenal or perceptual experience of the perceiver. In day-to-day social interaction settings, Heider's attribution theory enables the perceiver to discover the underlying dispositions (i.e., regularities) that enhance stability, predictability, and control of one's world.

In Heider's initial formulations of attribution theory (Heider, 1944; Heider & Simmel, 1944), the concept of the "prototype of origins" was developed. Within this context, the person is viewed as the origin of an event; a simple yet environment engulfing explanation containing a degree of overattribution of causality. The person may be considered the source of an event due to

1. The innate simplicity of such a unitary explanation of an event in comparison to more cognitive approaches.

2. A possible bias in cognitive organization related to childhood in which thoughts or wishes, when paired with a coincidental desired outcome, were attributed to the original wish.

3. A seemingly inherent similarity between the event and the person. In this case, the person carries a pre-conceived idea of how a particular person-event occurs, and may attribute causation of similar events to persons fitting into the "mold".

4. The perceiver's needs and attitudes. Overattribution of personal causality reflects the person's bias that locates causality in external sources. Thus, a failure is attributed to another person or outside force (scapegoat syndrome) or to "bad luck".

5. A need to maintain certain attitudes.

This initial, rather simplistic view of personal causality was modified in Heider's later work (Heider, 1958). The emphasis shifted from factors contributing to

overattribution, to development of a dual force explanation of causality. Action is brought about, and consequently can be attributed from a retrospective viewpoint, by the convergence of effective personal force and effective environmental force. Each of these forces is composed of supporting components as depicted below

Effective personal force	Power (ability)	
	Trying (intention, exertion)	Action, Outcome (The effect or event)
Effective environmental force	Can (possibility, "chance")	

As described by Heider (1958), power generally consists of the individual's physical and intellectual ability, self-attitudes and degree of confidence, and competence. "Trying" represents the person's intention or reflection of purpose as well as "how hard he tries" via exertion to bring about the outcome. Environmental forces include the possibility that the person can act or bring about an event given the enhancing and inhibiting forces in the surrounding environment. Each of these forces are subject to the multitude of factors that impinge on the organism, both internal (personal) and external (environmental) at any given point in time; e.g., belief systems, interpersonal relationships, emotions, stressors, difficulty of the task, natural promoting or inhibitory factors.

Heider identifies intention as "the central factor in personal causality" (1958, p. 100). In determining cause-effect relations, the nature of the actor's intention, or purposive action becomes the crucial focus. True personal causality is characterized by the specific intention of p to bring about x. This type of causality is to be distinguished from effects which may occur as a result of p's action, but which were not purposefully caused; e.g., in playing a game of catch, a third person crosses the throwing field and is struck by the ball. Heider does not apply a true personal causality explanation of the event. To do so would be to enter the arena of attributing unconscious motivations and goals to the actor under a guise of true personal causation. Also excluded from intentional causality are those unintended outcomes occurring as a consequence of a different purposive act (i.e., impersonal causality).

The attributional outcome of Heider's naive psychology of cause-effect relations is a judgment of personal responsibility. To the degree that environmental factors are ruled out as contributing to causality, the person's level of personal responsibility increases and vice versa. Shaw and Sulzer's (1964) research supports this hypothesis in that Ss', children and adults, attribution of responsibility for positive or negative outcomes depicted in a story format was found to be related to the relative contribution of various environmental factors. Child and adult attributions of responsibility, however, do focus on different aspects of

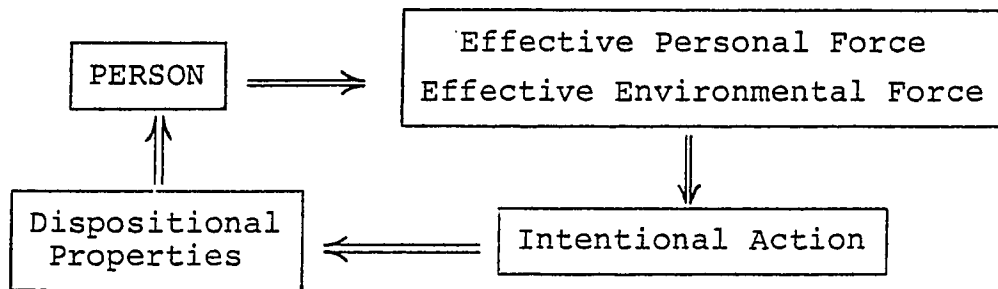
the inferential process. According to Fishbein and Ajzen (1973), the child works at the level of commission (instrumental in causation) while the adult emphasizes intention of the actor.

"Can" and "trying" are viewed as the two necessary and sufficient conditions of purposive action, and consequently, of true personal causality. The overall goal of an attribution process is to identify dispositional properties in the environment, other people, or oneself. When p needs to interpret the behavior of another person, o, three explanations are possible based on Heider's approach to causation:

1. O behaved in a particular way due to the situation he was in,
2. O's behavior was due to chance, or "luck",
3. O's behavior was representative of internalized dispositional properties.

In answering these questions, the perceiver or questioner determines the degree of predictability and consistency characteristic of the other person's behavior. As a consequence, the perceiver begins to gauge the behavior of others in terms of how it may influence him, or be reflective of personal dispositions. Therefore, the third approach to the attributional sequence provides the perceiver with the most information. When a person attributes an action as due to a personal disposition, intentionality also is attributed to the actor.

Heider's naive psychology described an attributional process in which the convergence of effective personal force and effective environmental force resulted in intentional/purposive action or outcome. Intentional outcomes are associated with dispositional properties of the actor. For example, Fitch (1970) reports that adult Ss' attribute significantly more causality for successful outcomes to internal sources than for failure outcomes. Successful behavior is viewed as supporting self-esteem and consequently one's stable personality characteristics. In a clearly identified attributional sequence, the process can be depicted as:



When each of the forces are present, intentional action results which implies a personal disposition. Heider views dispositional properties as residing within the person, defining a single entity. Reisman and Schopler (1973), however, have separated the person component into person and disposition. An attribution may, in fact, be due to a dispositional property that varies in strength within the person element. The amount of responsibility attributed is a function of the strength of the relationship between the

person and disposition. Research conducted by Reisman and Schopler (1973) which involved manipulation of person and disposition, elements, supports this refinement of Heider's theory.

The person (perceiver or actor) goes through the evaluating sequence and arrives at a determination of presence or absence of dispositional properties. The work of Jones and Davis (1965) addresses the causality-disposition bridging begun by Heider.

Jones and Davis: Correspondence Inference Theory

The emphasis of Jones and Davis's (1965) work is on the effects resulting from an action. Before an attribution of intention is made, the actor is assumed to have had prior knowledge of the effects of various actions available. While Heider's concept of exertion is not integrated into the Jones and Davis schema, ability and capacity is. Heider confined ability to power or skill; Jones and Davis consider ability as an indication of whether an action can be performed and thus, is synonymous with Heider's can. Knowledge and ability, therefore, become preconditions to the assignment of intention which is in itself a precondition for the inference of dispositions.

"Correspondence" refers to the degree of matching that takes place between an act and an underlying personal characteristic or disposition; e.g., the individual's actions match or correspond to the belief he has about how the action

should be performed. Dispositions are inferred from intentions; i.e., act--intention--disposition. Correspondence declines as the perceiver skips the "intention-inferring" step and concentrates only on the inferring of dispositions based on acts (i.e., act--disposition). Correspondence increases as the perceiver's evaluation of the act departs from, or is noncommon in comparison to, the average person's stand on the particular attribute (e.g., out of role). Universally desired effects do not provide information on the actor's unique characteristics. An inference, then, is correspondent only to the extent that it characterizes the actor's standing as high or low on an attribute in relation to the average person. At the same time, Kruglanski and Cohen (1973), found that as correspondence increases, perceived personal freedom also increases; i.e., as consistency and predictability with norms decrease (high correspondence) personal freedom increases. Therefore, an action-to-attribute inference is correspondent as an inverse function of the number of noncommon effects resulting from an action, and the assumed social value or valence placed on the effects. For example, the more distinctive the reasons for an action are, and the more the reasons are universally shared in the culture, the less (1) informative the action in identifying person attributes, and (2) information gained. Social valence may be influenced by such things as socioeconomic or cultural stereotypes, physical appearance, or shared perspectives of actor and perceiver.

The Jones and Davis (1965) theory expands and refines Heider's (1958) recognition that the attribution process may be distorted by personal needs of the perceiver. In addition, Calder (1974) suggests that information cues such as occupation should also be considered. The consequences of an action may be hedonically relevant to the perceiver. It may have positive or negative impact on the perceiver, and thereby, fulfill or obstruct an identified purpose. As relevance of an effect increases, the probability that inferences will be correspondent also increases. In general, positively relevant consequences result in favorable evaluations of an actor and greater correspondence. (This process is termed "facilitative distortion".)

A second manifestation of personal needs is termed "personalism" and refers to acts or choices which may or may not be affected by the presence of the perceiver. The task for the perceiver is to distinguish between acts influenced by his presence and those undertaken with no such influence. Choice becomes the key variable. An act will be evaluated as correspondent according to (1) the nature of relevance assumed as well as (2) the degree of personalism or unique conditioning present (i.e., the act occurred because the perceiver was the target). In evaluating actions, the idea of "ingratiation" becomes important specifically with reference to beneficial outcomes. The perceiver seeks to determine whether the actor's behavior was reflective of an ulterior motive or manipulative purpose. Deciding the

actor's true intention and subsequently, his dispositional characteristic becomes more complex when personalism is complicated with a question of ingratiation.

The correspondence inference theory of attribution extends Heider's original work by contributing a degree of clarity to the act-intention-disposition sequence. Informativeness about causation is only gained in relation to the distinctiveness of the effects achieved and the degree of departure from social values the effects represent. For example, in a study by Ugwuegbu and Hendrick (1974), a non-common behavior which resulted in varying degrees of outcome severity was attributed to the actor as the negatively valenced seriousness of the manipulated outcome increased. To the extent that the actor's behavior departed from the social norms of the observers, causal inferences about the actor was increased. When an inference is evaluated as correspondent, therefore, a disposition is being directly reflected in the behavior and is of unique intensity or strength. This process can be biased by hedonic relevance and personalism perceived.

Kelley's Attribution Theory

As with Jones and Davis (1965), Kelley (1967, 1972, 1973) derives his attribution theory from Heider's (1944, 1958) germinal work. Kelley's approach is based on the concept of covariation between potential causes and effects, and can be used to explain attributions made for self and

others' behavior. The model consists of a three dimensional matrix with stimulus on the "entities" dimension, perceiver placed on the "persons" dimension, and context on the time/modality dimension in which the attribution is made. An attribution is made by covarying along the three dimensions. McArthur (1972) initially reported significant effects of the three dimensions on the attribution process.

To determine whether an attribution is valid, the perceiver applies the criteria of distinctiveness, consistency (over time and modality), and consensus. Distinctiveness refers to the uniqueness of an effect; to the fact that it occurs under one set of circumstances and not others. Consistency implies that on successive exposures to the stimulus, the actor will respond in a similar fashion. To determine consensus, one considers whether an actor's response to a stimulus is similar to that made by other persons to the same stimulus. In arriving at an attribution, the criteria are applied to each dimension which is then covaried with the other two dimensions. The final attribution of an effect is determined by a ruling out process on each of the dimensions which culminates in a single evaluation of causation on one dimension. That is, if the time/modality dimension, for example, is ruled out as a factor in the occurrence of the effect, the final attribution will be to the entity or persons dimension. The covariation attributional process can be applied to self-related effects

such as internal feeling states, and to determining the attributions of dispositions to others.

Calhoun, Pierce, and Davis' (1973) research partially supports the interaction effect between the consistency dimension and internal attributions. In this study, long term clinical problems (consistent) were found to be positively correlated with internal self-attributions. A second study, conducted by McArthur (1973) indicates that Kelley's consensus criteria may be the most active component in the attribution process. In a self-attribution investigation, McArthur found that when consistency is held constant, a reversal of Kelley's predictions occurs. Highly distinctive effects and high consensus with social norms is associated with personal causation, while low distinctiveness and consensus is related to environmental or external factors. These results are clearly discrepant with Kelley's propositions, and may be due to difficulty in manipulating distinctiveness in the self-perception task and/or the lack of consistency information.

The attributor (self or other) may be biased by a number of factors in the attributions made. One such factor is the discounting principle which states that a cause will be discounted in producing an effect if other plausible causes are also present. Conversely, the augmentation principle states that when known risks, costs, or constraints are involved in taking an action, the action once taken is attributed more to the actor. The discounting and augmenting

principles relate to inhibitory and facilitative external causes that may impinge on the attributional process.

Perhaps the most significant contribution made by Kelley (1973) to attribution theory is the concept of a causal schema. The schema is a way of conceptualizing how two or more causal factors interact in relation to an effect. It is derived from experience, experimentation, and teachings about how causation occurs in the world. The mature person carries a repertoire of these abstract thought models related to the many problems encountered throughout life. When necessary, a particular model is reflected in the person's thinking in specific situations and times. The causal schema can be viewed as an assumed configuration of data within an analysis of variance context. Through sociocultural belief systems, certain causal schemata (causal preconceptions and stereotypes) are passed on to the members of the society and thus add a degree of predictability to the causation process.

With the introduction of causal schema or models, Kelley has entered the realm of an information processing conception of attribution. Causal schema represent preexisting beliefs about causation, and as such, effect the intake of information that will be used in a particular instance of attribution. In turn, the covariation process between causes and effects also is influenced or biased.

Although bias in the attribution process undoubtedly influences the outcome, Kelley (1973) emphasizes the fact that multiple causal inferences also enter into the process.

The theory incorporates the tendency for simple (single cause) rather than complex causal (multiple cause) explanations to be used. Obviously, the nature of the effect requiring an explanation will directly influence whether the simple (often in terms of a physical or impersonal cause) or complex personal causes, internal causes) schema will be employed.

Kelley's (1967, 1972, 1973) attribution theory adds numerous facets to the overall theoretical proposition of causality. His covariation approach, causal schema, and multiplicity of explanation contributions have clarified the nature of the theory as well as acted as a stimulus to further refinement and research.

Attribution Theory Updated

Attribution theory as originated by Heider (1958), and elaborated by Jones and Davis (1965), and Kelley (1967, 1972, 1973) has been largely confined to the individual's perception of the cause(s) of behavior of others (Nisbett & Valins, 1972). This approach to attribution emphasizes the search for the cause of an event, both from person based and environmental sources. The process consists of the seemingly organized identification and evaluation of possible causal factors of event or effect. Once a causative inference is made or a dispositional property determined, either from a person or environmental source, the process is terminated. This process, in summary, consists of the search for a factor or condition that is present when the effect is present and

not present when the effect is absent (Duval & Wicklund, 1973).

Actor Observer Differences: Jones and Nisbett. A somewhat different approach to the attribution process has been offered by Jones and Nisbett (1972). This approach is characterized by an emphasis on actor-observer differences and the impact of salience of information on the inferential process. In general, actors tend to attribute their own actions to situational or environmental factors, while observers tend to attribute those same actions to stable personal dispositional properties. Actor-observer differences are hypothesized to be due to differences in information processing. Different aspects of available information regarding possible causative factors become salient for actors and observers. This variation in salience of information influences the course and outcome of the attribution process. For example, distortion in inferring dispositional properties occurs when the observer infers broad personality traits based on non-random brief samples of behavior of an observer. The actor, however, tends to view these same behaviors as evidence of individual traits, goals, and values.

Thus, when the object of attention is on the self, situational factors that are affecting the action become the focus of attention. This tendency is similar to Bem's (1970) self-perception theory which postulates that one partially "knows" one's attitudes, emotions, beliefs, and other internal

states by inferring them from self-observations of overt behavior and/or the circumstances in which the behavior occurs. How an individual attributes attitude, emotion, or belief behaviors, therefore, may be associated with how self-knowledge is acquired about those same elements; i.e., one needs to see what one does in order to know what one thinks. Kiesler, Nisbett, and Zanna (1969), for instance, found that Ss' beliefs about personal attitudes can be manipulated on the basis of overt behavior in a persuasive speaking situation. The attitudes of persons committed to a position and who act on it can be modified in the direction of a different attitude without having possessed the "new" attitude previously.

The differences in information salience may be due to (Duval & Wicklund, 1973), (1) the outward direction of actor and observer perceptual receptors; i.e., the actor focuses on situational factors, the observer on external factors including the actor's behavior; (2) the habitual nature of many of the actor's behaviors which must be evaluated and inferred by the observer; (3) the actor must attend to a changing environment whereas the role of the observer dictates that the focus be on the actor. Because these factors effectively cloud a definitive explanation of actor-observer differences, the aspect of bias in attributions is also confounded (Miller & Ross, 1975). One can never be certain, for instance, that actor and observer are attending

to or are receiving the same informational cues upon which the causal inference will be based.

Recent research by Taylor and Koivumaki (1976) fails to support the actor-observer difference approach to attribution theory. In a series of studies using the case study questionnaire method, Ss were asked to infer causality to various stimulus persons described in a variety of positive and negative outcome situations. Results indicate that the actor-observer effect identified by Jones and Nisbett (1972) is overshadowed by the valence Ss place on an outcome. Subjects generally self-attribute good behaviors, and attribute negative outcomes to situational factors. This effect holds for self and other inferences of causality.

It appears, then, that the Jones and Nisbett emphasis on salience of information may be confounded by the individual's need to be well thought of and not responsible for negative outcomes. Cognitive processes alone cannot fully explain the attribution process. It is necessary to also take into account the valence of the target behavior and the attitude one has toward the person committing the behavior.

Objective Self-Awareness: Duval and Wicklund. The Jones and Nisbett contribution to an evolving attribution theory has added the aspect of actor-observer differences and an emphasis on information salience. A second influence on the original and clarified theory proposed by Heider, Kelley, and Jones and Davis, is the objective-self awareness theory

of Wicklund and Duval (1971). As with Jones and Nisbett (1972) approach, objective self-awareness theory centers on the situational context which the individual attends to. However, emphasis is placed on the focus of attention of the perceiver as the key variable determining attribution. A change in the environment, i.e., an event, will be causally attributed to a particular object or area to the extent that the perceiver focuses attention on that area or object while excluding other possible causative factors. Thus, the attribution process resides within the perceiver. Environmental or situational factors enter the causation process as part of the background to the process; the influence of situation becomes salient in terms of the focus of attention.

Research lending support to the veridicality of the objective self-awareness hypothesis has been offered by Duval and Wicklund (1973) in a series of experiments. In one of these efforts, attribution of self-responsibility for negative events was reduced when Ss were engaged in an activity during determination of causation. These results lend support to the focus of attention hypothesis in that Ss whose attention was dually engaged between a motor activity and an attribution process were unable to attend primarily to the cause task. As a consequence, self-attribution was reduced, and the process of attributing causation was manipulated.

A second aspect of the objective self-awareness hypothesis was demonstrated by the same researchers. In this case, Ss degree of self-awareness was manipulated as

the context for the attribution process. Results indicate that an increase in objective self-awareness enhances the Ss' tendency to attribute causality to the self. The effect operates when consequences are negative or positive.

The Duval and Wicklund (1973) experiments lend support to the focus of attention hypothesis as a core determinant of the attribution of causality. Depending on the focus of attention, the perceiver's attribution is located in the self or in someone else. Emphasis is placed on the fact that the causal sources considered must be within the range of reasonable and potential causative alternatives identifiable through past experience. Because the person and environment interact to produce effects, consequences, or events, either element can be primarily causal. It is, therefore, the focus of the perceiver's attention that becomes the antecedent to the attributional situation.

Achievement Motivation: Weiner, et al. Attribution theory as formulated by Weiner, et al. (1972), Weiner (1974), and Weiner and Kukla (1970) is based on Heider's original propositions while extending and clarifying the theory in terms of achievement motivation. The Weiner cognitive model follows the general format of $S \rightarrow \text{Cognition}(C) \rightarrow R$; i.e., an incoming stimulus, as an information form, is cognitively given meaning which subsequently guides the response made. This is a two part model with the first phase dealing with the S to C component, and the second with the C to R sequence.

Weiner's attribution model of motivation evolved from Heider's pioneering ideas and from work accomplished in the area of locus of control. The individual uses a four causal element system to interpret and predict outcomes. These elements are quite similar to Heider's personal and environmental forces and consist of ability (A), effort (E), both internal control sources, and task difficulty (T), and luck (L) considered to be external control factors. In seeking to attribute causation in an achievement related event, whether as a success or a failure, the perceiver (actor or observer) assesses the level of ability and effort expended, the difficulty of the task and the magnitude and direction of luck. Prediction of future success or failure would follow the same evaluative process in determining an outcome or event.

The four elements of the model are centered within two dimensions of stability as depicted below (Weiner, et al., p. 96).

Classification Scheme

Determinants of Achievement Behavior		
Stability	Locus of Control	
	<u>Internal</u>	<u>External</u>
Stable	Ability	Task Difficulty
Unstable	Effort	Luck

By considering the attribution-locus of control relationship in this fashion, it is clear how the elements

can be confounded when the stability dimension is not taken into account. For example, expectancy shifts in a success-failure experiment are more clearly determined by the stability dimension rather than by locus of control (Feather & Simon, 1971; Luginbuhl, Crowe, & Kahan, 1975) as postulated by Rotter (1966). This is a distinctive and strengthening aspect of the Weiner model as applied to achievement motivation.

Research by Frieze and Weiner (1971), Weiner, et al. (1972), and Weiner (1974) indicate that the S→C phase of the attribution to achievement motivation process yields several theoretical postulates:

1. Ability: One's perceived ability at a given task is a function of the nature of past success or failure with the task or ones similar to it. Ability attributions also are related to cues of consistency and generality of performance (Kelley, 1967).

2. Task difficulty: The difficulty of a task is determined through social norm comparisons. With compliance to or consistency with norms (whether a successful or failed outcome), the effect is attributed externally to task difficulty. Performance outcomes at variance with social norms is attributed to internal factors.

3. Luck: Randomness and variability of outcome patterns is correlated with perception of luck as a causal influence.

4. Effort: Covariation of performance with task persistence, incentive value of the outcome, or perceived muscle tension leads to the inference that effort is a dominant causal determinant.

Each of these elements correlate in various ways in the process of attributing causation of success or failure outcomes in achievement contexts. Thus, attribution to the unstable variables of effort and luck increase with the discrepancy between prior performance and current outcome. That is, the successful outcome by a previously unsuccessful actor is likely to be attributed to luck rather than to ability (Nichols, 1975). In general, when attributions to the stable elements are high, causal inferences to the unstable elements are low (and vice versa).

The basic motivational significance of the Weiner model consists of the suggestion that success tends to be internally attributed (Kaiser, 1975; Reimer, 1975) while failure is attributed to external factors. It would appear that the Jones and Nisbett (1972) attribution theory is somewhat at variance with the present model. Jones and Nisbett maintain that actors self-attribute outcomes to external factors while observers infer internal causation to those same actor effects. The lack of clarity would seem to reside in the incompleteness of the Jones and Nisbett model; specificity of the nature of self-attributed outcomes is lacking whereas the Weiner model has clearly focused on achievement motivation in success-failure situations.

The second C R phase of the achievement motivation to attribution process seeks to describe the transition from cognitive meaning to outward response. Antecedent conditions (consisting of such things as prior pattern and level of performance, level of achievement-related needs, and performance norm information) determine whether success or failure outcomes are attributed to effort, ability, luck, or task difficulty. The R component is represented by approach or avoidance behavior, resignation or persistence with failure, selection of easy or hard versus intermediate levels of task difficulty, and weak or intense performance. Each of these possible outcomes is correlated with the four determinants of achievement behavior.

The research conducted by Weiner, et al. (1972) as well as other researchers (Breit, 1969; Kukla, 1972; Weiner, Heckhausen, et al., 1972) indicates that:

a. Individuals who are high in resultant achievement motivation approach achievement-related activities, persist with repeated failure, select intermediate difficulty level tasks, and perform with relatively great vigor or enthusiasm.

b. Persons low in resultant achievement motivation behave conversely. They do not approach achievement-related activities, terminate activity in the face of failure, select easy or difficult tasks, and perform less enthusiastically.

Weiner's model of attribution reflects the most recent, empirically based effort at identifying the variables that influence the causal inference process. This work has been

confined to the achievement motivation area of behavior explanation, and yet, provides a specific starting point for consideration of the attribution process in clinical populations.

Theoretical Conclusions

The three additional contributions to attribution theory made by Jones and Nisbett (1972), Duval and Wicklund (1971, 1973), and especially by Weiner, et al. (1972) and Weiner (1974) have further refined and extended the original theoretical propositions of Heider (1958). Determination of causality may consist of the following theoretical, inter-meshing approaches viewed on a continuum which has become clarified, specified and extended with each addition to the theory base:

Heider (1958): Attribution results from an evaluation by the perceiver of personal force (power-ability and trying-intension-exertion) and environmental force (can-possibility). Analysis of the person's intention is the central factor in accurate attribution.

Jones and Davis (1965): Correspondence of inference theory maintains that attributions are based on the degree of matching that occurs between an act and an underlying disposition. The matching process takes social norms into account in evaluating causal inference when uncommon effects result. Inferences made are influenced or distorted by the degree of personalism and personal needs of the perceiver.

Kelley (1967, 1972, 1973): The information processing causal schema developed by Kelley is based on covariation within a three dimensional matrix of entities (stimuli), persons (perceiver), and time/modality (context). Causal schemata are developed throughout life and are reflected in the attributions the individual makes in familiar as well as new situations. According to Kelley, the perceiver (whether actor or observer) tends to rely on simple, as opposed to complex, causal schema.

Jones and Nisbett (1972): Actor-observer differences and salience of information characterize this contribution to attribution theory. Different aspects of available information, regarding an effect or outcome, are salient to the actor or observer. As a result, the actor seems to attribute outcomes externally, while an observer infers internal dispositions to the actor in the same situation. Distortion may occur as the actor or observer infers causation based on distorted information.

Duval and Wicklund (1971, 1973): The objective self-awareness approach to attribution is based on the perceiver's focus of attention as the dominant factor in inferring causation. Attribution resides within the perceiver; environmental factors are salient as background to the perceiver's focus of attention. This is a person centered view of the attribution process, and for this reason, deviates markedly from other causal theorists.

Weiner, et al. (1972) and Weiner (1974): The work of Weiner and colleagues represents the current state of development of attribution theory. Of significance is the "full circle" aspect of this work; i.e., a return to Heider's original, straightforward formulations with the addition of supportive research. Within a two dimensional framework of stability and locus of control, Weiner describes a four element attribution model consisting of ability, effort, task difficulty, and luck. Within a success-failure context of achievement motivation, the actor self-attributes success and externally attributes failure. The stability of the attributional dimension determines expectancy shifts rather than locus of control as proposed by Rotter (1966).

The material covered in this section is a brief summary of the increasingly expanding body of research and theoretical expositions on attribution theory. Research at both the descriptive and experimental levels has largely been confined to non-clinical populations, with an occasional foray into the realms of persons with identified emotional or psychological dysfunctions. In the succeeding section, an attempt is made to identify a potential bridge between attribution theory, and the decision making process in the clinical population consisting of cancer patients.

Attribution: Causality and Choice Freedom

The manner in which an individual determines causality and responsibility for certain personal behaviors can be

reflected in the degree of perceived freedom in a choice situation. After an action has occurred, the perceiver determines how much freedom existed in selecting the choice that resulted in the particular action. Attribution in this context consists of two steps: (1) determination of causality for the action, and (2) identification of degree of freedom in the choice situation which preceded the action. These steps would appear to follow one another with choice determining the action. Research on inferring causality, per se, does not include the choice dimension, however. Attribution of choice freedom is a separate issue in causality research. The connecting link between choice and inference research is based on the following assumption:

An individual assumes responsibility for choices that are congruent with self-perceived freedom.

(Kruglanski & Cohen, 1974; Harris & Harvey, 1975).

If the perceiver makes a choice high in volition (freedom), theoretically, the nature of the choice may reflect underlying personal dispositions in terms of attribution. Research has tended to emphasize determination of causality as previously discussed.

Choice Freedom

According to Brehm and Cohen (1962), Kelley (1967), and Steiner (1970) subjective freedom in a choice situation is inferred to be high

- a. When constraining factors for leaving the situation are low, and the person stays in the situation.
- b. When the individual complies in a situation in which forces to comply are low.
- c. With low choice pressure and the individual chooses.
- d. When choice alternatives are equal yet a choice is made.
- e. When the individual complies in the presence of high level of illegitimate forces.
- f. When the choice is carefully considered and accompanied by conflict and uncertainty.

Each of these factors may influence the decision freedom aspect of the choice situation as opposed to outcome freedom. Decision freedom (Steiner, 1970) refers to the extent to which an actor "rather than other people, fate, or the pressure of circumstances select the outcomes he will seek and the means he will employ in seeking them . . . (p. 189). These forces do not emphasize the anticipated influence of an action's consequences or outcomes on making a choice. Outcome freedom specifically is defined by Steiner (1970) as the "probability of obtaining desired outcomes . . . (p. 189)", and represents a cognitive construct not related to the decision making process.

A modest body of research, considered with reference to decision or outcome freedom, is accumulating which has identified influential factors or determinants of choice freedom. From these factors, inferences may be drawn

regarding attribution style. Several of these studies are briefly presented in terms of an outcome freedom or decision freedom emphasis.

Decision Freedom. Kidd and Harvey (1974) devised a two choice decision task in which alternatives varied in attractiveness consisting of large, small, or no difference. After selecting an alternative, subjects responded to questions regarding perceived choice and reasons for the decision in terms of personal preference or chance. Consonant with previously reported results (Harvey & Johnston, 1973; Jellison & Harvey, 1973; Harvey & Harris, 1975), perceived choice was found to be greater with a small difference in choice attractiveness when compared to both the large or no difference conditions. These findings are suggestive of a relationship between attributions to internal (personal preference) or external (chance) factors and the decision making process. Internal or external attributions of causality may accompany or mediate perceived choice.

Based on a "real choice" model suggested by Steiner (1970) and refined by Steiner, Rotermund, and Talaber (1974), a series of experiments was conducted by the latter researchers which supported and extended the results reported by Kidd and Harvey (1974). In a two-alternative situation, the attractiveness of either choice is assumed to equal its "expected value" (valence of payoff) minus the valence of any costs that are incurred in making a particular choice. Decision freedom is determined by the negative function of

the differences between the net gains resulting from each of the two options. This logic is applicable to both actor in and observer of a choice situation.

Over three separate experiments, valences, subjective probabilities, and costs were systematically varied. Subjects became observers of the choice processes of an actor(s) in a variety of situations described in written format. Steiner, et al. (1974) report that the model was accurate in predicting perception of greatest choice when options were equally attractive; i.e., expected value and cost were approximately equal. Of interest is the finding that the overall expected value influenced attributed choice, not the components (valence of payoff and subjective probability) comprising this value. Cost mediates the impact of expected value on perceived freedom.

Decision freedom is influenced by the degree of choice attractiveness, whether based on a high-low evaluation or on the net gain between expected value minus cost. The experimental situations in each study were (1) hypothetical, and (2) consisted of a two choice decision context. In the second study, only modest net gain conditions existed; the net loss case was not included.

Outcome Freedom. In determining attributed freedom in a choice context with an emphasis on outcome freedom, attractiveness of the options influences perceived freedom differently than that which characterizes a decision freedom emphasis.

Kruglanski and Cohen (1973) found that greater freedom and responsibility was attributed to the actor when outcome was consistent with assumed personal predispositions. As the cause of the behavior (outcome) is attributed to the actor, attributional stability regarding choice freedom is implied. Consequently, there is less need to consider situational constraints as influential in determining choice. Once again, the methodology consisted of an observer evaluating the action of another. The question arises as to the meaning of freedom and responsibility to the perceiver and how this may color the attributions made. For example, the perceiver may consider freedom as a subjective, transitory quality while responsibility may represent lasting personal behavior patterns. These results, therefore, may have been confounded by this unresolved issue of perceiver definitions of freedom and responsibility.

Contrary to the results reported by Kidd and Harvey (1974) and Steiner, et al. (1974), Kruglanski and Cohen (1974) state that greater freedom is attributed to an actor when at least one of the choices is attractive versus both being unattractive. In addition, choice freedom is higher when commitment to the selected alternative is high, and the actor evidences no prediction uncertainty. Findings are suggestive of the actor's greater sense of confidence in a unilaterally attractive choice which is more reflective of true choice desires; i.e., underlying personal dispositions. It appears, then, that choice freedom is enhanced when

(a) the attractive choice yields desirable outcomes, and
(b) the option chosen is considered to be reflective of personal characteristics. The focus is on the outcome of the decision and how this mirrors attributed freedom.

Another view of outcome freedom is represented by the work of Harris and Harvey (1975). These researchers devised a retrospective choice situation to determine the impact of information on the choice process, and subsequently, on perceived freedom. The task involved an opportunity to acquire additional choice-related information prior to selecting an alternative that would have consequences for another person. When the outcome was pleasant, S self-attributed responsibility and freedom regardless of the information condition. Unpleasant outcomes resulted in low amounts of choice freedom and correspondingly responsibility attributed to the actor.

From the foregoing representative summary of current research on perceived choice freedom and attribution of responsibility, a number of tentative conclusions may be drawn.

1. Few of the six factors hypothesized as influential in determining freedom in a choice situation have been supported by research.

2. In the decision freedom context, perceived freedom is greater when

- a. there is small difference in choice attractiveness,

- b. choice options are equally attractive.
- 3. In the outcome freedom context, greater freedom and responsibility is attributed to the actor when
 - a. outcome is consistent with assumed personal dispositions.
 - b. at least one of the choices is attractive.
 - c. commitment to the selected alternative is high.
 - d. predecision uncertainty is not present.
 - e. outcome is pleasant for another person.

As these very limited results indicate, relatively few factors have been identified as clearly influential in determining freedom in the choice situation or attribution of causality for a choice. By far the majority of research effort has been confined to contrived situations with emphasis on a select number of variables. Design of research has consisted of hypothetical situations with a low degree of risk implied. In the following section, suggestions for future research areas will be considered which emphasize high risk, clinical situations.

Attribution and the Cancer Patient

Attribution theory is an evolving conceptualization which seeks to answer the "why" questions of human behavior to determine the causes or reasons for behavior. The methods used to obtain data on perceptions of causality rely heavily on a cognitive approach to research. Subjects are placed in, or respond to hypothetical situations and then answer

questions which attempt to measure perceived causality in relation to the specific circumstances portrayed. From these measures, inferences may be drawn regarding attributional style of determining causation or responsibility. How one attributes causality to another is believed to be representative of how the observer would self-attribute if placed in the same situation. With the exception of accident research, in which an actual case is used as the stimulus for an attribution process, investigations have primarily dealt with contrived and correspondingly limited situations.

Prior to conducting research designed to measure or describe the attributions of persons with a life-threatening health problem, it is necessary to develop a framework through which one can understand the complex variables that may impinge on the research subject. A key aspect of this framework is the career trajectory concept.

The Cancer Patient: Career Trajectories

The sequence of events and/or experiences an individual confronts when a potentially life-threatening disease (or dysfunction) is discovered may be composed of one or a combination of several career trajectories. These trajectories are associated with the different paths the person's illness takes over time. For the individual who has received a diagnosis of cancer, or who suspects such a diagnosis, the cancer career can be divided into several major trajectories.

Initial Physical Dysfunction. Prior to entering any of the potential career trajectories, the individual may go through a series of considerations regarding the physical dysfunction. Physical dysfunction consists of any unusual change noted in body functioning or outward appearance. Common signs and symptoms as well as body site are depicted in Table I (Sato, 1978).

TABLE I
Physical Dysfunctions Associated With Carcinoma Diagnoses

Site	Sign/Symptom
Breast	Lump or thickening in breast tissue
Colon and Rectum	Change in bowel habits, rectal bleeding
Lung	Persistent cough, lingering respiratory ailment
Stomach	Indigestion, meat intolerance
Prostate	Urinary difficulty
Uterus	Unusual bleeding, or discharge
Kidney and Bladder	Urinary difficulty, urinary bleeding
Oral (including pharynx)	Sore that does not heal, dysphagia (inability or difficulty in swallowing)
Skin	Sore that does not heal, change in wart or mole

These physical dysfunctions are examples of frequently occurring problems that have been associated with diagnoses of cancer. The above listing is not all-inclusive nor does it include the more subtle signs and symptoms related to

neurological carcinomas. More generalized dysfunctions such as sleep disturbances and unexplained weight loss may also be noted and found to be correlated with a form of carcinoma.

Who identifies the initial physical dysfunction may vary considerably. Three main identification modes are:

a. Self-identification. The person notes the dysfunction following a routine self-examination, or the problem is found after an injury which brings the dysfunction into awareness. For example, the myth that breast cancer stems from a traumatic injury to breast tissue seems to be based on the discovery of a lump or mass that is bumped accidentally. That is, the mass existed prior to but was unnoticed until being touched or struck in an accidental manner.

b. Identification by significant other. A family member, friend, work associate, or social contact may question the individual about a suspected or actual physical change noted over time in appearance or functional capacity. For example, weight loss may not be noted as unusual to the individual but may be identified by persons who have infrequent contact with the person. Changes in skin may be noted by a spouse that would not be visible to the person unless an abnormality was overtly suspected; e.g., change in mole on back region.

c. Identification by physician. During the course of a routine physical examination (yearly), the physician may discover a previously unnoticed dysfunction. In many cases, the individual undergoing medical care or check-up for an

unrelated matter may be found to have a physical dysfunction indicative of cancer or that requires further diagnostic work-up. The person who contracts a viral infection ("common cold"), for example, may be subjected to a chest x-ray which reveals a mass with carcinogenic potential. A surgical patient who is to have an inguinal hernia repair may be found to have an intestinal mass at the time of surgery. After completing routine pre-operative blood studies, this individual may be found to have an abnormally high leukocyte (WBC) count suggestive of a form of leukemia. Traumatic injury sustained in an automobile or industrial accident may also be found to have a physical dysfunction related to one of the more than 100 forms of cancer.

For some persons, the presence of a physical dysfunction may not be noted until the problem prohibits usual functional capacities. Failure to seek assistance until this late stage generally has a devastating impact on the individual's prognosis. Many of the physical changes related to cancer have gradual onset. Thus, persons who continually adjust to slight changes may not be aware of the potential seriousness of the problem until a drastic change occurs; e.g., kidney failure, hemorrhage, extreme weakness.

Nature of the Problem Evaluated. Once a physical dysfunction is noted, the nature of the problem is evaluated prior to further decision-making. Five evaluations are described which seek to encompass the range of potential judgments an individual may make.

Not of concern. While the physical dysfunction is noted by the person, it is evaluated as insignificant or not of concern. No implication for potential future or further harm is considered. Basically, this position would appear to be a naive one. Perhaps the individual does not possess the information that would alter the evaluation, or due to level of sophistication with reference to bodily function, is not aware of the harmful potential of the problem.

Harmful potential. After acknowledging the physical problem, the individual begins to consider possible outcomes resulting from the evaluated seriousness of the situation. For some, this serious evaluation shifts rapidly into a fear of cancer, perhaps related to an increased awareness of cancer as a major health threat. The potential for harm or death is considered and may serve as the major motivating factor that precedes intervention seeking behavior. For these individuals, the nature of the problem seems to coincide with knowledge obtained about dangerous health threats. Once the physical problem is identified, it is rapidly categorized into the "serious threat" slot and remains in such a position until definite disconfirming evidence is produced.

Of concern, not serious. The physical dysfunction for this person is evaluated as of concern due to the nature of the problem (e.g., bleeding, fatigue), but is not considered to be serious or to have a life-threatening potential. This position may be related to informational naivete or be representative of a need to deny the nature of the problem.

In this case, the individual seeks to ignore the threat by denying the danger potential ideally anticipating a spontaneous resolution of the problem without need for further consideration.

Problem not genuine. In spite of the physical evidence the person may be aware of, the evaluation of the problem may consist of negation, or labeling it as "imaginary", not "real", or as "all in my mind." "Realness" of the problem seems to be related to the person's underlying values toward the health/illness continuum, and what can be genuinely labeled as illness. Although the person's physical pain is recognized, it is placed in the "normal aches and pains" of living category and consequently, discounted as a potentially serious problem. Others have a history of numerous physical complaints and illnesses. When the present symptoms appear, there may be a tendency by the person or significant others to label the dysfunction as just another, of many, vague complaints. A recent clinical example illustrates this point. A woman in her late forties had been complaining of back and abdominal pain for over four years. She had a lengthy medical history including multiple surgeries and medical problems. As she complained over the years to her gynecological physician, she was repeatedly assured that all of her symptoms were due to menopause. When she became severely jaundiced, she hospitalized herself and was diagnosed as having carcinoma of the liver and pancreas. In this case, the woman's style of complaining over the years seemed to

result in mislabeling by not only the physician but her very large family. The woman stated that after a time, she also thought she was imagining the physical symptoms; that it was psychosomatic. In fact, based on this belief, she sought psychiatric assistance on numerous occasions.

No problem exists. Individuals in this group do not acknowledge the presence of a physical problem or dysfunction in spite of the evidence presented. The primary evaluation is that there is nothing to evaluate; no problem exists. Denial seems to be the overall coping strategy for these people. In some cases, this evaluation is initiated and promoted by family members who seek to shield the person from knowledge of the potential threat of the problem. The person is placed in a dependent position in which family assume evaluation and succeeding decision making responsibilities.

Each of these evaluative positions is subject to change over time and in relation to exacerbation or amelioration of the physical dysfunction.

Initial Decision Making

After the evaluation process, the individual engages in a pre-career decision-making sequence in which choices are made that lead to or away from a specific cancer patient career.

Seek Assistance. Persons who evaluate the dysfunction as (1) having harmful potential, or (2) as being of concern

but not serious are most likely to seek information related to the problem and assistance from an external source. Who these individuals seek information from will vary considerably.

Physician. The largest number of people who have a physical dysfunction seek out a physician for diagnostic information. With fear of cancer being so prominent in American society, the presence of a physical change evaluated as serious or potentially serious may lead one to seek validating or disconfirming information from those persons designated as most skilled and informed.

Significant others. Some persons present their evidence of physical dysfunction to a spouse or close friend as the way to acquire information. The person may then decide to seek other forms of assistance after completing this initial non-medical consultation.

Non-legitimate intervener. Under this heading fall the non-traditional and non-proven methods of assistance and information acquisition. The individual may seek to consult with a person who claims to be a "doctor" yet has not pursued the accepted means to obtain the title. These pseudo doctors or physicians often are referred to as quacks. They promote non-proven methods of diagnosis and intervention, and lure people who fear a disease such as cancer into using their ineffective methods. The person may seek out a quack to get information as well as treatment.

A second category of non-legitimate assistance is composed of persons who sincerely believe in what they promote and who do not seek to deceive the help-seeking person. In either case, the information and assistance source may serve to delay the person's access to effective information and treatment. In some cases, the quack, or well-meaning promoter of non-proven methods will actively recruit the person who has a physical dysfunction.

Non-medical intervener. When presented with a physical problem evaluated as potentially serious, some persons seek information or assistance from non-medical helpers such as the clergy. In the context of seeking counseling for a distressing physical problem, the minister or priest is often sought out. In most cases, the non-medical intervener refers the person to a legitimate medical resource. For those in the medical or nursing professions, this form of help seeking occurs frequently. The health care professional consults with a colleague as a validating step prior to making further decisions.

Self-generated assistance/information. In some cases, the individual with physical dysfunction bypasses the aforementioned sources by engaging in self-generated assistance or information seeking behavior. These people find written materials related to their specific symptom through public media, and library sources. With this self-generated information they may confirm, or disconfirm the diagnosis. In other instances, the person may over-inform himself to

the extent that the seriousness of the problem is totally disconfirmed, or the problem is greatly exaggerated in severity. In the former case, the person may not seek further external assistance, while in the latter, the fear that is generated may serve to spur the person to seek legitimate assistance.

The assistance and information alternatives discussed may be combined in some cases with legitimate and non-legitimate sources being used to arrive at a single acceptable diagnosis. For those who select a non-proven source and who adhere to the programs espoused, the danger of not receiving effective treatment or of being subjected to worthless or potentially harmful treatment adds to the already life-threatening nature of a disease such as cancer. One's chances for ultimate survival are dramatically reduced and complicated.

Not seek assistance. The cancer patient career for some persons who have the disease but are not diagnosed is hidden when the person chooses not to seek assistance. Those likely to make this decision are those who evaluate the dysfunction as not of concern, not "real", or who deny that a problem exists. The person who acknowledges that the problem is of concern, yet is not serious may not seek assistance as well. This choice may be temporary or permanent. The woman who is well aware of a breast mass yet who will not seek treatment and assistance is an example. In this instance, the female decides to live with the problem and eventually dies as a

result. Another example which seems to be related to the fears of radical surgical treatment (as in the first example) relates to the male with serious rectal bleeding of long duration. The fear of the diagnosis and the possibility of radical diversionary surgery may act to prevent the man from seeking any degree of assistance.

Most of those persons who are in this category become known to the health care delivery system toward the end of the person's life, when family can no longer care for the person in the home. The assistance and information step no longer applies. Effort focuses on palliative intervention.

Delay. Rather than seek assistance or information at the time a physical problem is identified, certain individuals delay such efforts. They decide to "wait and see" what will happen spontaneously, ideally hoping for complete remission of symptoms. The danger of this approach lies in the loss of time. With early symptom detection and subsequent rapid diagnosis and intervention, the probability of achieving successful treatment is greatly enhanced. People who delay lose the benefit of early detection that occurs within the critical interval--the time between identification and prompt diagnosis. Delay in seeking assistance and information continues to plague the health care professional who can be most effective in cancer treatment in the early stages of the disease.

The evaluations made by the individual of the physical dysfunction may determine the nature of the initial decision

making process. Because there is no research to date that clarifies the relationship between these two components of the pre-cancer patient career trajectories, Table II serves as a summary of the possible relationships.

The Cancer Patient Career

The considerations discussed in the previous sections usually occur prior to a diagnosis of cancer. However, the sequence of events need not occur in the order presented. For example, if a physician identifies a carcinoma at the time of routine physical examination, the person may quickly enter the medical treatment system without indepth contemplation of available options.

After an evaluation of a physical dysfunction is made and assistance/information behavior is initiated, the person enters a career trajectory. The nature of the trajectory is directly related to the outcome of initial decision making. The person who seeks assistance from a physician embarks on the medical treatment trajectory. Individuals who turn to significant others, non-legitimate interveners, non-medical interveners, or who self-generate the information may at some time after this first decision choose to enter the medical treatment system trajectory. The effectiveness of the treatment system will vary according to the time at which the person enters; i.e., the life trajectory may be greatly shortened and less subject to medical influence at late entrance.

TABLE II
EVALUATIONS AND ASSISTANCE/INFORMATION
SEEKING BEHAVIOR

Initial Decision Making	Not of Concern	Physical Dysfunction Evaluation			
		Harmful Potential	Of Concern Not Serious	Problem Not Genuine	No Problem
Seek Assistance					
Physician		X	X	X*	
Significant Others		X	X	X*	
Non-legitimate Intervener		X	X		
Non-medical Intervener		X	X	X	
Self-generated		X	X	X	
Not Seek Assistance	X	X	X		X
Delay	X		X	X	X

*May seek assistance/results not satisfactory

Medical Treatment Trajectory. The person with a physical dysfunction who seeks assistance/information from the physician may (1) enter a cancer career within a medical treatment context at that time, (2) suspend judgment or decision regarding commitment to this trajectory until diagnostic work-up is complete, (3) undergo diagnostic evaluation and subsequently reject further medical services, or (4) reject further contact with the medical system after learning of the extent and nature of the diagnostic process. For the purpose of this exposition, the cancer patient career trajectory will be considered in terms of the first two categories identified above.

Diagnostic work-up. The diagnostic work-up is essentially an information gathering process through which symptomatology is verified by hard scientific data. At this time, the person acquires the socially sanctioned label of "patient" usually within an in-hospital context. Acquisition of this label entails many role expectations for both the patient as well as those around him or her. The primary role change involves the patient's assumption of a passive position within the treatment system. The patient is expected to comply with diagnostic rituals regardless of the stressing nature of the requirements. Once completed, the diagnostic test information is imparted to the patient by the physician. In general, the patient tends to hesitate to press the physician for this information perhaps in relation to (1) anticipation of threatening information, (2) the dependent

patient-doctor dyad, or (3) the patient's perception of personal skill deficit in approaching the physician.

Waiting. A series of diagnostic tests designed to determine the presence or absence of carcinoma may last for a few days or extend over a week's time. During this period, the patient may receive result information on an incremental basis or at one time upon completion of all tests. The individual who requires exploratory surgery to confirm a diagnostic impression may undergo the series of diagnostic laboratory tests and studies, and then have the operation. Regardless of the particular pattern of the diagnostic work-up, the patient experiences a period of time that is characterized by waiting. Some patients have described this time as an experience of limbo; of not knowing that is accompanied by high anxiety and varying degrees of fantasizing the possible outcomes. The anxiety produced during this time may be reflected in poor eating, sleep disturbances, or uncharacteristic changes in how the person relates to family or friends.

The psychological discomfort associated with waiting arises at various times throughout the cancer patient career, and will be discussed in succeeding sections.

Labeling. Following completion of the diagnostic phase, the patient's status as a possible cancer patient is either confirmed or negated. For those who do not have a form of cancer but some other physical or psychological problem that accounts for the dysfunction, a non-cancer career trajectory

is begun. The person who is diagnosed as having cancer, however, begins (or continues) the cancer patient career. The labeling process associated with cancer is often described as "shocking", "devastating", "depressing", or in some cases as "expected", "not surprising", or "accepted." With the label comes many subtle and/or overt changes in the person's relationships with others. Becoming a cancer patient entails some variation in the patient role. The person often receives more sympathy from care givers, family, and friends. From the patient's point of view, the gestures of sympathy may be perceived as pity or a condescending attitude that may at times be characterized by hopelessness. These cues become extremely informative for the patient in those cases in which the diagnostic label has been withheld by the physician. This generally occurs when family or guardians seek to shield the patient from "the truth." Although not discussed, the patient usually knows the seriousness of the diagnosis as a function of the behaviors displayed by those in his immediate environment.

Several factors will influence the overt labeling process. The age of the patient and level of physical health or deterioration often deter the physician in conveying diagnostic information. For instance, the child with cancer may not be informed of the label carried as a consequence of the disease. Very elderly or debilitated persons also may not receive the information in an overt manner. In many cases, the family of the patient request that no information

regarding the diagnosis be given to the person. Rationale for this position may consist of a desire to protect the patient, or to an evaluation that the patient would not be able to cope emotionally with the information.

The degree to which the patient accepts the cancer patient label will vary also. Use of the label "cancer" to describe the illness occurs inconsistently. In this writer's experience, perhaps one-third of patients seen refer to their disease as "my cancer." The remaining two-thirds circumvent the cancer label and substitute the terms "tumor", "my sickness", "disease", or "the problem" in conversations related to the problem. These individuals have been informed of the nature of their illness with use of the label cancer. Hesitancy in using the cancer label may be related to a common non-verbalized association of this disease with death. To openly acknowledge the presence of cancer may foster intense fears of impending death in spite of evidence to the contrary for many forms of cancer.

Once the patient acquires the cancer patient label, the next phase of the career trajectory begins. In those cases in which the cancer label is not used overtly, the patient will also enter the career trajectory if no decision to withdraw from the medical system is made.

Treatment phase. The treatment phase of the cancer patient career trajectory attempts to achieve one of two major goals. The first goal is cure: (1) radiate the tumor, destroy it, and thereby eliminate the disease, (2) to

surgically remove the tumor, or (3) to chemically kill or suppress the abnormal cancer cells. Treatment methods used, respectively, consist of radiation therapy, surgical intervention (radical or simple), and chemotherapy. These treatment methods frequently are combined to achieve optimal effectiveness toward the cure goal.

Non-curative intent of treatment is designed to accomplish one or a combination of the subgoals of palliation, remission, or maintenance. Palliation refers to the attempt to reduce the severity of the patient's discomfort and dysfunction. Remission efforts focus on producing a slowing down, or cessation of the disease process and may result in lengthy symptom free periods (e.g., five to ten year remission for some of the leukemias). When it is not possible to cure, palliate, or bring about a state of disease remission, the patient receives maintenance forms of treatment consisting of physical comfort measures, pain management, and psychological and emotional support. The treatment measures used to achieve any of these subgoals may consist of surgery, radiation therapy, chemotherapy, or immunotherapy, an emerging experimental treatment modality.

In a limited number of cases, the patient experiences spontaneous remission of symptoms. When this occurs, all evidence of the disease fades away or literally disappears with no formal treatment. Spontaneous remission is not a goal of treatment since the factors contributing to such

instances are neither identified nor clearly understood at this time.

The goal selected by the medical system may change over the course of treatment. For example, the patient who responds to chemotherapy may become an appropriate surgical candidate. The goal may shift from one of remission to one of curative intent. Three major factors influence the selection of the treatment goal: type of cancer, method of treatment, and the patient's response to treatment. Each of these factors may change over the course of treatment:

a. Type of cancer: The cancer disease process may result in metastasis which consists of a spreading of the cancer to other body parts. Once this has occurred, the treatment modality may be modified. After metastasis has occurred, a curative goal may be changed to one of remission or palliation.

b. Treatment method: Persons receiving chemotherapy or immunotherapy as the primary mode of treatment often have a palliative, remission, or maintenance goal. This may change, however, if the disease responds positively to these interventions. In this case, the goal may be upgraded to one of cure. At any time, however, regardless of the treatment method and its statistical cure rate, the patient may not respond as suspected or anticipated. Therefore, a curative intent cannot be predicted unequivocally for any case. Put in another way, guarantees can never be given to the cancer patient.

c. Patient response: The crucial factor in any cancer patient's career trajectory is the often unpredictable individual response to treatment and the disease process. The person who is well-nourished, otherwise healthy, and who accepts the disease's presence and treatment method generally may have a positive response to intervention. Persons who are in poor health, with inadequate nutritional status, or who are unable to accept the disease, its limitations, or treatment requirements may not respond optimally to intervention. (While not empirically validated, these observations happen with consistency in this writer's clinical work.) The degree to which the patient is able to respond physically and emotionally to treatment in turn may influence the type of treatment suitable at a given point in time. For instance, a 43 year old female cancer patient with bilateral mastectomies has been on chemotherapy for two years (a usual follow-up procedure for breast cancer). On days when her blood counts are adequate to support a chemotherapy dose, but when her psychological status is characterized by emotional lability, the oncologist withholds the dose. Because certain chemotherapy side effects may contribute to emotional instability, this patient cannot receive the physiological benefit of the drug due to her present emotional lability and depression.

The patient response factor in the cancer patient career trajectory is the major influential variable in the attainment of treatment goals. It is with this variable that the

psychologist can have the greatest impact in facilitating optimal responding to medical treatments.

Response time. Over the course of the treatment phase, the time variable is of consistent concern. The time from treatment onset to response may range between days or weeks depending on the intervention method. Chemotherapeutic effectiveness may not occur for several weeks. Surgical intervention may succeed in removing an obstructing tumor yet the metastatic process may have already occurred.

For the cancer patient, the waiting period becomes one of the most anxiety producing experiences of the medical treatment trajectory. To know that treatment has begun (e.g., chemotherapy) yet to be unable to discern if it is effective for several weeks seems to produce a sense of powerlessness and loss of control. The patient who has undergone surgical intervention must wait for complete wound healing before the second phase of treatment can be begun; i.e., chemotherapy or radiation therapy. Should a wound infection occur, the waiting period is extended. (Complete wound healing without presence of infection is necessary due to the reduction in resistance to infection produced by chemotherapy.) In the meantime, patients may express fear that unless chemotherapy is begun soon, the disease may spread. The desire to "get on with it" is strong in most post-operative patients treated for cancer.

During the waiting period, the cancer patient often returns home. In the home environment, the accustomed sources

of information and support (medical, nursing, or in some cases, psychological resources) are no longer easily available. The lack of informational input and reassurance has been described by some patients as unbearable, frightening, "left-dangling", and "driving me up the wall." In those cases in which follow-up is carried out by a psychologist, patient and family questions can be answered as well as support and encouragement given as one means of reducing the sense of isolation and loss of control.

Summary: Medical Treatment Trajectory. As the major cancer patient career trajectory, the medical treatment process continues to offer the most effective and proven methods for the treatment of the disease. While the steps described for this trajectory have been separated for ease in consideration, the different phases may overlap, repeat, or skip depending on the nature of the individual case. The manner in which the medical treatment trajectory relates to the attribution process and may be influenced by it will be discussed in later sections.

Non-Intervention Trajectory. A number of persons who receive a diagnosis of cancer decide not to seek medical intervention. Some of the reasons given for such a decision include: (1) fear of radical surgery and the physical changes that result, (2) low tolerance for the discomfort associated with treatment methods, and/or (3) lack of information about the realistic benefits and limitations of medical intervention. Deep seated fear of medical treatment institutions also may

contribute to rejection of the assistance available. For those who clearly associate cancer with death, a feeling of "why fight this disease? It will take my life ultimately" may be present. In some cases, this passive attitude may be reflected by denial on the part of the patient's family which in turn can support the patient's helpless position. This attitude may be translated into a belief that since death is inevitable, there is no beneficial purpose achieved by undergoing the rigors of treatment.

Cases which illustrate this philosophy often include those individuals who would require a disfiguring form of treatment such as radical mastectomy for breast cancer, an ostomy procedure for colon-rectal cancer, or radical neck resection for head and neck cancers. These persons make a decision which results in not receiving the benefits of early intervention. At a later time, they may request palliative assistance when the disease progresses. Pain control, nutritional counseling, comfort measures, and wound care may be accepted to ease the discomfort of progressive deterioration.

Although statistical information is not available on this group of the cancer patient population, a certain number of people within this category will accept assistance from traditional healers.. As part of a cultural belief system, the healer (shaman, kahuna, medicine man, etc.) may be called to perform the appropriately defined healing rituals. In many cases in which the patient first seeks out the services

of the traditional healer and does not experience remission or cure of the disease, the person and/or the family will seek assistance from the medical treatment system.

Unfortunately, the goals of medical intervention are non-curative in the majority of these cases. The critical interval between early diagnosis and immediate intervention has passed.

The prognosis for persons who choose a non-intervention trajectory is extremely poor. Whether due to a specific decision not to enter the medical treatment system, or to a belief in utilizing traditional healing as the first alternative, the outcome generally consists of physical deterioration and death. In a very small number of cases, spontaneous remission may occur as within the medical treatment trajectory. It is often the recounting of these isolated instances of "miraculous cure" that an association is made between non-intervention strategies and use of traditional cultural healers. Unfortunately, the "successes" of the non-traditional healer and the poor outcome for patients who seek medical intervention after delay reinforce a negative viewpoint of the medical approach. That is, people only "go to the hospital to die."

Non-Medical Treatment Trajectory. When the diagnosed cancer patient rejects the medical treatment trajectory but decides to seek intervention assistance, the non-medical treatment trajectory may be selected. This trajectory consists of two major sub-categories. The first is composed

of various non-medical healing approaches, diet therapy, prayer, and other non-intrusive methods. Often, the person newly diagnosed will initiate contact with a person who uses the method. In most cases, non-medically trained persons who offer these services do not seek to deter the person from the medical treatment system. While the belief in the method may be quite strong, the person often prefers to work in conjunction with the physician treating the patient. However, there are many non-medical practitioners who while firmly and sincerely believing in the efficacy of their method will not offer the service to persons who have selected the medical treatment trajectory. It is important to emphasize that many of the healers, diet therapists, etc. do not intend to deceive the cancer patient or lure him away from medical intervention. Yet, the very attractiveness of a non-intrusive method that is purported to be effective against cancer may deter the patient away from the medical treatment trajectory.

Non-proven cancer treatments. The second non-medical treatment sub-category consists of a myriad of non-proven cancer treatment devices, diets, and drugs. Purveyors of these non-proven and non-legitimate approaches are frequently referred to as "quacks." The cancer patient may initiate contact with the quack, or in many cases, the promoter of quackery will actively recruit "patients" in the hospital or home setting. An in-depth discussion of the methods used by cancer quacks is covered elsewhere (Brukhalter, 1977;

Burkhalter, 1978) and therefore, only a brief summary is presented here.

Devices. As the least popular of current non-proven methods, machines or devices supposedly cure cancer as the patient receives ozone energy, electrical impulses or vibrations, or "healing" rays. Devices are extremely costly and have no proven effectiveness in the treatment of cancer.

Diets. Various diet-related cancer treatments are promoted as cures for cancer. Methods range from yogurt enemas to grape diets. Nutritional therapy has always been an adjunct to medical treatment of cancer. However, diets restricted to juices, lengthy fasts, or debilitating colonic purges are not approved of nor used by legitimate treatment professionals. Diet alone has not been proven effective in the treatment of cancer. The rigorous and demanding nature of the nutritional approaches make them extremely harmful to the physically depleted cancer patient. Currently, non-proven diet treatments are the most prominent of the non-legitimate cancer treatments.

Drugs. Chemical preparations that have no proven effectiveness in the treatment of cancer have been promoted for well over a hundred years. Prominent among the non-proven drugs labeled as cancer treatments is Laetrile (amygdalin, vitamin B-17, Bee Seventeen, etc.). While having no demonstrated usefulness in cancer treatment, this preparation has become the central focus of a political movement that seeks to allow the cancer patient to use

anything to treat the disease. The number of cancer patients who succumb to the Laetrile lobby is significant although exact figures are extremely difficult to obtain. Other chemical preparations that have never been proven effective include Honey chemotherapy, Krebiozen, and Iscador (American Cancer Society, 1971; 1975).

Non-proven methods also include psychic surgery which claims to remove malignancies anywhere in the body without benefit of surgical incision, anesthesia, blood loss, or aseptic technique. Occult methods consisting of seances and "miracle" drug injections also continue to be used by cancer patients.

The cancer patient, especially at the time of diagnosis and upon learning that medical science cannot cure the disease, is extremely vulnerable to non-proven cancer cure methods. The desire to survive and be cured creates a heightened susceptibility to the seductive appeals made by the cancer quack. Persons who fear a diagnosis of cancer, but who have not undergone diagnostic work-up to confirm the disease's presence, also make use of the cancer quack who tends to be indiscriminant in who receives the services.

Cancer patients who select the non-medical treatment trajectory generally have a poor prognosis. Because, once again, the critical interval passes as the person initiates use of non-proven methods, the cancer patient will enter the medical treatment system as awareness of the non-proven methods failure becomes clear. Palliative care can be given

but hope for cure usually is lost. A limited number of the patients who use non-proven methods do experience improvement. The reasons for the responsiveness, however, have not been identified nor clearly isolated.

The non-medical treatment trajectory offers generally non-intrusive, non-proven methods for the treatment of cancer. It is extremely difficult to determine how many patients choose this cancer patient career. The difficulty in obtaining the information is compounded by the secretive-ness and guilt patients often express after leaving the medical treatment system. In addition, some cancer patients continue legitimate and non-legitimate cancer treatment methods and do not reveal these practices to care givers.

Delay Trajectory. In itself, the delay career trajectory does not consist of a full-term period of time; i.e., from diagnosis through the course of the disease. The other trajectories presented are complete in themselves. The delay trajectory is composed of the period of time from diagnosis to the onset of a treatment modality. It contains the critical interval, but may be longer than that time period. For diverse known and unknown reasons, the cancer patient decides to delay entry into a full-term trajectory. Hypothesized reasons for this behavior include a desire for second and third medical opinions, fear of treatment methods, disbelief in the accuracy of the diagnosis, emotional upheaval upon learning of the diagnosis, family pressure to carefully evaluate non-medical

treatment approaches, or lack of understanding of the crucial importance of early intervention.

The nature of this delay trajectory parallels the non-medical and non-intervention trajectories for a certain amount of time. During the early phases of the disease, the person tends to continue to experience the symptoms that led to diagnostic work-up. The true impact of this trajectory is felt at a later time after the person enters an intervention modality. Due to the delay, the treatment method often is not as effective as it could have been without the delay. Response to medical treatments may be poor and treatment goals often tend to be non-curative. Treatment goals focus on palliation and maintenance of comfort.

It seems logical to assume that the delay trajectory would be most subject to influence of the helping professions. For people who have entered the medical treatment system for diagnostic purposes, immediate informational intervention and counseling as to the urgency to begin treatment could be provided before discharging the patient.

The delay trajectory also may begin at the time of awareness of the physical dysfunction. In many cases, the person is well aware and informed of the symptoms that are suggestive of cancer. Delay at this time can have truly tragic consequences. First, the person may not have a form of cancer and yet will continue to be concerned and perhaps emotionally invested in denying a danger that is not present.

Second, those who do have a cancer will pass the critical interval without benefit of early screening and detection.

One aspect of the initial phase of the delay trajectory commonly occurs with many cancer patients. Seeking a second and third medical opinion on the accuracy of the diagnosis is a commonly accepted and usually encouraged practice. It allows the patient time to hear, in a consistent fashion, that the diagnosis is cancer. This consistency may facilitate acceptance and compliance with treatment.

Non-Compliance Trajectory. The non-compliance trajectory may be considered a sub-category of the medical treatment trajectory. However, for the purposes of clarity, it will be presented as a separate career trajectory. With adolescent and young adult cancer patients who require vigorous and consistent treatment as well as follow-up, non-compliance may become prominent. As with the juvenile-onset diabetic or other young person with a chronic disease, the limitations imposed by cancer treatment requirements may foster rejection of intervention efforts or failure to follow instructions. For example, a 20 year old male with a severe case of Hodgkin's disease (cancer of the lymph nodes) is inconsistent in having the necessary blood chemistries done. When he does agree to enter the hospital for chemotherapy treatments, he refuses to comply with activity or diet prescriptions. On one occasion, he enters the hospital and leaves against medical advice (AMA) before receiving chemotherapy. His response to treatment is sporadic without consistent follow-up, and his

disease process is exacerbated. Counseling as to the vital importance of consistent participation in treatment are intellectually accepted by the patient, but compliance does not improve.

Compliance problems may occur at the onset of treatment as well as at later stages. Some patients depart from treatment entirely only to return at a later time. The harm to the patient may be severe enough to shift treatment goals from cure to non-curative intent. Overall impact on prognosis tends to be inconsistent. Planning for chemotherapy or radiation therapy is based on frequent physical assessment. When the patient does not comply with this requirement, plans must be changed and re-evaluated. The patient's response to treatment also becomes complicated; repeating treatments becomes necessary, and progress is slowed. Yet, throughout the delay, alternatives in treatment, and non-compliance the disease continues to progress.

The non-compliance trajectory appears to be followed by few patients, the majority being younger cancer patients. Occasionally a patient who has been receiving treatment over several years may fail to comply in a random manner. Often these individuals express a sense of hopelessness regarding ultimate cure, depression related to unpleasant nagging side effects, or failure in re-integrating into former occupation and life style. For these cancer patients, supportive counseling and non-judgmental acknowledgment of the desolate feelings is frequently associated with a decision to return

to compliant treatment behavior. Others, however, make a final decision to cease treatment compliant behavior and allow the disease to run its course.

Summary: Cancer Career Trajectories. The five cancer career trajectories outlined do not always maintain exclusive positions in relation to one another. At times, a patient on a medical treatment trajectory may move into a non-medical treatment trajectory or combine both. Delay and non-compliance trajectories may become sub-trajectories to the medical treatment path. To date, there has been no published research directed at the five trajectories presented. As an original formulation, these trajectories require supporting research work designed to determine if this (1) list is truly representative of the cancer patient career alternatives, and (2) list is exhaustive. Throughout the remainder of this paper, the cancer career concept will be referred to in terms of the trajectories discussed. For a summary of the foregoing discussion, see Table III.

Cancer Patient Career Experiential Characteristics

Over the course of treatment*, the cancer patient may experience a number of characteristic feelings associated with the disease and the intervention modality. While many persons have a generally positive experience as they respond

*This section specifically relates to the medical treatment trajectory and may have relevance for other trajectories.

TABLE III
Cancer Patient Trajectories

Trajectory	Components
Medical Treatment	Diagnostic work-up Waiting Labeling Treatment phase Response time
Non Intervention	Disease progression Traditional healers
Non Medical Treatment	Non-deceptive healers Non-proven treatments (quackery) Devices Diets Drugs Psychic approaches and misc.
Delay	Additional medical opinions Poor treatment response Palliation and/or maintenance goal
Non Compliance	Inconsistency in adherence to treatment Decreased response Young adult and adolescent patients

optimally to treatment, most patients have experienced more negatively valenced aspects of the overall career.

Catastrophizing. For many, if not most, cancer patients the diagnosis is associated with a fatal prognosis. Catastrophizing about the future can be extremely disturbing emotionally and refers to the process of fantasizing or thinking about the negative outcomes that possibly might result. Often the projected events become greatly embellished and exaggerated. Counseling as to realistically valid outcomes and anticipated problems usually reduces this tendency.

Emotional Response. Depression is perhaps the most frequent emotional response to a diagnosis of cancer and treatments for the disease. Feelings of sadness, sleep disturbances, eating and appetite changes, and a sense of acute impending loss are common. Potential losses for the patient are all-encompassing. While the family, friends, and significant others may face loss of the patient, the cancer patient fears loss of everything known to him as well as life itself. Depression is common under these circumstances. Over time and the course of treatment, depression may fluctuate yet research directed at evaluating this hypothesis has not been conducted. When a person has a poor prognosis and/or enters a terminal phase of the disease, depression and self-grieving dominates.

Anger and denial also occur frequently. Expression of anger can be related to a perceived unfairness in "getting" cancer. In an attempt to answer the "why me?" question, the

patient may express hostility toward the surrounding healthy environment and people. Denial of the seriousness or nature of the disease tends to be self-limiting. The physical manifestations of the disease and treatment requirements provide information to the patient that weakens denial of the reality.

Other forms of emotional response to the cancer career include withdrawal from one's usual life style, anxiety with reference to treatment outcome, or extreme passivity consisting of a non-questioning enertia. Emotional responses vary over the course of treatment, and most people strive to regain a pre-illness level of physical and emotional performance.

Social Ostracism. The term "leper syndrome" aptly describes the expressions of cancer patients in relation to their sense of social ostracism or rejection. Patients describe feeling "untouchable"; of friends hesitating to touch them or visit; and occasionally of hospital staff persons wearing gowns and masks to give care. In spite of the fact that cancer is not a communicable disease, many people carry a deep-seated fear that contact with a cancer patient will result in increased risk of contracting the disease.

Employment presents an overt example of the social ostracism many cancer patients experience. After successfully completing treatment or while still receiving for example, chemotherapy, cancer patients often have great

difficulty in finding employment or being accepted into a formerly held job. Patients have described feelings of being an outcast when former peers reduce contacts and exclude the patient from usual activities.

Adjustment to the reactions of others presents a difficult challenge to many cancer patients. At a time when social supports are most needed, the patient may experience social isolation. Counseling of patient, family, and friends often assists in reducing the impact of the leper syndrome. It is important to state that not all patients experience a high degree of social ostracism. Many are diagnosed and treated with minimal disruption of life style.

The Unknowns. Throughout the cancer patient's career, a major underlying concern exists--coping with the unknowns of the disease and its treatment. Physicians seldom if ever can give the person a guarantee about the outcome of treatment. As a consequence, the cancer patient must continually find ways to manage the emotional responses that arise when uncertainty about one's life exists. The individual who has a viral infection or needs elective surgery can generally be assured about the outcome of treatment measures. Cancer patients, however, spend lengthy time periods during which they must wait to see what the outcome will be. Ruminations on the possibilities can add to anxiety and frustration.

In some cases, the physician will give the patient and/or family statistical information on the probabilities for success or failure. At times, this may be very helpful to

the patient by fostering a reduction in the suppositions made. However, some patients become more aroused with such information especially when it has not been accompanied by supportive counseling.

Summary: Cancer Patient Career Experimental Characteristics. The characteristics discussed in this section are representative of the range of experiential components to the cancer patient career. This list, however, is not exhaustive nor can it be well-supported by research. The field of medical psychology has just begun efforts to explore the multi-faceted cancer patient population. As research progresses, extension and validation of the information presented can occur. The cancer patient career is complex, often lengthy, and is subject to innumerable non-controlled influences. The manner in which one facet of the cancer patient career may be researched is the topic of the present research proposal.

Attribution and the Cancer Career

An individual diagnosed as having a form of cancer is faced with a potentially life-threatening illness. The manner in which the person responds to the diagnostic information may be influenced by numerous factors, as previously discussed. How the person attributes causation and responsibility for the disease may have an impact on the cancer career trajectory the person embarks on. However, this question has not received research attention to date.

Before attribution theory can be applied to the cancer patient career trajectory phenomenon, a number of significant differences in research emphasis will be noted.

The person with cancer has the disease. Attributional research must, therefore, focus on an after-the-fact consideration of causality and responsibility. Obviously, any inferences drawn must take this into account. In addition, the choices available to the cancer patient after diagnosis may vary widely depending on the informational resources of the patient as well as general coping strategies used when threat is experienced. How the cancer patient evaluates the risk inherent in choice options also may have an impact on the alternative selected. The option chosen will have a definite impact on living and/or quality of living. Jones and Johnson (1973) address this issue in a laboratory analogue study which manipulated risk associated with an option and delay of the consequences related to the options. Results supported the hypothesis of risky choice making when consequences are delayed. Conservative choice selections are made when consequences will be immediately experienced, thus, less risky choices are made when one anticipates an immediate experience. For the cancer patient, these findings may imply delay in decision making when particular options are all risky or unpleasant. At the same time, degree of perceived freedom to make a choice might be low due to the individual's understanding of the severity of the disease. Thus, the cancer patient may experience a double approach

avoidance conflict situation; e.g., to choose implies a great risk, yet not to choose because of the risk implies another kind of risk in delaying treatment and experiencing potentially beneficial consequences.

Attribution research has infrequently considered application of the theory to clinical settings. However, the concept of reattribution or misattribution of causality for a particular behavior problem is frequently a fundamental aspect of certain cognitive behavior modification approaches (Valins & Ray, 1967; Ross, Rodin, & Zimbardo, 1969; Mahoney, 1974). Although some of these efforts have contained certain methodological flaws (Bandura, 1969) that limit generalization of results to a variety of clinical situations, they do indicate that how an individual labels causality (1) does have an impact on subsequent behavior, and (2) is subject to manipulation. Use of misattribution techniques has been used in a number of therapeutic contexts such as alteration of fear arousal (Schachter & Singer, 1962), depression (Beck & Greenberg, 1974), and insomnia (Davison, Tsujimoto, & Glaros, 1973). The behavior problems for which a misattribution strategy have been applied are generally considered to be modifiable. The influence of one's attribution for the disease of cancer, however, will not have such easily measurable outcomes in terms of trajectory chosen--the disease continues to be present.

Use of attribution theory in the psychotherapy situation, as advocated by Moser (1975), seeks to increase the

therapist's and client's understanding of the other's behavior in order to facilitate accurate communication styles. By so doing, inaccurate assumptions regarding causes of behavior can be reduced. An extension of this reasoning which ties the psychotherapy situation to misattribution lies in Frank's (1974) discussions of persuasion and healing. Specifically, therapists seek to redefine (i.e., reinterpret, or relabel) a behavior problem or psychological dysfunction in terms of the treatment modality to be used. Once redefined, the work of therapy, theoretically, progresses along the lines of the therapist's treatment strategies. Taken one step further, the redefinition may be thought of as a form of beneficial misattribution or reattribution which facilitates the therapeutic process.

Attribution and Cancer Career Stages

Attribution research to date has not directed attention to the manner in which the theory's various interpretations might be related to the health-illness continuum. In order to determine which theory, or theories, have applicability to the life-threatening illness situation, each of the major theories presented will be reviewed in relation to cancer and how causation and/or responsibility for this might be construed.

Heider. The formulation of attribution theory proposed by Heider (1958) addressed causation from the outcome or event perspective. An event or action manifested externally

could be analyzed in terms of the relative contributions of effective personal and environmental forces comprising causation of the outcome. From this analysis, one could infer intentional properties that would reflect underlying personality dispositions.

When considering the event of cancer, the person may consider the environmental or personal forces (i.e., conditions, events) that led to it. However, Heider's theory uses the concepts of power (ability), trying (exertion), and can (chance) to describe the causation process. Although there is some evidence that persons who contract cancer have certain personality characteristics (identified by retrospective methodologies), this information is not sufficient to conclude that (1) one has the ability to create a cancer disease process, (2) exertion of oneself can bring about or impede onset of cancer, or (3) chance determines the appearance of the illness.

Heider's terminology and emphasis on the activity or outcome of behavior is cumbersome when applied to the cancer patient situation. The constructs are inadequate to explain the nature of the cognitive processes that occur as the individual seeks to determine causation and responsibility for a life-threatening illness--physically an internally located occurrence.

Determination of accurate attribution is based on analysis of intention which is composed of the aforementioned components. Without an understanding of how these components

of intention relate to internal events and especially physical dysfunctions, extrapolation to the cancer patient situation would consist of conjecture. With major additions to Heider's theory, it might be possible to identify how the attribution process relates to the action or occurrence of cancer.

Jones and Davis. As with Heider's interpretation of attribution theory, Jones and Davis' (1965) correspondence of inference theory is based on external events or acts, specifically on the effects which result from an action. When an act and an underlying disposition match, correspondence is high and attribution accuracy is also high. In determining "matching", social norms and the uniqueness of the action are taken into account.

In the terminology and framework of this theory, the "act" of cancer would be considered as reflecting underlying personal characteristics, and hence, dispositions. The more the act of cancer and the effects associated with it are evaluated as out of place in the perceived social role of the person, the degree of intention increases as well as personal freedom. It would seem at this point that the analogy to the cancer patient weakens. A paradox exists which could be eliminated only by inferring deep-seated intrapsychic processes related to needs for secondary gain. Specifically, the cancer patient role certainly is discrepant from prevailing social norms. However, inference from this scant information to inferring a personality disposition and

an increase in personal freedom does not follow or indeed, seem logical. On the contrary, personal freedom decreases for persons with cancer.

Attribution of personal causation for the act of cancer, then, does not correlate clearly with the correspondence of inference theory. In addition, if the cancer patient is to be evaluated as responsible for the act of cancer based on the effects following the act, a very careful analysis must be undertaken of (1) what the effects are, and (2) how they are valenced.

As with Heider's theory, the correspondence of inference explanation of the attribution process fails to explain how causation occurs with internal, physically-based acts or occurrences.

Kelley. Based on one's past learning and an information processing model of attribution, the individual attributes causation for an event to internal or external factors. The event may be internally based or external to the body as in actions or behavior occurrences. Via an organized elimination process, the person seeks to rule out stimulus/entities, perceivers/persons, or context/time as factors contributing to the act or event. In terms of the cancer patient, it is quite conceivable that the person would consider each of the three dimensions in the search for causation. For example, the person with leukemia might consider (1) whether contact with a leukemia patient had caused the disease, (2) environmental factors such as exposure to radiations,

or (3) age and subsequent degree of susceptibility contributed to his plight. In each consideration, the uniqueness of the factor, consistency of its appearance, and whether the person behaved as would another person under the same circumstances is evaluated. The leukemia patient might wonder if his cancer was uniquely brought about by an isolated exposure to a particular stimulus, or be related to frequent contact with a known carcinogen.

Kelley's formulation of attribution theory comes closest to being applicable to the cancer patient situation. It is, however, the information processing aspect of the model rather than the covariation across dimensions that is most salient. It would seem to be somewhat difficult for most people to systematically include and eliminate certain factors as being responsible for a life-threatening illness, particularly in the highly stressful initial phase of the disease. The perceivers/persons dimension poses a problem in determining causation with cancer. How one perceives the illness or act of cancer may be extremely distorted due to the emotional status of the person at the time of diagnosis or treatment. The impact of emotional instability on this dimension, however, might be taken into account over several attribution processes through which accuracy would improve.

Causal schema, as proposed by Kelley, would not seem to be applicable to the cancer situation unless the individual maintains a life-threatening-situations repertoire accumulated from past experience. The cancer situation is unique

to each person who goes through it. Few life experiences can equal the impact of this life threat to most people.

While Kelley's theory can encompass the cancer patient situation with few limitations, it was originally designed to focus on the individual's perception of the cause(s) of behavior to others. The theory assists in the search for a factor or condition that is present when an effect (act, event, occurrence) is present and not present when the effect is absent.

Jones and Nisbett. The emphasis on actor-observer differences which characterizes the Jones and Nisbett (1972) contribution to attribution theory development becomes a distinct limitation when considering the cancer patient. In general, this approach can be classified as more molar in nature, as opposed to the more molecular character of the latter two theories discussed. By focusing on how the actor and observer perceive information about an event, the attribution process is removed from the realm of internally located cognitive considerations. The actor or observer views "an event" after it has occurred; the event is externally located in the environment. Due to different vantage points, the actor may self-attribute only positively valenced outcomes and externally attribute negative events.

When applied to the act of cancer as an internally located event that has no clear onset or termination, the actor-observer approach seems inadequate. Although it may be possible to follow the theory's outline in relation to

the cancer event, the appropriateness of the theory to overall understanding of the specific internal processes the actor undergoes is not enhanced. The concept of information salience, however, clearly may be useful in constructing a composite model that can be applied to the cancer event.

Duval and Wickland. As with other theoretical positions discussed, Duval and Wicklund's (1973) proposal is externally focused; i.e., causal attribution of an event occurs after a change in the external environment has occurred. The theory differs in its emphasis on the perceiver's selective way of attending to the changes. The objective self-awareness approach to attribution may be applied by the cancer patient to determine causation of the disease. In this context, the person's focus of attention on environmental elements would govern the attribution outcome. Duval and Wicklund do not discuss internally located events and how the focus of attention on these might influence the attributions made.

Although this theory is limited to external events and has not extended to internal environments, it would seem probable that the cancer patient's focus of attention on internal factors (e.g., diet, stress tolerance, emotional status) would have a significant impact on the attributions made. How this would take place is again a subject for conjecture. For example, the patient might selectively attend to possible contributors to the disease and avoid others. Thus, smoking could be linked with cancer onset,

yet the long term, high stress level would be ignored in the analysis of potential causative agents.

Weiner, et al. Along with several research colleagues, Weiner has developed an achievement motivation model of attribution. Portions of the model appear to be applicable to the cancer patient's possible attribution process. However, the achievement motivation construct emphasizes explanation of success or failure outcomes in relation to task performance. As such, its relevance to the cancer event attributional sequence is unclear. If one views treatment compliance behavior as a task, the theory may have implication to health/illness matters. The limitation of this consideration revolves around the fact that the event of cancer is internal and compliance behavior is one step removed from the primary event.

With reinterpretation of Weiner's constructs, it is possible to analogize to the life-threatening illness context:

Ability would be conceived of as one's ability to cause the cancer; and would be considered an internal, stable element. This suggestion seems weak in view of the trend among cancer patients to manifest less emotional and physical stability than persons without cancer.

Task difficulty is very difficult to apply to the present situation. With use of an abstraction, one would theorize that "cancering" as a task would vary in difficulty depending on the organism.

Luck or chance often is considered by the cancer patient as a possible causative element in the disease's occurrence.

Effort poses difficulties in analogizing to the cancer patient context. Evaluating how one tried to "get" cancer, or made oneself vulnerable to it could occur. Determining the incentive value of cancering, however, would require concentrated self-analysis of motives as well as a careful assessment of the gains achieved. The Duval/Wicklund theory has value for the construction of a more comprehensive illness attribution model in that the concepts of stability and locus of control are refined and related to the attribution process. The idea of success or failure, however, seems to produce ambiguity when considered in terms of the cancer process. Determination of the way the cancer patient perceived the cancering task is succeeding or failing would be influenced by such things as the valence the disease had as well as (1) the response of others to the patient, (2) the manifestations of the disease, and (3) the nature of proposed or actual outcomes.

Summary: Attribution and Cancer Stages. While certain attribution theorists have developed models that have application to the cancer patient context, the applications are limited and do not allow for a clear understanding of the attribution process in a physical dysfunction and/or life-threatening illness context. The following section addresses this topic.

The Health/Illness Attribution Model (HIAM)

Research designed to investigate the relationship between attribution theory and the health/illness continuum has not been conducted to date (i.e., published form). The models previously discussed emphasize a predominantly external orientation to the attribution process. External orientation refers to determination of causation and responsibility for tasks, specific activities, and events occurring in the subject's environment. Kelley's (1967, 1971) model alludes to an application of his model to internal body states. However, how this may be accomplished has not been clarified. In addition, the terms used to describe the attribution process (entities, persons, time) do not seem to be clearly applicable to the health/illness situation in which the event is a physical dysfunction with varying degrees of severity, intensity, and duration.

The entrenchment of attribution theorists in confining research efforts to externally oriented events is revealed in the most recent, published contributions to the field (Harvey, Ickes, & Kidd, 1976). Explanation of the oversight of attribution theorists in failing to consider health/illness phenomena would seem to be related to the origins of the theory. As a social psychological concept, the attribution process has been considered within the context of people's relationships to fellow humans and the environment.

Consideration of the general theory in terms of health/illness matters requires a reordering of the original focus; i.e., a shift away from purely social psychology, or (2) an extension of the theory to areas traditionally considered to be the exclusive property of clinical psychology. At the same time, clinical psychology has not devoted research attention to the manner in which the attribution process may be manifested in clinical populations with physical dysfunctions.

The model to be presented seeks to establish a theoretical connection between clinical psychology and social psychology, specifically between medical psychology and attribution theory. Medical psychology is an emerging area of specialization within clinical psychology and as such has begun to receive an increasing amount of professional practice and research attention (Moos, 1977; Williams, Jr. & Gentry, 1977; Rachman, 1977). While the goal of bridging between the two areas of psychology may originate and be accomplished from either viewpoint, the model discussed here has its origins in clinical psychology and endeavors to encompass attribution theory within a medical psychology framework.

Model Theoretical Considerations

An individual with a physical dysfunction, which could be of minor severity (e.g., common cold) or life-threatening intensity (e.g., metastatic carcinoma), approaches the

attribution process in terms of an internal event; an event of dysfunction or illness. For the remainder of this discussion, the physical dysfunction referred to will be cancer. It must be emphasized, however, that the model can be applied to other illness and physical dysfunctions.

The person's orientation to determining causation and responsibility for cancer is based on two major premises or assumptions:

1. The attribution process is situation specific and is influenced by prior illness or physical dysfunction experiences.
2. Determination of attribution occurs within an information processing context.

Although the person with cancer diagnosis usually has no prior personal experience with the disease, past experience with other illness contexts may assist or impede the attribution process initiated following the diagnosis. Each instance of illness calls forth the need to identify causative elements. In the words of a cancer patient, "I have to find out what caused this cancer so I can get better or not get it again." Thus, while one may have had extensive experience with many illnesses, the cancer situation does not seem to be explainable by the prior knowledge acquired. Conversely, the person who has a history of upper respiratory infections, for example, may be able to rapidly determine and attribute causation based on repeated experience with this illness context.

In essence, then, the attribution process is flexible and dynamic. It changes with each new instance of illness and can be influenced by past experience. A rigid, inflexible attribution system is also possible. Individual's who attribute causation to a minimal number of factors, regardless of the context and past experience, are not able to accurately determine causation and responsibility for the illness. In itself, this position may have few ill effects for the person's well being. However, inaccurate attribution may result in considerable harm to the individual. Persons who base help seeking behavior on a belief that the problem is a punishment for past moral transgressions may be less compliant in adhering to treatment requirements--a passive position. Rigid attribution of causation to certain environmental elements may (1) prevent the individual from seeking validating information, (2) inhibit the seeking of medical intervention based on a belief in the inevitability of the disease, or (3) result in turning to a non-legitimate practitioner who promises a miracle cure. One's belief about causation and responsibility, therefore, may have a direct relationship to the decision made about help seeking and intervention.

Determination of attribution for a physical dysfunction takes place via an information processing sequence. As the person becomes aware of the illness and/or the diagnosis, information from internal and external sources is culled in order to arrive at causation. The cancer patient may examine

in great detail his life style, living habits (eating, sleeping, sexual, smoking, elimination), and emotional status in an attempt to glean information that will provide clues to the causative elements of the disease. The process taken on the appearance of a puzzle-solving exercise in which pieces are gathered from numerous and often diverse sources. Family history of cancer is also considered. External/environmental sources add information and may include: climate, air pollutants, industrial irritants, exposure to known carcinogenic agents (e.g., x-radiation), contact with other cancer patients. Many seek to identify the impact of "luck" on the disease's occurrence.

Each person with cancer identifies the elements that may or may not be related to the disease. The elements can be evaluated on a simple inclusion-exclusion basis with those that fit into the puzzle being included and all others excluded. Although this information processing behavior is presented in definite terms such as "will", "can", etc., the model is hypothetical. There is, as yet, no research evidence which supports the accuracy or adequacy of the model. The puzzle completion concept arises from personal observations of numerous cancer patients over several years of clinical work.

Within the information processing framework, the notion of salience of information applies. Essentially, salience or meaningfulness of information relates to the inclusion-exclusion evaluation mode. If an information item (e.g.,

family history of cancer) is evaluated as salient in determining causation, it is added to the information pool. One's values, belief system, and past experiences influence the evaluation of salience. Again, the accuracy-inaccuracy of the overall attribution process can be altered by the salience of information gathered. The salience concept can be visualized as a filter. Through this filter, the construction of which is governed by values, beliefs, and experiences, available information is screened for salience. If the screen is extremely fine, little information that does not conform to the screen's limitations will pass through. In this way, rigid belief systems can prevent consideration of non-conforming information. The final attribution mode can, therefore, be biased or inaccurate with behavioral outcomes also subject to bias as described above.

The two premises or assumptions of situation specificity and information processing form the overall framework for the Health/Illness Attribution Model.

Model Components

There are three major components to HIAM. Each is first identified and described, and a discussion of the proposed overall function of the model follows.

Environment Component. Factors that can influence attribution may be located in the individual's surrounding physical environment. These factors may be categorized as subject to personal control, or beyond control (i.e.,

non-controlled). For example, the planet's atmosphere which one breathes is largely beyond the control of the individual. One's immediate air supply, however, can be controlled by moving away from smoke pollution or air-borne chemical irritants. In seeking to determine causation and responsibility, the multitude of potential environmentally based suspected agents are evaluated as meaningful or not of relevance.

The person's focus of attention can influence the identification of environmental factors, the evaluation of their salience, and hence, their information potential. Identification of environmental components would not be confined to the person's immediate life experience. Exposure to a carcinogenic agent or a substance suspected to have carcinogenic potential during one's childhood may be recalled, considered, and evaluated during adulthood following a diagnosis of cancer. The search for possible explanatory clues seeks to answer the "why" question that arises when disease appears.

It is not unusual for people with cancer to consider certain environmental events or contexts as causative factors to the disease onset in spite of the lack of evidence to support such propositions. For example, the person who is struck accidentally by another person notices a lump in the neck region shortly thereafter. If the person seeks medical assistance and is diagnosed as having lymphoma, he may partially or wholly attribute causation of the cancer to

the blow received. This person may experience rage toward the other person. The other person, in turn, may experience incredible levels of guilt and remorse if informed that he caused the other's cancer. Erroneous attribution based on inaccurate information processing from an environmental source can have a devastating effect on the cancer patient's adjustment to the illness as well as to the relationship to others.

The possible list of environmental elements that may be evaluated by the cancer patient is endless. Each person's view of environmental factors is governed by the nature of the environment as well as the viewpoint one possesses. At times, the potential environmental agent may represent a blend, or blurring of differences of the controlled and non-controlled factors. Thus, the food one eats may possess carcinogenic potential (non-controllable by the individual in the majority of cases) and yet, when eaten becomes within the control of the individual (i.e., one may choose not to eat such foodstuffs). However, the person may have no knowledge that the food eaten has a harmful potential at the time it is consumed. Later, the cancer patient may reconsider this element from both the controllable and non-controllable perspectives.

Internal Component. In seeking to gain information about possible causative factors, the cancer patient may consider internally located sources. While these will vary from person to person, these factors may include:

heritability, genetic predisposition, physical weakness which increases susceptibility, prior illness or cancer experience, preexisting physical condition as a predisposing factor (e.g., chronic ulcerative colitis), psychological status, moral transgressions, personality characteristics. The form that these potential internal components take is developed by the individual as the element is considered. Psychological status, for instance, may be evaluated as salient to attribution of causation due to the person's belief that he/she is "filled with anger", "chronically depressed", or "mentally ill". There is some correlational evidence that certain psychological factors are associated with a diagnosis of cancer (Bahnson, 1969; Bahnson & Bahnson, 1969; Greene & Swisher, 1969; Kissen, Brown, & Kissen, 1969; Solomon, 1969; Spratt, 1974; Marcus, 1976). This evidence is not usually known to the lay public, and thus, the patient's considerations of psychological status would tend to be confined to self-identified states. The person who seeks to answer the "why me" question of cancer, however, may consider his/her personality make-up in arriving at possible explanations.

In many cases, a family history of certain types of cancer (e.g., breast, cervical) is correlated with increased risk and/or susceptibility for offspring of parents afflicted with the disease. This knowledge of heritability and genetic predisposition is commonly used in early screening and detection literature that is disseminated throughout the

public for educational purposes. In addition, a pre-existing chronic illness, such as chronic ulcerative colitis, is associated with an increased risk of developing colon cancer at a later time.

The internal component includes the suggested factors as well as those that are devised, created, or identified by the person as he seeks to find the cause of the illness. Consideration of the internal component would seem to be related to the person's struggle to find out how much he contributed to the cancer, and concurrently, to the degree of guilt or self-blame that may be generated when an internal explanation has been determined. Although responsibility/causation does not logically nor automatically infer guilt or blame, many cancer patients are unable to separate the two concepts. To consider personal participation in bringing about physical dysfunction may clearly imply self-blame for the negative consequences that arise, as well as for the secondary gains that can occur with illness.

In essence, the internal component of the HIAM approach to causation with cancer is composed of subjective evaluation and cognitive rumination. While measurement of these constituents may pose certain methodological questions, failure to adequately and specifically acknowledge the significance of the internal component has been a characteristic flaw of the attribution models previously analyzed.

Chance Factor

As with other attribution models, HIAM includes the factor of chance in arriving at an explanation of causation. Chance refers to "luck", possibility, or the influence of unforeseen elements on an outcome. In this instance, the cancer patient may include a degree of bad luck in determining causation, or in some cases, as a degree of good luck in the type of cancer that appeared. For example, the person with lymphoma may feel more fortunate than the person with colon-rectal cancer who requires radical diversionary surgery which results in a colostomy. This latter evaluation of luck, however, tends to occur after the more general attribution process has reached a satisfactory conclusion.

After thoroughly evaluating both the internal and external components, the person often considers luck as a crucial, determining causative variable. This tendency appears to be associated with an attempt to answer the "why me and not him" question that arises when only one person of a pair of people who have similar living styles becomes a cancer patient. Comparisons may take the form of "We work in the same atmosphere, live in the same neighborhood, both smoke 2½ packs of cigarettes a day, etc., and yet, I get cancer." The medical profession is unable to offer a scientifically based and/or logical explanation for the phenomenon. Thus, the cancer patient may label this unknown factor as chance, luck, or fate.

The chance component if external to the person, requires passive consideration on the part of the patient. That is, the patient generally refers to chance or luck as beyond his control, and beyond the control of his immediate environment.

The Health/Illness Attribution Model consists of the external and internal components which are additive. The information gleaned from these sources is combined by the patient in an attempt to arrive at an acceptable explanation of causation and responsibility.

Chance, however, has a multiplicative function of HIAM:

Chance (External Component + Internal Component)

High or low values of the chance component appears to make the difference in who experiences physical dysfunction, especially when two people are highly similar in physical and psychological make-up. The factor is multiplicative due to this differential appearance of cancer. A simple additive function would have less explanatory power based on the assumption that each person may draw equally from the "chance pool". Consequently, the person who has cancer may explain causation by stating/believing that it intensified the action of the external and internal components. A person who has had bad luck, therefore, would have a high amount of the chance component which could intensify the equation outcome. Another way of viewing chance's multiplicative function is to consider it as an intensifier of each of the first two components:

(Chance x Internal Component) + (Chance x Internal Component)

In this case, chance may be divided into two values, with an outcome different than the first equation above. For example, the person may believe that chance operated to a greater extent on the external component than on the internal component. The resulting attribution of causation, if valuated in numerical terms, could be larger, smaller, or equal to the result achieved in the first equation. By placing arbitrary values (based on a 0 to 5 point scale for each component) within the equation, the two viewpoints may be demonstrated:

1st equation:

$$\begin{array}{ccccccc} \text{Chance} & (\text{External Component} & + & \text{Internal Component}) & = & & \\ 2 & 4 & & 3 & & & 14 \end{array}$$

2nd equation:

$$\begin{array}{ccccccc} (\text{Chance}_E \times \text{External Comp.}) & + & (\text{Chance}_I \times \text{Internal Comp.}) & = & & & \\ 3 & 4 & 1 & 3 & & & 15 \end{array}$$

The total score would represent a generalized style of high, moderate, or low attribution for the specific situation. A high score would imply that the person (1) has actively sought to answer the "why" question, and (2) has considered one or more of the components discussed. When the second equation is used, a zero value for the external or internal component (or chance) would eliminate the chance component from that side of the equation. The total score would be lowered significantly and the chance factor's value would be lost to consideration. A similar outcome would result

with use of the first equation; i.e., totals would remain the same with chance held constant in both equations. The advantage of the second equation, therefore, lies in the division of the chance component. When chance does not operate in one sphere, or the external or internal component value is zero, the remaining portions of the equation retain their value as a separate equation unit.

In understanding how an individual attributes causation in terms of cancer, or other types of physical dysfunction, the ability to clearly identify how the person evaluates chance and its relationship to other equation components represents a major advantage of HIAM. Thus, if a person placed causation largely in terms of chance as it influenced his emotional status, he may be less amenable to active participation in the treatment process, may not select a treatment career trajectory, or may become excessively passive in response to the disease. These responses may be highly maladaptive to rehabilitation efforts. Knowledge of how this person attributes causation and responsibility, therefore, will provide valuable clues to ways in which the health care professional can approach the patient and/or seek ways to alter the non-adaptive attribution.

Summary: HIAM

The Health/Illness Attribution Model seeks to clarify the attribution process associated with physical dysfunction, specifically in relation to the event of cancer. The model

is in its evolutionary stage of development in which further clarification and validation of the suggested attribution process is needed.

The components outlined in HIAM are highly intellectualized for the purposes of clarity and explanation. In reality, however, the cancer patient probably does not approach the attribution process in such an organized and structured manner. When experiencing the stress associated with a diagnosis of cancer and the decisions regarding cancer career trajectory, the individual probably moves from one component to the other, lacking a tightly organized approach to the problem. Overall, however, the process is not considered to be purely random but it is characterized by a ruling-out of possible causative factors in a somewhat organized fashion.

III. STATEMENT OF HYPOTHESES

Of the numerous research questions that can evolve from consideration of the Health/Illness Attribution Model (HIAM) a select few are the target for study at this time. Although several psychologically-based concepts may have relevance to the topic at hand, it is not possible to examine all facets of the theory's interrelationships with other theories. For example, it would be most interesting to investigate the relationship of HIAM to the decision making processes individuals undergo in life-threatening illness contexts. However, decision-making theory represents an enormously complex, evolving body of theoretical considerations in itself (Janis & Mann, 1977; 1977). In order to adequately incorporate decision making theory into the present research it would be necessary to expand the scope of the project well beyond the parameters to be described. As a consequence, this project's core emphasis is on attribution theory and how it relates to persons with life-threatening illness with full acknowledgement that results may have implication for decision-making theory.

The medical treatment trajectory followed by persons with cancer provides the context for hypotheses formulation. This trajectory is divided into three stages. Stage I represents the time period during which diagnosis is made and conveyed--usually a one week time period. Stage II comprises the time period during which a specified course

of treatment is received. Stage III begins at completion of the treatment course and extends into the recovery phase of the illness--ranging from months to years. (The remaining career trajectories previously described are not addressed in this research project.)

Within the context of the medical treatment trajectory, three major research hypotheses (in the form of questions) are posed. The first seeks to determine the extent to which the Health/Illness Attribution Model (HIAM) describes the attribution process of persons with the life-threatening illness of cancer:

Can the attribution of causality and/or responsibility in a health/illness context be described by the Health/Illness Attribution Model?

Information obtained in relation to this question will assist researchers and practitioners in identifying the similarities or differences that exist in the attribution process as applied to health and illness situations. While it may be assumed that attribution research to date has dealt with physically healthy subjects, the issue of determining the attribution process in a comparative manner with physically ill and healthy persons has not been addressed. Thus, while one might argue that some information is available on "healthy" persons' attribution processes in a general way, the variable of health/illness becomes the key variable of interest with the present research.

The second question directs attention to the situation/context specificity of HIAM. The Health/Illness Attribution Model is based on the assumption that attribution for physically located internal events of illness are situation specific as opposed to a generalized style of attribution. This assumption is based on observations of shifts in coping strategies that occur when one moves from a healthy state of being to an ill state of being. Health represents homeostasis-- a steady, relatively predictable state of physical functioning. When illness occurs, and perhaps especially with a life-threatening illness such as cancer, the body's physical and psychological coping mechanisms can be altered, or the person may need to devise new or modified coping approaches. In addition, the illness itself may precipitate shifts in coping as one progresses through the treatment trajectory. Thus, attribution style in a life-threatening context (or other illness experience) would seem to be different than that which the person develops as a generalized style to manage daily living. The second question is stated as:

Is the nature of attribution for causation and/or responsibility for life-threatening illness stage (i.e., situation) specific; does it vary across stages of the illness experience?

In this question, the within-illness stages are emphasized. For example, the health/illness attribution style of the person at time of diagnosis may be different from that of the

person completing a course of treatment for the same disease. While this research question is designed to focus on the illness experience per se, the nature of the attribution process for non-ill persons is also addressed in this project.

Future research and clinical application work devoted to enhancement, inhibition, or alteration of identified attribution processes or styles can be highly relevant to the relationship between attribution style and certain consequences of an illness. Treatment outcome for an illness such as cancer may have a relationship with a particular manner of attributing causation for the disease. Prior to designing interventions that seek to manipulate an attribution style that has been found to be negatively related to a beneficial treatment outcome, it is necessary to determine if such relationships exist in a predictable manner. The third research question seeks to determine the nature or existence of a link between attribution style in a specific health/illness context and treatment outcome.

Is attribution in a health/illness context
related to overall response to treatment for
the illness of cancer?

From a theoretical point of view, it would appear that persons who are internal on attribution for causation and responsibility for the illness would respond more positively to treatment efforts. Cancer patients who consider themselves

to have contributed in some way to disease onset may be more actively involved in the treatment process. Conversely, persons who view causation and responsibility as located external to themselves may assume a more passive position in relation to treatment efforts. These individuals may respond less favorably to treatment; i.e., treatment outcome will reflect a poor prognosis.

IV. IMPORTANCE OF THE STUDY

Investigation of the three research questions has considerable importance to the emerging body of knowledge being referred to as medical psychology. The information contained in this study accomplished three major purposes:

1. To determine the nature of the attribution process in the health/illness context,
2. To extend attribution theory from social psychology to an area of clinical psychology not previously considered; i.e., health/illness,
3. To determine the nature of the attribution process for an internal event (a life threatening illness) as distinct from the perception of causation and/or responsibility based on an externally located event.

Accomplishment of these purposes will result in a significant contribution to the theory building aspect of both clinical psychology and social psychology. In addition, obtaining an understanding of how the attribution process operates with an internally located task, or event, such as cancer,

will expand the scope of the theory to heretofore unexplored territory.

Before one can devise experimental research and/or design clinically relevant intervention strategies, it is mandatory to develop a theoretical basis that can support such efforts. Because attribution theory has not considered the health/illness context, it is not appropriate to emphasize intervention or experimental strategies for that realm. Once a theoretical basis has been established with reference to the attribution process in a major health/illness context, such as that created by the disease of cancer, it will be feasible and logical to devise an organized research program. Such a research program would include experimental study of numerous clinical populations with both physical illness and/or psychological dysfunction. Research efforts could then be devoted to identifying, developing, and testing various reattribution strategies, as well as to designing intervention approaches from both primary and secondary prevention viewpoints.

A number of investigators are now engaged in implementing psychological interventions based on attribution theory assumptions that have not been verified. For example, Simonton and Simonton (1974, 1975) have developed a visual imagery-deep muscle relaxation training program for cancer patients that is based on the premise that the individual must assume personal responsibility for causation of the disease. Yet, there is no empirical evidence that guides

patient selection, progress through the program, or allows one to predict probable outcome. Thus, regardless of the nature of the outcome associated with the program, it is not possible to draw firm conclusions as to the active variables responsible for patient response.

It is essential that practice and research be based on theory. Theory allows one to make predictions and draw certain conclusions. In addition, a sound theoretical underpinning assists in the identification of relationships between phenomena which might otherwise be ignored. The major, overriding purpose of this research project, therefore, is to add to the theoretical body of knowledge concurrent with answering the why questions of causation and responsibility.

CHAPTER II

METHOD

Subjects

The sample consisted of twenty-three radiotherapy cancer patients, sixty-six cardiovascular subjects, and fifty-one healthy non-hospital related persons (hereinafter referred to as "normal" subjects). Subjects in each group represented the major ethnocultural groups in Hawaii; e.g., Caucasian, Japanese-American, Chinese-American. Inclusion of the cardiovascular group was based on two factors: (1) Heart disease ranks as the number one life-threatening illness in the United States producing a higher mortality rate than cancer (American Heart Association, 1977; 1977; 1976; Corday, 1977; Kannel, 1976). As such, comparative data between this group and the cancer group resulted in an increase in information regarding attribution for two-life-threatening illnesses rather than one; and (2) The number of cancer patients obtained was less than that originally anticipated. As a result, a second group of life-threatened subjects was needed as a means of increasing the explanatory power of the instruments and design of the study.

Cancer Patients. Respondents were located in in-hospital, and outpatient settings, and were obtained from The Queen's Medical Center and St. Francis Hospital radiotherapy departments. Within the cancer group, subjects were categorized as newly diagnosed or as completing the last two weeks of a

prescribed radiation therapy treatment course. Newly diagnosed refers to people seen within seven days of the person having been informed they had cancer. Persons in the second category, called ongoing treatment, were completing the last two weeks of a three to seven week radiation therapy course. Originally, a third category of post-treatment cancer patients was to be obtained. However, subjects fulfilling selection requirements who were willing to cooperate in data collection could not be obtained during the allotted research time period. All cancer patients were selected on the basis of the following criteria:

1. Diagnostic categories which receive radiation therapy as the primary form of treatment include cancers of the head and neck, genitourinary, breast, and lung. Persons with a diagnosis in this grouping who received radiation therapy as part of a multimodal intervention plan that included surgery were incorporated into the sample. These subjects received surgery followed by radiation therapy as the primary dual form of therapy.

2. Male and female subjects between the ages of 23 to 77 were selected. There was a low frequency of cancer in the lower age groups and a higher frequency in the older age groups.

3. Cancer patients were located in both in-hospital and out-patient settings. All were contacted in the radiation therapy department during regularly scheduled therapy appointments.

4. Staging of disease varied according to the disease type. As a consequence, some cancer patients were receiving radiation therapy for early curative treatment, some for late stage curative attempt, and a limited number for late stage palliative treatment. Staging was used as a descriptor, not as an inclusion-exclusion criterion.

Given the small sample size of the newly diagnosed group (4 subjects), it was decided that these subjects be added to the 19 subjects in the ongoing treatment group. From initial, non-statistical perusal of the data for the four subjects in the first group, no apparent difference in response was noted.

Cardiovascular Subjects. Data from sixty-six male and female cardiovascular subjects was obtained via the Cardiac Rehabilitation Program directed by Dr. Jack Scaff. This is a community-based exercise-rehabilitation program designed for persons who have a diagnosed cardiovascular illness or dysfunction that has life-threatening potential. All persons are referred to the program by a physician and undergo a physical screening procedure prior to participation in activities. Scheduled, individualized follow-up evaluation of cardiovascular status is conducted by program physicians and assistants.

Diagnoses of subjects in the cardiovascular group are summarized in Table VI. Descriptive characteristics of this group are presented in Table IV. All cardiovascular subjects attend the program after discharge from acute hospital or

physician office based therapy. Attendance in program activities consists of three hour long sessions per week on alternate days.

Healthy/Normal Subjects. Persons meeting the following criteria were included in the Normal group: (1) found in a non-medical setting, and (2) answered item 7 of the Health/Illness Questionnaire with a "no" response; i.e., "Are you now ill?". Normal subjects were obtained from three sources: The Nuuanu Congregational Church, Christ Church and from a summer session introductory statistics class at the University of Hawaii.

Procedure

After receiving formal permission from The Queen's Medical Center and St. Francis Hospital research committees, and the Cardiac Rehabilitation Program, individual negotiations were undertaken with contact persons in each setting. Although this researcher has originally planned to distribute all research materials and use a cassette tape recorded instruction format, it was not feasible to adhere to that plan. The radiation therapy departmental organization does not allow for non-staff periodic contact with patients who arrive for treatments. Tight scheduling, lack of privacy, physical discomforts related to treatment, and the presence of family or friends create an atmosphere not conducive to the addition of another professional seeking to interview or converse with patients.

As a consequence, the following procedure was developed with the cooperation of each involved department. Research materials were delivered to designated staff members in each agency (St. Francis Hospital: the Radiation Oncologist; The Queen's Medical Center: the radiation therapy oncology nurse; Cardiac Rehabilitation Program: the exercise assistant, a first year medical student). Instructions on how to approach subjects, request participation, and respond to patient questions were given to each person and generally consisted of the following points:

- a. General purpose of the study; i.e., "To determine different people's attitudes toward health and illness."
- b. Confidentiality: "All answers and materials are kept confidential. Please do not put any identifying marks on any portion of the questionnaires."
- c. Answering: "Answer all items to the best of your ability and do not confer with anyone else as you fill the questionnaires out."
- d. Debriefing: "After the study is complete, Ms. Burkhalter will discuss the results or inform you of them in some other way if you're interested."

As cancer subjects completed treatment appointments or were waiting for a treatment to begin, the contact person discussed the research request with them. If the person agreed to participate, a formal written consent was signed (See Appendix I). The patient then received a copy of the

research material packet with an envelope, and returned the completed research instruments at the time of the next treatment appointment or as soon as possible thereafter.

The Treatment Response Evaluation was filled out by the cancer patient's primary radiation oncologist at the same time the patient completed the questionnaires. No Treatment Response Evaluation sheets were filled out for cardiovascular subjects. The reasons for this were: (1) the nature of treatment these people were experiencing (active vs. follow-up vs. no present treatment), and (2) the logistical difficulties inherent in locating each person's physician, securing permission to collect such data, and (3) the time lag that would occur from time of completing the questionnaires and obtaining the physicians' input.

Cardiovascular subjects did not sign a written consent form since none was required by the Program. Subjects were contacted by one of the exercise coaches (the first year medical student) during the last rest period of the rehabilitation session. Instructions to subjects were the same as stated above. Questionnaires were returned at the time of the next scheduled session, or as soon as possible depending on individual circumstances. Completed materials were deposited in a specially marked box in the Cardiac Rehabilitation Program office. A total of 113 research packets were distributed, and 66 were returned and suitable for inclusion in the study.

The three groups of normal subjects received the same general instructions which were delivered by the minister of each of the designated churches, and by the instructor for subjects located in the introductory statistics class. Completed materials were returned to each of the contact persons and/or the contact person's office.

Materials

To answer the unique research questions posed, it was necessary to develop measurement tools designed to focus on the attribution process as it related to health and illness. A questionnaire strategy was devised and represented by three paper and pencil data collection instruments. An interview format was rejected based on a need for standardized data collection as well as on hospital organizational constraints to access to suitable patients; e.g., lack of privacy, patient illness, and space limitations.

Two of the research instruments were designed and developed specifically for this exploratory study. A third has been used in social science research for over a decade, but had not been applied in the health/illness context.

Health/Illness Attribution Locus of Control Scale (HIALOCS). Attribution and locus of control are related constructs. The nature of this relationship, however, requires careful elucidation before describing the Health/Illness Attribution Locus of Control Scale.

Attribution via locus of control. The concept of locus of control, as described by Rotter (1966; 1971; Lefcourt, 1966), refers to an individual's perception of reinforcements as contingent upon his behavior, or as controlled by forces external to and independent of his actions. The perception of reinforcements for large classes of similar events is represented by a generalized expectancy along an internal to external continuum; i.e., one is internally controlled when reinforcement is perceived as behavior contingent, and externally controlled when reinforcements are perceived as a result of chance, luck, or fate. This generalized expectancy reflects one's style of reinforcement perception that is applied across innumerable life situations. It does not take into account variation in locus of control style resulting from illness vs. health contexts, nor does it distinguish between locus of control style as reflective of personality traits or social norms (Joe, 1971).

A key aspect of locus of control, then, represents allocation of responsibility (internal or external) for an event or outcome (Phares & Lamiell, 1977), and is an aspect of attribution. How one perceives causation for an event can be partly measured via locus of control. Locus of control is not synonymous with attribution of causation as is proposed by Lefcourt (1976). Weiner (1974) views internal (ability and effort) and external (task difficulty and luck) locus of control as one of two dimensions comprising attribution of achievement behavior. The second dimension is

stability and is considered by Weiner, et al. (1972) to be the primary determinant of expectancy shifts in achievement motivation situations. Thus, locus of control is part of attribution--both an influence on one's perception of causation and a vehicle through which attribution can be partially measured.

Development of HIALOCS. The newly devised HIALOC Scale combined a context specific (vs. Rotter's generalized expectancy) view of locus of control within the measurement of causation. Attempts to use previously developed tools (such as Carver's Control Attribution Questionnaire [1976], and Rotter's Locus of Control Scale [1966]), were discarded since these and other causation/responsibility instruments (Lefcourt, 1977) have three major failings: (1) each emphasizes locus of control as a generalized expectancy, (2) there is no focus on health/illness matters, and (3) no attempt is made within the instruments to define the relationship between locus of control, attribution, and/or health/illness matters. In addition, the recently devised Health Locus of Control Scale (Wallston, et al., 1976), while emphasizing certain issues, represents yet another general measure and does not attend to illness or life-threatening physical dysfunction. Numerous flaws contained in the published research preclude reliance on the reliability or validity of this measure.

The manner in which a person attributes causation for a physical dysfunction must take into consideration the

perception of reinforcement contingencies for that specific situation. The HIALOCS tool is designed to reflect the respondent's attribution style in a physical health/illness context as it is depicted in the Health/Illness Attribution Model.

The HIALOCS instrument was developed to measure the three components of the Health/Illness Attribution Model (HIAM) and contains items on the internal (e.g., Item 8: "I believe I can stay as healthy as I want."), external (e.g., Item 18: "Because there are so many harmful things in the environment, I believe illness is sometimes unavoidable."), and chance (e.g., Item 39: "It's really luck that determines who will be healthy in this world.") components of the Model. (See Appendix II). It seeks to identify the attribution style of subjects in a health/illness context as a situation specific phenomenon. Persons who respond predominantly positive on one component's items, theoretically, would respond negatively on the converse component items. For example, high positive responding to external items would correspond with high negative or low positive responses to internal items. Chance items contain internal (e.g., Item 4: "A serious illness is inevitable at some time in life if it runs in the family.") and external (Item 13: "The only thing that would keep me from being healthy would be bad luck.") loadings such that responses on these statements correspond to the nature of answers to the internal or external

components yet reflect one's perception of chance as an attribution factor.

Construction of HIALOCS items consisted of several stages. First, general health/illness categories were gleaned from case notes, progress notes, and recalled clinical experience of this researcher spanning approximately eight years. Categories of possible items included: general popular notions about good and bad health habits, common beliefs about causes for illness, and well known beliefs about the role of luck and chance in health and illness. Second, from this pool of potential items, statements that clearly reflected each model component were selected for inclusion in HIALOCS. Ten items per component comprised the final instrument, plus ten filler items having no anticipated loading on any of the three components, making a total of 40 items.

Due to time limit constraints, the HIALOCS instrument was not pretested prior to initiation of the present study. Pretesting would have involved gaining access to a patient population in a clinical setting, and thereby, posed many logistical problems. Because the model and HIALOCS are based on viewing attribution in an illness context as situation specific, pretesting of the tool with a non-ill population would have been inadequate; i.e., the HIALOCS questionnaire is specifically designed to measure persons in an illness context; healthy persons do not fulfill this

criteria, and therefore, would not constitute an adequate sample for pretesting.

Items were organized in a randomly alternating fashion such that consecutive sequences of similar statements was avoided. Affirmative and negative responses indicated agreement or disagreement with each item. Time to complete HIALOCS ranged from ten to thirty minutes.

Health/Illness Questionnaire (HIQ). The 40-item Health/Illness Questionnaire is designed to (1) gather demographic information, (2) determine subjects' history of life-threatening illness experience, (3) identify attitude toward a limited number of potentially fatal physical dysfunctions, (4) cross validate health/illness attribution style with HIALOCS, and (5) identify how subjects initially respond to an illness context (See Appendix III). Demographic information included age, sex, marital status, religion, education, and ethnocultural background. Past or present life-threatening illness history information was elicited via four items in both dichotomous and check list format. Attitudes or beliefs about major, potentially fatal health problems was gathered by five word association items requiring subjects to respond to each stimulus word (i.e., heart disease, asthma, cancer, arthritis, diabetes) with the first word that comes to mind. Twenty-four items sought to determine subject's consistency in answering health/illness attribution items (e.g., Item 15: "Each person is responsible for

maintaining their health and preventing illness.") and to determine the nature of actions taken when illness occurs (e.g., "Discuss the problem with my family.", "Wait a while to see if the symptoms will go away.").

Items contained in the Health/Illness Questionnaire were selected from a pool of statements developed for this study. As with HIALOCS, items were not pretested, based on the previously stated rationale. Time to complete the Health/Illness Questionnaire ranged from five to fifteen minutes.

Treatment Response Evaluation. Information on cancer patients response to treatment was collected via the Treatment Response Evaluation sheet. Diagnosis, disease staging, purpose of treatment, response to treatment, anticipated length of treatment, and whether the person referred to the illness as cancer or not comprised the Evaluation's items. Response to treatment was evaluated on a five-point forced choice scale ranging from "extremely poor response" (virtually no tumor shrinkage) to optimal response (maximum tumor shrinkage). (See Appendix IV.)

Rotter's Internal-External Locus of Control Scale. This 29-item (23 core items with 6 filler items) measure of the generalized expectancy concept of locus of control (Rotter, 1966) reflects one's general attribution style (Shaver, 1975). Although the present researcher does not agree with this conceptualization (i.e., locus of control represents attribution style), the I-E scale was used for comparative purposes

with the Health/Illness Attribution Locus of Control Scale. Due to its continued popularity, Rotter's I-E scale was selected with full acknowledgement that numerous other I-E scales are in existence (Carver, 1976; Lefcourt, 1976; Wallston et al., 1976). Use of Rotter's instrument with a population of life-threatened persons, additionally, provided important information on this scale's applicability.

Research Design

An across group design generated exploratory, descriptive data for three major groups of subjects. (A longitudinal design was precluded due to time constraints.) The cancer patient group was the primary population of interest with reference to life-threatening illness. This group was to be subdivided into sub-groups consisting of two illness stages:

Stage I: Newly diagnosed cancer patients

Stage II: Cancer patients completing the last two weeks of radiation therapy

Response to treatment information was available for five patients in Stage II. Physicians stated that for many of the patients, such information would not be evident for several more weeks or months due to the type of cancer under treatment. Thus, the research question designed to determine the relationship between style of attribution and response to treatment can only be partially and tentatively addressed.

Cardiovascular subjects represented a group with the central characteristic of being capable of participating in the Cardiac Rehabilitation Program. Data on this group is used for comparative purposes with the cancer group, and comprises a secondary group of life-threatening persons (i.e., heart disease is second in mortality statistics). It is clearly acknowledged that the variety of cardiovascular diagnostic categories contained in this group precludes consideration of these subjects as a purely homogeneous population. (The same situation exists, in essence, with cancer subjects.) However, homogeneity of cardiovascular subjects does exist with reference to membership in the Cardiac Rehabilitation Program and lack of acute illness at time of measurement.

Normal subjects comprise a single group representative of the general population without having a life-threatening illness.

Overall research design is depicted below. Data were collected from each subject group via the research instruments designated in Table IV.

The nature of statistical analysis used in this study is discussed in the following chapter.

TABLE IV

Research Design: Subjects by Measurement Instruments

Cancer	Cancer		Cardiovascular	Normal
	I	II		
HIALOCS	X	X	X	X
Health/Illness Questionnaire	X	X	X	X
Rotter's I-E	X	X	X	X
Treatment Response Evaluation		X		

CHAPTER III

RESULTS

Analysis of the data consisted of several approaches, each addressing a different facet of the information obtained. Report of descriptive characteristics of the three samples is followed by (1) analysis of the Health/illness Attribution Locus of Control Scale (HIALOCS) and Health/Illness Questionnaire (HIQ), (2) correlation within each of three groups of responses on HIALOCS with those of the Rotter locus of control scale, (3) comparisons between groups of responses on HIALOCS, and (4) comparisons between groups of scores on the Rotter scale. The statistical methods used are described in each relevant section. These analyses address each of the stated research questions.

Health/Illness QuestionnaireDemographic Characteristics

As depicted in Table V, group mean age differed significantly with the normal group mean age of 39.4 being considerably younger than either cancer, 51.65 [$F(1,71) = 18.58, p < .05$], or cardiovascular, 58.92 [$F(1,112) = 142.283, p < .05$] subjects. In addition, cancer and cardiovascular subjects' mean ages differed significantly [$F(1,85) = 13.606, p < .05$].

Sex distribution (Table VI) was skewed in each group with cancer and normal subjects represented predominantly

TABLE V
SUMMARY OF AGE DATA ACROSS THREE GROUPS

Age	<u>Groups</u>		
	Cancer n = 23	Cardiovascular n = 64	Normals n = 50
\bar{X}	51.65*,**	58.92*,***	39.40**,***
SD	12.42	7.56	10.68
Range	23 - 77	40 - 75	21 - 66
Median	53	58	38

*F(1,85) = 13.606, p < .05.

**F(1,71) = 18.58, p < .05.

***F(1,112) = 142.283, p < .05.

TABLE VI
SUMMARY OF DEMOGRAPHIC CHARACTERISTICS
ACROSS THREE GROUPS

Item	<u>Subject Groups</u>					
	Cancer n = 23		Cardiovascular n = 64		Normal n = 50	
	f	%	f	%	f	%
<u>Sex</u>						
Male	9	39	48	74	11	22
Female	14	61	17	26	39	78
<u>Marital Status</u>						
Married	19	83	50	77	37	74
Divorced	1	4	4	6	5	10
Widowed	1	4	7	11	1	2
Single	2	9	4	6	7	14
<u>Religious Preference</u>						
Catholic	2	9	12	18	3	6
Protestant	9	41	28	43	32	64
Buddhist	4	18	16	25	3	6
Baptist	2	9	1	2	2	4
Jewish			2	3	1	2
Other (e.g., agnostic, athiest, episcopa- lian)	4	18	6	9	9	18

TABLE VI (continued). SUMMARY OF DEMOGRAPHIC
CHARACTERISTICS ACROSS THREE GROUPS

Item	<u>Subject Groups</u>					
	Cancer		Cardiovascular		Normal	
	n = 23		n = 64		n = 50	
	f	%	f	%	f	%
<u>Educational Background</u>						
8th Grade Completed	1	4	4	6		
High School "	7	30	22	34	2	4
Two years college "	6	26	13	20	3	6
Four " " "	6	26	10	15	14	28
1-2 years Graduate Sch.	3	13	7	11	17	34
3+ years " "			3	5	7	14
Professional Graduate (e.g., M.D., LLB)			6	9	7	14
<u>Cultural Background</u>						
Japanese-American	6	26	28	43	18	36
Chinese-American	4	17	7	11	4	8
Filipino-American			1	2	1	2
Hawaiian/Part Hawaiian	1	4	2	3		
Caucasian	12	52	25	38	25	50
Other; e.g., Korean Eurasian			2	3	2	4

by females. The reverse occurred with the cardiovascular group in which approximately three-fourths of the subjects were male. Such skewing within this group coincides with national statistics on frequency of cardiovascular disease in the general population; (i.e., males are 4-6 times more prone to major cardiovascular dysfunctions than females [Corday, 1971]).

Well over three-fourths of all subjects were married with the remaining marital status distribution across the divorced, widowed, and single categories. The younger mean age of the normal group coincides with the greater relative number of persons reporting single marital status (Table VI). The dominant religious preference was Protestant. The normal subjects indicated Protestant religion with significantly greater frequency than either cancer or cardiovascular subjects, a finding that may be explained by subject selection procedures (i.e., two of the subject location sites were Protestant churches). The two religious preference categories selected with second greatest frequency across all groups were Buddhist and Agnostic/Athiest.

Data on the fifth demographic variable, educational background, indicates similarity between cancer and cardiovascular groups through the four years of college category. However, total frequency of graduate level education completed was skewed markedly between all groups (Table VI). Of the normal subjects, 62 percent completed from one to

two years of graduate school to finishing a professional graduate program. Among cardiovascular subjects, 25 percent has some graduate work while for cancer subjects, 13 percent had this educational background. Again, skew may be due to subject selection procedures in which approximately half of normal participants were located in the educational setting.

The majority of subjects in the cancer and normal groups were of Caucasian cultural background (Table VI). In the cardiovascular group, the dominant cultural heritage was Japanese-American with Caucasian second in frequency. The reverse held for the former two groups; i.e., Japanese-American represented the second most frequent cultural group. In part, the higher rate of Japanese-American subjects in the cardiovascular group could be attributed to the greater frequency of heart and vascular disease in Hawaii (State of Hawaii, 1978).

Summary of Demographic Characteristics

Subjects were similar with reference to marital status, religious preference, and cultural background. However, significant skewing occurred with age, educational background, and gender of subjects due to sampling procedures, and sample size discrepancies (particularly the cancer group). It is important to note, however, that cancer and cardiovascular subjects' age ranges and mean ages are representative of the respective disease category incidence pattern. Similarly,

the greater number of males in the cardiovascular group is characteristic of this complex of disease entities.

Illness History: Past and Present

All cancer subjects stated that they were presently ill and indicated the nature of their disease. In most cases, subjects wrote in "cancer" as the general title of the illness. Table VII contains specific information on the variety of cancers represented by the sample along with staging information. All cancer diagnoses conformed to the criteria established for subject selection. Although some subjects' cancer was in the advanced stages of progress vs. an early stage of occurrence, primary treatment method was the same: radiotherapy.

Cardiovascular subjects self-reported a 45 percent (n = 29) present illness rate. Upon responding to item 8, requiring a written response, however, a larger percentage (i.e., 64 percent, n = 42) wrote in a specific diagnosis as depicted in Table VIII. This may be partially explained by the manner in which subjects defined illness; i.e., past coronary bypass surgery, cerebrovascular accident, or high cholesterol count may not be considered an "illness". Diagnostic categories ranged from hypertension to myocardial infarction (heart attack) to "cardiovascular" disease. The most frequent diagnostic category was myocardial infarction accounting for 36 percent of the total 42 responses.

TABLE VII
 RADIOTHERAPY CANCER SUBJECTS
 Diagnoses and Disease Staging

Location	Staging	Frequency
<u>Head and Neck:</u>		
Squamous cell carcinoma:		
Supraglottic larynx	$T_2N_0M_0$	1
Oral tongue	" "	1
Oral tongue: poorly differentiated	$T_1N_0M_0$	1
Floor of mouth and tongue	$T_2N_0M_0$	1
Nasopharynx		
Right	T_2N_{2a} - IV	
Left	N_{3b} - IV	1
Nasopharynx	T_4N_3 (n=1)	2
Basal cell carcinoma of face	Early	1
<u>Genitourinary</u>		
Adenocarcinoma of endometrium	I-B	1
" "	Advanced	1
" "	I-A	1
Ovarian	II	1
Prostate	C	1
Rectum and prostate	Duke's B_2 , Stage B	1
Seminoma	I	1

TABLE VII (continued). RADIOTHERAPY CANCER SUBJECTS
Diagnoses and Disease Staging

Location	Staging	Frequency
<u>Lung</u>		
Anaplastic carcinoma of lung	Locally advanced	1
" " "	T ₃ (Stage III)	1
<u>Breast</u>		
Inflammatory - left breast	Positive nodes	1
Carcinoma of breast	Locally advanced	1
" "	II	1
" "	Multiple nodule metastasis	1
Infiltrating ductal adenocarcinoma	C ₅	1
<u>Nonspecified</u>		
Basal cell carcinoma		1

TABLE VIII
CARDIOVASCULAR SUBJECTS
Diagnoses and Mean Years Since Diagnosis

Diagnosis	Frequency	Mean Years Since Diagnosis
<u>Vascular diseases:</u>		
Hypertension	6	2.67
Stroke/cerebrovascular accident	2	4.00
<u>Heart Dysfunctions:</u>		
Myocardial infraction (heart attack)	15	4.99
Angina pectoris	5	3.80
Atherosclerosis	2	3.00
Coronary artery disease	2	.42
Cardiomyopathy	1	2.00
High cholesterol	1	2.00
Arteriosclerotic heart disease	1	1.50
<u>Surgical:</u>		
Coronary bypass surgery	4	2.67
<u>Miscellaneous</u>		
Cardiovascular disease	3	20.75

Note: Based on 42 specific responses to Item 8.

Past Life-Threatening Illness History. In response to items 9 and 10, subjects in all groups indicated whether they "ever had an illness or been in an accident in the past that" was life-threatening. Seven subjects in the cancer group stated a past life-threatening health experience (30 percent of total cancer respondents) and five indicated the nature of the illness or accident (see Appendix V). Two of the prior experiences were surgically related and three were infectious diseases or related to serious infection.

Both a larger number and wider variety of prior life-threatening experiences were reported by cardiovascular subjects. In addition to their present cardiovascular related illness/dysfunction, 33 indicated (50 percent) a past serious/critical illness or health dysfunction. However, only 33 percent of these subjects indicated the nature of the problem (See Appendix VI) which ranged from diabetes mellitus to brain concussion to typhus fever.

Thirty-one percent of normal subjects stated a past life-threatening illness/dysfunction experience, while eight of the fifteen reported the type of health problem that occurred (See Appendix VII). Life-threatening health problems ranged from aircraft accident to meningitis to near drowning.

Table IX contains a summary of the past life-threatening illness/dysfunctions history for each group. As indicated in the Table, cancer and normal groups exhibited an

TABLE IX
SUMMARY OF FREQUENCY OF PAST LIFE-THREATENING
ILLNESS/PHYSICAL DYSFUNCTIONS ACROSS GROUPS

Group	Frequency	Percentage
Cancer	7	30
Cardiovascular	33	50
Normal	15	31

approximately equal frequency of past experiences while cardiovascular subjects reported a significantly greater proportion of prior serious health problems.

Word Association Responses

Five of the most common illnesses/physical dysfunctions occurring in the general population are listed on item 11 of the Health/Illness Questionnaire. Respondents were requested to write the "first word that comes to your mind" after reading each word. Complete word associations made by subjects in each group are contained in Appendices VIII to XXII.

Written responses to these words may reflect attitudes or feelings toward the stated health problem. Written replies were categorized into five groupings that reflected the suggested meaning of the responses. The groupings emerged from the data as total responses were evaluated. Illnesses such as heart disease and cancer frequently

produced highly affective responses such as "death, dying, fatal, terminal, killer". Health problems such as arthritis and diabetes, however, were associated with less threatening terms; e.g., "diet, pain, crippled". Of interest is the finding that the nature of responses per word association revealed numerous identical responses (See Appendix XXVIII). Identical word associations occurred at the same proportionate percentage for only one stimulus word for all groups: "pain" in association with arthritis. Several stimulus words revealed identical responses for two subject groups. For example, cancer and cardiovascular subjects associated certain word categories in an identical fashion as did cardiovascular and normal subjects. (See Appendix XXIII.)

Cancer subjects reported more (27 percent) negative terms (e.g., "death, dying, fatal") for the stimulus word cancer in comparison to cardiovascular subjects (22 percent). However, when terms such as "incurable" and "fatal" are added, the cardiovascular group percentage rises to 37 in comparison to 27 for cancer subjects. Persons in the cancer group reported a greater proportionate percentage of negative terms to the stimulus word heart disease when compared to both cardiovascular and normal groups.

Internal Consistency Attribution Items

Within the Health/Illness Questionnaire are 24 items which are designed to reflect the three components of the Health/Illness Attribution Model, and therefore, act as an

internal measure of response consistency with the Health/Illness Attribution Locus of Control Scale. Principle component analysis (Veldman, 1967) was conducted on the 24 items for all 140 subjects to determine the dimensions of variability across the three hypothesized model components. This analysis accounted for less than 32 percent of the variance in subjects' responses. Chance items clustered, but internal and external items were scattered unequally across the three components. Item analysis failed to reveal sufficient intercorrelations with items or component scales to warrant discarding of items and subsequent additional principle component analyses. After re-evaluation of the 24 items in this Questionnaire, a second form of data analysis was conducted and is discussed below.

Illness Behaviors

In response to the question (items 17a through 17l), "If you are ill or feeling quite sick, you do which of" twelve listed behaviors, each group indicated a variety of preferences.' Items contained in this question covered three behavior strategies of (1) non-active contemplation, (2) information seeking, and (3) help seeking as well as the theorized three model components of internality, externality, and chance. It is the former that is considered here.

Cancer Subjects: Illness Behaviors. Of those cancer subjects responding to these items, over half indicated a preference for three of the five non-active contemplation behaviors as depicted in Table X. Each of these behaviors may be viewed as self-distractors and/or delaying behaviors. Taking no action whatsoever or transferring responsibility to "God's" hands were rejected by the majority of cancer subjects. Contacting a physician was the dominant choice when ill, with family discussion and telephoning the physician's office nurse as second and third information seeking options. In determining who to seek help from when ill, most cancer subjects stated they would contact family or friends while rejecting the strategies of obtaining over-the-counter medicine and going to an emergency room. This small sample of cancer subjects, therefore, indicated a number of behaviors they would engage in when ill consisting of (1) self-distraction, (2) information seeking from several sources, and (3) limited help seeking.

Cardiovascular Subjects: Illness Behaviors. Responses of cardiovascular subjects differed from those of cancer subjects on a number of the items. Approximately three-fourths of this group would "relax and not worry" as a non-active strategy when illness occurred (Table XI). The remaining self-distracting strategies were rejected, with the exception of the delay option. Here responses were spread across the three major choice options. The most

TABLE X
ILLNESS BEHAVIORS: CANCER SUBJECTS

Strategy/Item 17	N	Percent Selecting	Percent Rejecting	Percent Not Definite
<u>Non-Active Contemplation</u>				
c Relax, not worry	23	52	22	26
f Think of other things	21	58	20	22
g Wait and see	13	31	69	--
h Prayer or meditation	21	72	20	8
l Welfare in God's hands	11	27	54	19
<u>Information Seeking</u>				
a Call physician	23	87	4	9
b Discuss with family	23	65	9	26
d Magazines or books	18	39	39	22
e Call nurse	22	59	27	14
<u>Help Seeking</u>				
i Family or friends	19	53	21	26
j Over-the-counter medicine	18	6	56	38
k Emergency room	12	8	78	14

TABLE XI
ILLNESS BEHAVIOR: CARDIOVASCULAR SUBJECTS

Strategy/Item 17 -----	N	Percent Selecting	Percent Rejecting	Percent Indefinite
<u>Non-Active Contemplation</u>				
c Relax, not worry	24	71	8	21
f Think of other things	22	10	59	32
g Wait and see	26	34	27	38
h Prayer or meditation	23	26	65	9
l Welfare in God's hands	22	23	69	9
<u>Information Seeking</u>				
a Call Physician	58	91	9	--
b Discuss with family	54	82	6	12
d Magazines or books	23	13	65	22
e Call nurse	26	39	19	42
<u>Help Seeking</u>				
i Family or friends	23	--	61	39
j Over-the-counter medicine	24	8	54	38
k Emergency room	24	25	46	29

popular information seeking strategies that would be used by cardiovascular subjects were contacting the physician and discussion with the family. Printed material and contacting the nurse were indicated as low priorities. Cardiovascular subjects rejected each of the help seeking strategies. Thus, this sample of persons with various cardiovascular diseases/conditions would (1) relax and not worry, and (2) contact a physician and discuss the illness situation with family.

Normal Subjects: Illness Behaviors. As illustrated in Table XII, normal subjects in this sample indicated that two strategies would be selected by well over eighty percent of those responding: the information seeking choice of calling a physician and discussing the problem with family. Non-active contemplation strategies were either rejected or not definitively chosen by the majority of the subjects responding. A similar finding occurred with the help seeking strategies; i.e., each was either rejected or not definitively selected.

Summary: Illness Behaviors. Results on the illness behaviors reflect not only how subjects in each group might behave if an illness occurred but also suggest a significant difference in strategy selection for each group. A majority of cancer subjects chose a total of seven strategies ranging over the three categories, while cardiovascular subjects selected three confined to two categories, and

TABLE XII
ILLNESS BEHAVIOR: NORMAL SUBJECTS

Strategy/Item 17	N	Percent Selecting	Percent Rejecting	Percent Indefinite
<u>Non-Active Contemplation</u>				
c Relax, not worry	22	37	36	27
f Think of other things	22	5	54	41
g Wait and see	22	37	14	50
h Prayer or meditation	23	39	22	39
l Welfare in God's hands	22	19	36	45
<u>Information Seeking</u>				
a Call physician	47	85	9	6
b Discuss with family	47	88	4	9
d Magazines or books	22	23	40	36
e Call nurse	22	27	45	27
<u>Help Seeking</u>				
i Family or friends	22	37	5	59
j Over-the-counter medicine	22	18	36	45
k Emergency room	22	5	82	14

normal subjects indicated two strategies both within the same grouping. This finding lends support to the notion that persons with an actively debilitating and life-threatening illness such as cancer may seek to implement more coping strategies than persons who are (1) not currently ill but who have experienced a life-threatening health dysfunction in the past (cardiovascular subjects), and (2) presently healthy persons (normal subjects).

Health/Illness Attribution Model (HIAM)

Determination of causation and responsibility for a life-threatening illness is the central purpose of the Health/Illness Attribution Model. This section includes data relative to the description of the Model's components across three subject groups, i.e., cancer, cardiovascular, and normal, and addresses each of the research questions posed for investigation.

HIAM Described by HIALOCS

The Health/Illness Attribution Locus of Control Scale (HIALOCS) was designed for this study to describe the Health/Illness Attribution Model as it is reflected by persons with a life-threatening health dysfunction. Statistical evaluation of the HIALOCS instrument consisted of principle component analyses. This method seeks to reduce item responses (variates) to principle components which reveal dimensions of variability more basic than the observed

variates (Maxwell, 1977). The principle component method was selected based on the need to determine, and not assume or imply (as with factor analysis) and correlational structure of the items/variates in the instrument. (Thorough pretesting of HIALOCS might have indicated use of a factor analytic approach following principle component analysis and item analysis.)

Principle Component Analyses. Table XIII contains principle components analyses (which included varimax rotation and principle axis analysis) data for the statistical evaluations conducted for the combined sample of 140 subjects and the larger samples of normal ($n = 51$) and cardiovascular ($n = 66$) subjects. The first analysis was conducted with

TABLE XIII

PRINCIPLE COMPONENTS ANALYSES

Percent Variance: Item by Component

Number	50 Items 4 Components	40 Items 5 Components	30 Items 4 Components
140 Total	20.29	29.53	29.99
66 Cardiovascular	---	36.60	37.04
51 Normal		38.73	36.84

140 subjects and accounted for 20.29 percent of the variance using four components; i.e., filler, external, internal, chance. Upon reviewing this result, two additional

analyses were undertaken. Because the chance component of HIAM consists of both internal chance and external chance items, each of these could be viewed as separate components yielding a total of five components; i.e., filler, external, internal, chance internal, chance external. As depicted in the Table, however, the amount of variance accounted for by this consideration of the data was not sufficiently increased (29.5 percent). By removing the ten filler items, and conducting a third principle components analysis, the accounted for variance level rose to 29.99 percent--an inadequate amount to justify conclusive or tentative statements about the component structure of HIALOCS.

Based on the preceding results, a second principle components analysis approach was investigated. In this case, the two larger samples (cardiovascular and normal) were separately analyzed based on the possibility that variation between groups may have influenced total variance. The cardiovascular sample principle component analysis for 40 items over five components increased accounted for variance to over 36 percent, and to over 37 percent with a 30 item, four component approach. A similar data analysis for the normal group produced increases of 38.77 percent and 36.84 percent respectively.

Item Analyses: The component structure of the Health/Illness Attribution Locus of Control Scale was not supported by the principle component analyses conducted. As a result, two item analyses were undertaken to determine if specific

items correlated highly with assigned scales/components, and poorly with the total scale/instrument. Items not found to correlate above .30 would be discarded if total scale correlations were less than .10.

Table XIV presents a summary of correlation ranges for item to scale and item to total correlations across the four components based on thirty items (ten filler items excluded). While alphas for each of the four scales exceeded .30, the item to scale correlations did not differ sufficiently from item to total correlations for each component scale. Hence, subtraction of low item to scale questions was not indicated (See Appendix XXIV for complete item analysis data).

A second item analysis based on forty items and five scales was conducted which produced similar results. (Scaling of items was based on the same five components previously mentioned.) In Table XV, the ranges again reveal little difference between item to scale and item to total correlations. Alpha across the five scales remained greater than .30. (See Appendix XXV for complete item analysis data.)

Item analysis results suggest that HIALOCS items do correlate well with corresponding scales. However, the high correlations of items to the scale as a whole indicates that (1) reliability of items to measure the constructs they were initially designed to measure is extremely low and/or (2) scales/components do not accurately reflect the content of

TABLE XIV
ITEM ANALYSIS: THIRTY ITEMS BY FOUR COMPONENTS

Correlation Range	Component Scales			
	1	2	3	4
Item to Scale	.3037 - .5915	.2527 - .6241	.5930 - .6918	.5512 - .7006
Item to Total	.2912 - .4996	.2231 - .5495	.4632 - .5692	.3804 - .5791
Difference R(scale)-R(total)	-.0149 - .2333	.0087 - .1270	.0816 - .2286	.0495 - .2416
Alpha	.6603	.5906	.6562	.5865

TABLE XV
ITEM ANALYSIS: FORTY ITEMS BY FIVE COMPONENTS

Correlation Range	Component Scales				
	1	2	3	4	5
Item to Scale	.3037-.5915	.2527-.6241	.5930-.6918	.5512-.7006	.3431-.5817
Item to Total	.3174-.4926	.2056-.5349	.4276-.5643	.3858-.5515	.2564-.4641
Difference R(scale)-R(total)	-.1063-.2217	.0141-.1586	.0796-.2642	.0679-.2362	-.0291-.1968
Alpha	.6603	.5906	.6562	.5865	.5995

items contained within. This issue is discussed in the next chapter.

Summary: Results on HIALOCS. The reported results clearly indicate that the Health/Illness Attribution Locus of Control Scale did not succeed in answering the first research question. In view of these results, conceptualization of HIALOCS as reflecting a three dimensional perception of attribution must be reconsidered. Possible explanatory suggestions for this finding are discussed in Chapter IV.

HIALOCS and Rotter's Locus of Control Scale

Statistical evidence based on the principle component and item analyses of HIALOCS strongly suggest a lack of dimensionality in the instrument. The three components of the scale were originally constructed to describe the Health/Illness Attribution Model, yet did not clearly do so in the present research. Two options were considered: (1) an attempt to re-label and re-categorize the scale's items could be undertaken. This method would involve careful re-evaluation of item wording to determine if alternate interpretations might yield different perceptions of the items. Relabeling would then be followed by a second principle components analysis sequence. (2) Hypothetical conceptualization of HIALOCS as a unidimensional scale would permit re-evaluation of data as well as allow comparison with the Rotter locus of control scale, also a unidimensional tool. The first option

was discarded as it would be an attempt to force the model to fit the data.

The second option was selected as a means of reconsidering the data and adhering to the model's original intent. By placing the three components within a unidimensional framework, the internal and external chance components are aligned with the respective and external ends of a single dimension: INTERNAL ----- EXTERNAL. Scoring of the 30 item instrument (ten fillers excluded) consisted of reversing internal scores such that a total score was obtained which represented maximum externality. The range for scoring was between 30 and 60 with high scores indicating externality and lower scores internality. Two analyses were conducted after re-scoring data based on the unidimensional redefinition of the HIALOC scale. Within group correlation of the HIALOCS with Rotter's locus of control scale were made. Between group comparison of HIALOCS was accomplished using a one-way analysis of variance approach.

HIALOCS Correlated with Rotter's Locus of Control Scale.

Within group correlations of the Health/Illness Attribution Locus of Control Scale with Rotter's Scale for each subject group is reported in Table XVI. Correlations failed to reach significance ($r > .30_{\pm}$). Based on this hypothetical conceptualization of the Health/Illness Attribution Model contrasted with Rotter's locus of control scale, the relationships between the scores on the two unidimensional

scales should be lower than the significance level, or inversely related with an $r > -.30$. Data on the two life-threatened groups reflected lack of a statistically significant correlation between the scales. However, while

TABLE XVI
WITHIN GROUP CORRELATIONS
HIALOCS and Rotter's Locus of Control Scale

Subject Group	r
Cancer n = 23	-0.1195
Cardiovascular n = 66	0.0069
Normal n = 51	-0.2488

this result lends fragile support to the stated theoretical conceptualization, the failure to find statistically significant negative relationships between the two scales reduced the definitiveness of inferences that can be made.

Of interest, is the relationship that approached significance found within the normal group. Here, the correlation indicated greater strength of the relationship, yet the direction of the coefficient suggested an unanticipated finding. Theoretically, the attribution style of non-ill subjects would coincide with their generalized expectancy of the locus of control aspect of causation. A positive correlation would be appropriate to this reasoning. The data, however, indicates that different aspects of attribution

style were being measured by the two scales. This finding lends moderate support to the first research question which seeks to discern the validity of HIALOCS as a measure of attribution in health/illness contexts.

The correlational data produced by the study on within group scales' relationship was slightly suggestive of support for the first research question. Definitive statistical support for the uniqueness of HIALOCS as a unidimensional measure that describes an attribution process different from Rotter's scale was not found.

Between Group HIALOCS Comparisons. Between group one-way analysis of variance was conducted on HIALOCS mean scores. All comparisons failed to reach statistical significance, although two approached significance. Differences between means on HIALOCS for cancer to normal, and cancer to heart group comparisons were negligible (Tables XVII and XVIII). Between group as well as within group variance estimates

TABLE XVII

ONE WAY ANOVA: CANCER TO NORMAL

Source	df	MS	F
Between Group	1	.0090	.965 (ns)
Error Group	72	.0547	

TABLE XVIII
ONE WAY ANOVA: CANCER TO HEART

Source	df	MS	F
Between Group	1	.1533	1.231 (ns)
Error Group	86	.1245	

were remarkably similar indicating minimal variability in response style across these groups.

While also resulting in a non-significant difference between group means, one-way analysis of variance comparisons of heart subjects to normal subjects (Table XIX) closely approached significance ($F[1,114] = 3.92, p < .05$). This

TABLE XIX
ONE WAY ANOVA: HEART TO NORMAL

Source	df	MS	F
Between Group	1	.4036	3.613 (ns)
Error Group	114	.1117	

outcome may be attributed to the larger sample size of these groups, to real differences in the way each group responded to the HIALOCS items, and/or to non-identified variables inherent in one or both groups.

To determine if combined life-threatened groups' responses on HIALOCS differed significantly in comparison to

healthy subjects, a one-way analysis of variance was carried out (Table XX). Again, the F ratio neared, but did not

TABLE XX
ONE WAY ANOVA: CANCER AND HEART TO NORMAL

Source	df	MS	F
Between Group	2	.2194	2.179 (ns)
Error Group	136	.1007	

reach significance (i.e., $F[2,136] = 3.07$, $p < .05$). Thus while differences between group means existed for all one-way comparisons, none approached statistical significance.

The second research question sought to identify differences in HIALOCS responses across illness stages. Due to small cancer patient sample size (which precluded within group comparisons) comparisons were instead made across two life-threatening illness groups. The cancer to normal group comparison produced a negligible difference, yet the heart to normal group comparison closely approached statistical significance. Thus, while the cancer group comparisons would imply no differences between a life-threatening group and normal persons on attribution style in health/illness contexts, the heart to normal group comparisons of means refuted this statement's certainty. The mean differences between heart and normal subjects suggests reconsideration of the across groups research question. It appears that

in spite of the non-significance of group HIALOCS comparisons, there is tentative evidence to support the differences across groups hypothesis. Further research is required to clarify this question and to produce more definitive results.

Response to Treatment

The third research question dealt with determining the nature of the relationship between response to treatment and attribution style as measured by HIALOCS. Of the 23 cancer subjects, 19 were completing the last two weeks of a prescribed course of radiation therapy. Only six of the 19 subjects received response to treatment evaluations by their respective radiation oncologists. Because of the number of subjects involved in this consideration of the data is so small, correlational analysis was not carried out. Instead, a summary of results relative to this question are contained in Table XXI. As illustrated by the data, no clear-cut relationship existed between response to treatment and scores on the HIALOCS scale. With the cancer group mean of 45.3 on HIALOCS and the range of group scores of 37 to 49, it was evident that scores of subjects in this sub-group did not vary greatly from those of subjects not receiving a response to treatment evaluation.

Cancer subjects were not in remission from their diseases when measured. A high proportion (74 percent) were experiencing side effects from radiation therapy which consisted of nausea, vomiting, diarrhea, anorexia, oral or

TABLE XXI
RESPONSE TO TREATMENT AND HIALOCS SCORES

Subjects n = 6	Treatment Response Range					HIALOCS Scores
	poor 1	2	3	4	optimal 5	
a					x	46
b				x		48
c		x				48
d			x			45
e			x			43
f			x			44

pharyngeal irritation, and/or generalized gastrointestinal discomfort. This presence of active physical illness associated with the treatment for a life-threatening condition may have influenced the responses given to research questions. Further exploration of this topic is considered in Chapter IV.

Summary

Results relative to each of the research questions indicated a general lack of support for the hypotheses:

1. HIALOCS did not clearly reflect the three model components of the Health/Illness Attribution Model such that the instrument described the model.
2. HIALOCS responses did not significantly vary across illness/health contexts.
3. HIALOCS did not measure an attribution process significantly different from Rotter's locus of control scale.
4. Response to treatment cannot be predicted from HIALOCS scores.

In spite of these general findings, outcome produced useful and relevant information on how persons in different health/illness contexts perceive aspects of physical dysfunction.

CHAPTER IV

DISCUSSION

The present thesis developed a new model about the attribution of causation and responsibility in a life threatening context and collected the first empirical data on the newly developed assessment device, the Health/Illness Attribution Locus of Control Scale. A variety of statistical approaches and descriptive techniques were used to gather preliminary information related to the three research questions. The results obtained were disappointing. In considering the less than definitive results, several possible explanations can be evaluated as guides for future work on the Model.

Clinical and Empirical Constraints

In conducting research in a clinical setting, numerous constraining factors influence the data obtained. This is not to "explain away" the present results, but to identify influences on subjects and/or the researcher. It is of value to review these factors as necessary acknowledgements that can precede future research design processes in the clinical setting used.

Cancer Group. Subject selection procedures were clearly outlined and adhered to. Yet, in spite of the instructions given to contact persons (which were periodically reinforced) in each agency, potential subjects were overlooked. Contact people explained that work schedules, number of patients

being handled in the oncology clinics, and "forgetting about the study" resulted in missing eligible cancer subjects. The presence of this researcher during subject contact times would have increased the number of subjects obtained.

Collection of questionnaire data in a hospital setting differs markedly from similar activities in educational situations. Previously mentioned constraints include lack of privacy and the presence of auditory and visual distractors. In addition, cancer subjects waiting for or completing radiation therapy treatment may be emotionally "on edge", anxious, or depressed due to their disease stage and/or anticipated treatment outcome. Subjects may be unwilling to listen to a request to participate in research when personal concerns are foremost in their thoughts.

The presence of physical discomforts associated with radiation therapy may have discouraged or precluded potential subjects from participation in the study. In addition, contact persons' evaluations that "the patient is too ill to participate" may have excluded suitable persons who would have agreed to participate when at home or in the hospital room. The variation in severity of radiation therapy side effects over time intervals as short as days could have been used to re-contact persons whose symptoms had subsided. This procedure was not followed by contact persons.

Limitation on the amount of time available to collect data resulted in an insufficient number of newly diagnosed

cancer subjects and complete absence of follow-up cancer subjects. Upon investigation of this non-availability of subjects, it was found that persons in this sub-group:

1. Refused to participate in the study, or
2. Subjectively (based on contact person's reports) viewed further contact with treatment personnel as fearful and to be avoided, or
3. Didn't want to be a "guinea pig" anymore, or
4. Had died during that time period, or
5. Had a recurrence of disease resulting in severe physical dysfunction, or
6. Were considered to be psychologically depressed, and, hence, unwilling to participate.

Original estimations made by the radiation oncologists indicated that the desired number of subjects could be obtained in the allotted time. However, this did not occur and no explanation was offered by these experts as to why a shift to non-availability of subjects occurred. Thus, whether subject variables (such as those listed above) or expert error in estimation of number of available subjects was responsible for this lack of cancer follow-up patients, any future research would have to take this finding into account and compensate for a possible future recurrence of the problem.

Cancer subjects had overt evidence of their disease in several forms: (1) active treatment was being received,

(2) unpleasant and physically taxing side effects were present, (3) the nature of the illness and its prognosis was known, and (4) the possibilities of positive or negative treatment outcome was visible via the presence of other persons receiving radiation therapy. These factors may have acted to both reduce willingness of cancer patients to participate in the study as well as influence their responses in some unknown fashion. In addition, the usual time (approximately 30 to 60 minutes) required to complete the research instruments may have been prolonged due to the above factors. Such an increase in time taken to complete the measures could have resulted in less careful adherence to instructions, or to an overly critical consideration of each item. For persons subject to easy tiring, a degree of impatience to finish the task may have led to less than optimal attention to the individual scale items. While these factors reflect a retrospective hypothetical analysis of potentially influential variables on the study's outcome, knowledge of them is of vital assistance for future research.

Cardiovascular Group. Subjects in the cardiovascular group were currently not experiencing physical symptoms associated with their diagnosis. In fact, this particular group was physically stable enough to participate in a rigorous exercise rehabilitation program. These characteristics are suggestive of the need to redefine the "life-threatening" label applied to this group. Indeed, persons

with cardiovascular disease have a high risk for sudden and severe illness onset; however, there is minimal overt evidence of the illness on a day-to-day basis. Some cardiovascular subjects are on medication to control symptoms (e.g., hypertension, angina pectoris), but in spite of this treatment, physical debilitation is not evident as it is with the cancer subjects. This lack of palapable evidence of life threat may in some way have altered the cardiovascular subjects' attribution of causation as measured by the Health/Illness Attribution Locus of Control Scale.

In view of the results obtained, placement of cardiovascular subjects in a life-threatened category comparable to cancer subjects fosters evaluation of certain questions regarding the accuracy of such labeling: Did cardiovascular subjects perceive themselves as cured of their disease/dysfunction? If so, how could this self-attribution influence response style? Are cardiovascular subjects in a cardiac rehabilitation program engaging in denial of the potential life-threatening nature of their physical problem, or conversely, seeking to actively participate in their treatment with knowledge of the potential danger? The ability of these subjects to actively engage in their self-care indicates a high degree of internality of perceived personal control. In turn, this self-perception would imply more internal HIALOCS scores. The cardiovascular subjects' HIALOCS mean score was 42.14 (possible range is 30 to 60,

with total combined $\bar{X} = 44.44$) which was almost equal to the normal group's; i.e., $\bar{X} = 42.43$. The cancer group HIALOCS mean, however, was 45.3. While not a statistically significant difference, the closeness of cardiovascular and normal group mean scores may indicate a similarity of response style that could be based on the former's self-perception as more "normal" than "life-threatened". This would not explain why the normal subjects were as internal as cardiovascular subjects; it merely spurs one to reconsider the characteristics of a group of subjects who (1) may not evidence life threatened attributions, or (2) may have a different kind of attribution style.

Normal Group. As described in the demographic characteristics section, the normal group was significantly younger and had a higher educational level than the two other groups. These factors may have influenced responses made to the measurement items. Location of an age matched group of healthy persons posed several problems. The churches from which some age matched subjects were obtained were not suited to data gathering procedures. Subjects were contacted at the end of the religious service, and consequently, may have been (1) uninterested in the topic of health/illness attitudes, (2) resentful that a non-religious topic was placed before them, (3) unfamiliar with the need to complete the instruments and return them as soon as possible, and/or (4) interested only if a significant other was ill or had been ill. Persons

obtained in the educational setting were most cooperative yet the age level was significantly younger than the age-matched church-based subjects. Future research should attempt to locate a consistently age-matched normal sample.

Educational level differences also may have influenced results. Normal subjects with the highest educational level may have found the task relatively easy, while cancer subjects might have had difficulty with directions or item content. Again, as with subject selection in non-educational settings, the educational bias could be avoided.

Summary: Clinical and Empirical Constraints

Conceptualization and design of research differs markedly from the real-life clinical situations in which it was conducted. The issues that must be addressed have been summarized and include subject selection problems, cooperation of agency contact persons, presence or absence of physical distractions, environmental constraints, and unpredictable alteration in availability of subjects. A paramount constraint on the present study was time: lack of sufficient time to allow natural availability of subjects to occur and time to do follow-up. A succeeding section of this discussion considers ways in which a revised study might be carried out over a longer period of time.

Measurement of Attribution Processes

From an empirical point of view, attribution of causation and responsibility in a life-threatened health/

illness context can be accurately measured with a paper and pencil questionnaire format. However, in a clinical context in which innumerable extraneous variables may influence respondents, this approach needs to be re-evaluated.

Attribution processes of persons who are physically ill with a disease such as cancer should be subject to questionnaire measurement following careful consideration of the following issues. In an after-the-fact evaluation of "what went wrong", it is possible to identify design problems that now seem obvious. When the research was in the planning and implementing stages, these problems were not foreseeable.

Pre-Testing. As a first step in refining an assessment tool, pretesting should be undertaken. In the present study, this step was not followed due to time constraints. In essence, however, the present study can be viewed as a pilot study which pretested the HIALOCS measure. In part, the lack of formal pretesting directly contributed to the nature of the results obtained. The HIALOCS instrument was not revised or refined before use with the target populations. Future research will benefit from the results emerging from this study--revision of the scale can be undertaken based on the present findings.

HIALOCS Revision. The HIALOCS items used to measure attribution of causation and responsibility can be reviewed along two lines: (1) operational definitions, and (2) format. Translation of the Health/Illness Attribution

Model theory of attribution to the operational context in which it is clearly understood by subjects can break down in several ways. In the case of the HIALOC scale, the measurement arm of the model, item wording and length need to be revised. Many item sentences appear to be too long. For example, items 24 and 34 could be revised as follows:

Item 24: (present form) If my family had a history of heart disease, it would be lady luck that determined whether I got heart disease too.

Revision: If my family had a history of heart disease, I'd be luck not to get it too.

Item 34: (present form) If I am never exposed to someone who is ill, I won't get that same illness.

Revision: If I'm not exposed to illness, I won't get sick.

Others are awkwardly worded and should be discarded (e.g., item 17) or reworded (e.g., item 14 changed to: "Unhappiness at work can make a person more likely to become ill.").

Filler items need to be re-evaluated as possibly reflective of internality or externality, and not as "pure" neutral items. For example, items 5 and 16 seem to be more reflective of externality, and 26 and 37 of internality.

The number of items per scale continuum may be too large. If chance items are considered to be external in operational terms, the total number of such items reaches

20--a sum that results in excessive repetition of the concept. Repetition to this degree is not necessary, and in fact, may have deterred subjects from attending to each item individually; i.e., a response set may have been in effect toward external items.

Reverse wording of a random number of items on each scale end would strengthen HIALOCS along two fronts: (1) avoid transparency of the research constructs, and (2) reduce response set. The latter potential problem was partially addressed by altering the answer scale next to each item. In future, more effort should be directed at rewording items to incorporate reversal in a more systematic fashion; e.g., item 3 ("If illness never occurs, that person is very lucky."), 11 ("People who never get sick take good care of themselves."), and 30 ("Illness seems to be more frequent these days.").

HIQ Revision. The Health/Illness Questionnaire (HIQ) also requires revision along the following lines: (1) removal of items initially designed to internally validate the HIALOCS instrument, (2) expansion of illness behavior items to represent a wider variety of alternatives for each of the three behavior categories, and (3) retention of demographic and past/present life-threatening illness history items.

Summary: Measurement of Attribution Processes

In order to make optimal use of the HIALOCS, it becomes necessary to revise and hence, redefine the operational definitions to be used. Although the questionnaire method was used in the present study, other research strategies may be applicable and will be considered below.

Theoretical Consideration

A question arises as to the solidity of the theoretical formulation upon which this research was based: Do the results imply a need for theoretical revisions in the Health/Illness Attribution Model?

The data do not give sufficient evidence to confirm or deny the theory. On the other hand, results do suggest a need to re-evaluate the dimensionality conceptualization of the theory. As reported in the results section, analysis of HIALOCS as a unidimensional scale permitted direct comparison with Rotter's locus of control scale, another unidimensional scale. However, present data do not support a relabeling of the scale as representative of a unidimensional construct. Because careful pre-testing of HIALOCS was not conducted, such an after-the-fact reformulation does not clarify the validity of scores obtained. Thus, while the HIALOCS measure could be placed on a unidimensional continuum containing internal and external elements, the underlying theory must be reviewed. The chance element of the Model may still influence internal and external views

of attribution without representing an independent model component/dimension. It appears that in a realistic situation, subjects in the present study were not able to distinguish between chance and the corresponding internal/external items. Chance or luck may, therefore, be operating in conjunction with each aspect of attribution, and not as a separate component.

A second way to reconsider the luck/fate/chance aspect of attribution is to view it as an external source of causation only. In this way, chance is something external to the person, not within personal control. After reviewing principle component analyses data, it appears that subjects did not discriminate between chance internal and chance external items; i.e., four of the five internal chance responses were grouped with the two external components produced by principle component analysis. Weiner (1974) placed luck/chance on the external end of the locus of control continuum. The present study lends support to this evaluation of the unstable chance element although the evidence produced here is neither conclusive nor particularly clear.

The Health/Illness Attribution Model represents causation effort as a context specific phenomenon. Yet, the correlations obtained from the three groups do not strongly uphold this view when it is compared to Rotter's generalized expectancy model. Of importance is the finding that between instrument correlations were negligible which can be

interpreted as initial proof that the two scales are measuring (1) different aspects of the same construct, or (2) different constructs entirely.

The latter interpretation is partially supported by the between group comparisons of Rotter's locus of control scale mean scores. Of the four comparisons made, none approached statistical significance: cancer to normal $F(1,72) = .012$ (required $F = 3.98$); cancer to heart $F(1,86) = .439$ (required $F = 3.96$); heart to normal $f(1,114) = .665$ (required $F = 3.92$); cancer and heart to normal $F(2,136) = .435$ (required $F = 3.91$). Based on Rotter's formulation of locus of control as generalized style across diverse situations, these results can be regarded as a demonstration of the consistency of his concept in the present samples. Although HIALOCS to Rotter's locus of control scale correlations were not significantly negative, the negligible positive and negative correlations between the two life-threatened groups and the normal group suggests measurement of a construct different than Rotter's.

In comparing the HIALOCS instrument, as a measure of context specific attribution style, and Rotter's locus of control scale, as a measure of generalized expectancy of reinforcement (an aspect of attribution) there is an implication of stability of the Rotter scale that may not be entirely accurate; i.e., the locus of control scale responses are supposedly constant across a variety of differing situations thereby providing a baseline for comparisons.

This assumption is based on Rotter's (1966) original work as well as subsequent research which demonstrated its construct validity (Joe, 1971; Lefcourt, 1966) and test-retest reliability (Joe, 1971). Mirels (1970), however, states that Rotter's original factor analysis of the locus of control scale data did not succeed in identifying clear-cut subscales for internality and externality. In a principle components analysis with varimax rotation, Mirels failed to find the two distinct factors postulated by Rotter. The amount of variance accounted for by two separate principle component analyses (male and female samples) was less than 20 percent. Factor analytic procedures were also unable to account for more than 15 percent of variance (MacDonald & Tseng, 1971).

Rotter's locus of control scale, therefore, may not truly represent a generalized expectancy which reflects one's attribution style. If its construct validity is in question, reliance on the scale as representative of the present sample's perception of personal control is put into question also. Consequently, comparisons made between Rotter's scale and HIALOCS may not result in clear evidence of differences or similarities of instruments.

Implications of the Study

The data obtained from this study failed to support the construct validity of the Health/Illness Attribution Locus of Control Scale, but did not cast doubt on the model

upon which it was based. The Health/Illness Attribution Model remains an innovative conceptualization of the attribution process in health/illness contexts. On the other hand, the results clearly indicate that the original structure of the HIALOCS is neither sufficiently well defined nor designed to adequately measure the construct.

Modification of the model upon which the research was based would include the previously mentioned consideration of attribution as either a unidimensional or multidimensional construct. In order to do this, the scale would be revised along the lines outlined under "Measurement of Attribution Processes." After administering the Scale to a number of healthy and physically ill persons (each with $n = > 60$), it could be analyzed via principle component analysis to validate the consistency and strength of the two Scale constructs. In addition, direct attention would be paid to reliability issues raised when a new scale is devised. To enhance the Scale's predictability, these issues would include statistical consideration of (1) test-retest interpretation of stability of scale components, (2) split half tests of reliability, and/or the Kuder-Richardson test of reliability for Scale components.

Design. With a revised HIALOCS, a modified research design could be produced which takes into account the clinically-based research limitations previously discussed. Such a design might incorporate the following:

1. Allotment of sufficient time to conduct a longitudinal study, and/or to allow for fluctuation in subject availability.

2. Incorporation of a behavioral assessment element based, perhaps, on an interview format, or observation of a task designed to represent an attribution opportunity. This would be a task relevant to health/illness contexts and might be located in the physician's office, waiting room, or oncology clinic.

3. If cancer patients are to be used, it might be more beneficial to focus on persons receiving chemotherapy. Although this group is varied in terms of diagnoses and type of chemical treatment received, it appears that a sufficient number of persons could be obtained with less difficulty than that encountered with the radiation therapy patients. However, it must be remembered that these persons will most likely also be physically ill. A second category of cancer patients would be surgical candidates, specifically groups receiving the same operation; e.g., women for mastectomy, men for pneumonectomy or colostomy. Undoubtedly, regardless of the group chosen, clinical environments will pose problems. To counter these, the following design suggestion is made.

4. To effectively carry out the kind of research that would successfully measure attribution in health and illness contexts, it is necessary to place the researcher in the setting. This would involve receipt of a grant to conduct

such a study. In this way, the researcher would have access to subjects and allow staff personnel to focus on their primary responsibilities. A proposal of this nature would be for a minimum of three years to allow for repeated measurement at time of diagnosis, six month, one year, and one and a half year intervals. Ideally, it could be a longitudinal study but could be an across groups design with easier access to subjects. Budgetary considerations should include: pretesting procedures, at least one research assistant in addition to the principle investigator, and adequate support facilities. Negotiations to base the study in a health care institution would be a necessity.

5. Attention also could be directed at design of a laboratory analog study which would include induction of a harmless, transitory ill state followed by measurement of attribution. Comparison of pre- and post-illness scores on a revised HIALOCS, as well as behavioral measures, could then be carried out. Using double blind techniques which would include medical supervision, such a study also would require financial support--hence a grant.

6. In somewhat of a departure from the major thrust of the present study, it would also be of considerable interest to investigate the self-labeling vs. other labeling processes of the two life threatened groups studied. As discussed previously, the life-threatened label may not be applied in the same manner to cardiovascular subjects as to cancer subjects. Several questions arise as a result of

this observation: (1) Is there a difference between cancer and cardiovascular patients in how they perceive their illness' label? If so, what are the differences and how would these influence "illness/sickness" behavior? How would it influence response to treatment, or participation in treatment activities? These questions give rise to consideration of the following matrix:

		SICK/ILL	
		Yes	No
Life-Threatened	Yes	Cancer	Cardiovascular
	No	* "morning sickness"	Normal

*an example only

Does this matrix, in fact, represent a realistic and verifiable phenomenon in the health/illness context? And, how do the attributions for causation of these physical dysfunctions/problems differ or resemble one another? These questions, and many more, have emerged as a direct result of conducting the present study.

Each of these design suggestions require further indepth evaluation. The purpose here is to indicate a few of the possibilities for future research that arise as a result of conducting the present study.

Discussion Summary

The purpose of this discussion was to evaluate the results of the study, to identify factors that influenced outcome, and to review theoretical considerations underlying the research. The study produced less than conclusive results. Of importance, however, is the fact that the results have directed attention to a reconsideration of the conceptualization of the HIALOCS instrument such that a significant revision will result. The Health/Illness Attribution Locus of Control Scale demands further research attention and several possibilities have been briefly summarized.

The contribution to human knowledge of the Health/Illness Attribution Model's view of causation in life-threatening contexts is significant. This effort represents the first systematic attempt to assess the manner in which seriously ill people view causation for their situation. As behavioral scientists gain an understanding of this aspect of human behavior, it will be reasonable and possible to devise intervention strategies that support or modify the behavior represented by attribution style. In this way, the extension of scientifically based principles of psychology can occur in a meaningful and significant manner in the area of clinical psychology.

APPENDIX I

CONSENT

The University of Hawaii, Department of Psychology is conducting a study of how different people respond to various health and illness situations. The study seeks to gain an understanding of individual differences in opinion and belief. This information will be useful to health professionals in considering ways to deliver health care services.

Participation in the study will be confined to completing three questionnaires. The information contained in the questionnaires, as well as each person's identity, will be confidential. Each participant is free to withdraw from the study at any time. Cooperation in the study is on a voluntary basis.

If you agree to cooperate in the study, please read and sign the consent below:

Date _____

I certify that I have read and understand the foregoing, that I have been given satisfactory answers to my inquiries concerning study procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the study at any time without prejudice.

I herewith give my consent to participate in this study with the understanding that such consent does not waive any legal right nor does it release the principle investigator or the institution or any employee or agent thereof from liability for negligence or for any wrongful act or conduct.

Signature of individual
participant

Signature of Witness

Date

Date

APPENDIX II

HEALTH/ILLNESS ATTRIBUTION LOCUS OF CONTROL SCALE

Health Evaluation Questionnaire

Below are some statements about health with which some people agree and others disagree. Please read each item carefully and answer "yes" or "no" as it applies to you. For example, if the statement "Health is my most important asset" is true for you, then you would circle "yes" in the left margin. If you disagree with the statement, then you would mark "no". Please answer all questions.

Circle
Answer

- | | | |
|-----|-----|---|
| Yes | No | 1. I frequently become annoyed with medical programs on television. |
| No | Yes | 2. During the winter months, I avoid people who have colds or the flu. |
| No | Yes | 3. When illness occurs over and over, the person is having a run of bad luck. |
| Yes | No | 4. A serious illness is inevitable at some time in life if it runs in the family. |
| No | Yes | 5. When a friend of mine is ill, I generally feel sorry for him or her. |
| Yes | No | 6. I have an exercise program which I follow regularly. |
| Yes | No | 7. It's really not possible to avoid being sick once in a while. |
| No | Yes | 8. I believe I can stay as healthy as I want. |
| No | Yes | 9. I feel that in order to be healthy, the environment must not be polluted. |
| Yes | No | 10. People who smoke cigarettes have a difficult habit to break. |
| No | Yes | 11. People who often become ill do not take good care of themselves. |
| Yes | No | 12. Health care costs are not increasing as rapidly as the newspapers report. |

2 Health Evaluation Questionnaire, cont.

Circle
Answer

- | | | | |
|-----|-----|-----|---|
| No | Yes | 13. | The only thing that would keep me from being healthy would be bad luck. |
| Yes | No | 14. | If one is unhappy in his or her work, they are more likely to become ill. |
| No | Yes | 15. | Whenever I am ill, I try to figure out what caused it. |
| Yes | No | 16. | Drinking alcoholic beverages in social settings is harmless. |
| Yes | No | 17. | It is fate that determines if the child of a pregnant woman exposed to x-rays during pregnancy will be born deformed. |
| No | Yes | 18. | Because there are so many harmful thing in the environment, I believe illness is sometimes unavoidable. |
| Yes | No | 19. | If I wanted to, I'd never get sick. |
| No | Yes | 20. | It's probably due to chance when someone becomes seriously ill. |
| Yes | No | 21. | If those around me are ill, it won't be long before I'm sick too. |
| Yes | No | 22. | The food I eat is related to the illnesses I get. |
| No | Yes | 23. | Diet books can often be very helpful in losing weight. |
| Yes | No | 24. | If my family had a history of heart disease, it would be lady luck that determined whether I got heart disease too. |
| No | Yes | 25. | Most people aren't aware of how their lives are controlled by accidental happenings. |
| No | Yes | 26. | Seeing a physician fo an annual check-up is a good idea. |
| Yes | No | 27. | I believe I can control my health and prevent myself from getting sick. |

3 Health Evaluation Questionnaire, Cont.

Circle
Answer

- | | | | |
|-----|-----|-----|---|
| Yes | No | 28. | Vitamin C often can be helpful in preventing colds. |
| No | Yes | 29. | I feel that National Health Insurance would be a good thing for America. |
| Yes | No | 30. | Being healthy really is almost impossible these days. |
| No | Yes | 31. | People become sick when they have a negative attitude toward life. |
| No | Yes | 32. | I feel that many people are really victims of circumstance. |
| Yes | No | 33. | Most family or congenital illnesses will strike no matter what you do to prevent them. |
| Yes | No | 34. | If I am never exposed to someone who is ill, I won't get that same illness. |
| No | Yes | 35. | In order to feel healthy, a person needs to watch what is eaten, get enough sleep, and be able to relax when not working. |
| Yes | No | 36. | As hard as I try to stay healthy, it seems to be my fate to get sick every now and then. |
| No | Yes | 37. | If I had my way, I'd plan for more recreation time. |
| Yes | No | 38. | I know that my attitude toward illness influences whether I get sick or not. |
| Yes | No | 39. | It's really luck that determines who will be healthy in this world. |
| No | Yes | 40. | I believe that my risk of getting lung disease is higher when I'm around people who smoke cigarettes. |

End.

APPENDIX III

HEALTH/ILLNESS QUESTIONNAIRE

This questionnaire contains a number of items related to how you view health and illness. Please answer each item to the best of your ability.

Please check one:

1. Age: _____ (write in age)
2. Sex: Male _____ Female _____
3. Marital Status:

Married _____	Widowed _____ (length of
Separated _____	time since losing your
Divorced _____	spouse _____)
	Single _____
4. Religious Preference:

Catholic _____	Hinduism _____
Protestant _____	Baptist _____
Mormon _____	Jewish _____
Buddhist _____	Other _____
5. Educational Background:

Please check mark highest level or grade completed.

8th grade	_____
High school	_____
2 years college	_____
4 years college	_____
1-2 years graduate school	_____
3 or more years graduate	_____
Professional graduate	_____
(for example: M.D.,	
LLB)	_____
6. Cultural Background:

Japanese-American _____	Caucasian _____
Chinese-American _____	Afro-American _____
Filipino-American _____	Other _____
Hawaiian/Part Hawaiian _____	

2 Health/Illness Questionnaire, continued

7. Are you now ill? Yes _____ No _____
8. If Yes, what is the name of your illness? _____

9. Have you ever had an illness or been in an accident in the past that threatened your life? Yes _____ No _____
10. If Yes, please check mark the item(s) below that apply to PLEASE DO NOT INCLUDE ANY PRESENT ILLNESS OR INJURY.
- | | |
|---------------------------|-------------------------|
| Automobile accident _____ | Cancer _____ |
| Heart attack _____ | Industrial injury _____ |
| Stroke _____ | Fire or burns _____ |
| Diabetic coma or _____ | War injury _____ |
| Insulin shock _____ | Drug-related _____ |
| Respiratory ailment _____ | Illness _____ |
| | Infection _____ |
- 11.

Please list any illness or injury that you have experienced that is not included above: _____

There are many illnesses people may have at some time during life. For each of the illnesses listed below, write or print the first word that comes to your mind when you think of:

Heart Disease	_____
Asthma	_____
Cancer	_____
Arthritis	_____
Diabetes	_____

Please continue to the next page...

3 Health/Illness Questionnaire, continued

The remainder of the items in this questionnaire are answered on the following scale:

Always Most of
the Time Sometimes Seldom Never

Please check the answer that best represents how you feel about the item. For example, if an item read "I believe that insurance company coverage for surgery is too low" is "always" true for you, then you would check "Always". If this item is "sometimes" true for you, you would check "Sometimes", etc.

	ALWAYS	MOST OF THE TIME	SOMETIMES	SELDOM	NEVER
12. My illness(es) are caused by:					
a. Bad luck					
b. Contact with others					
c. Poor Self-care					
d. Exposure to harmful environmental elements					
e. Chance or fate					
f. Change in attitude					
13. When you are sick, do you believe that the physician treating the illness is responsible for cure?					
14. When you are sick, do you seek to determine the cause of the illness?					
15. Each person is responsible for maintaining their health and preventing illness.					

4 Health/Illness Questionnaire, continued

	ALWAYS	MOST OF THE TIME	SOMETIMES	SELDOM	NEVER
16. Responsibility for an action implies guilt or blame if the result is harmful or negative to myself or others.					
17. If you are very ill or feeling quite sick, you do which of the following:					
a. Call my physician					
b. Discuss the problem with my family.					
c. Try to relax and not worry					
d. Find information on my symptoms in magazines or books.					
e. Call the nurse at my physician's office.					
f. Think of other things.					
g. Wait a while to see if the symptoms will go away.					
h. Find comfort in prayer or meditation.					
i. Seek help from family or friends.					
j. Take over-the-counter medicine to seek relief.					
k. Go to the hospital emergency room.					

5 Health/Illness Questionnaire, continued

	ALWAYS	MOST OF THE TIME	SOMETIMES	SELDOM	NEVER
1. Decide to place my welfare in God's hands.					
18. People who are frequently ill or who have injuries tend to be irresponsible in their own self care.					
19. I have the ability to maintain my health as long as I actively adhere to good self care practices (such as exercise, nutritious diet, nor smoking.)					

End. Thank you.

SOCIAL REACTION INVENTORY

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Circle Answer

1. a. Children get into trouble because their parents punish them too much.
 b. The trouble with most children nowadays is that their parents are too easy on them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
 b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
 b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.
 b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
 b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
 b. Capable people who fail to become leaders have not taken advantage of their opportunities.

2

7. a. No matter how hard you try, some people just don't like you.
b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well-prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work. Luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.
b. This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. When I make plans I am most certain that I can make them work.
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyway.
14. a. There are certain people who are just no good.
b. There is some good in everybody.

3

15.
 - a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
16.
 - a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.
17.
 - a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
 - b. By taking an active part in political and social affairs the people can control world events.
18.
 - a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
 - b. There really is no such thing as luck.
19.
 - a. One should always be willing to admit mistakes.
 - b. It is usually best to cover up one's mistakes.
20.
 - a. It is hard to know whether or not a person really likes you.
 - b. How many friends you have depends upon how nice a person you are.
21.
 - a. In the long run the bad things that happen to us are balanced by the good ones.
 - b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.
 - a. With enough effort we can wipe out political corruption.
 - b. It is difficult for people to have much control over the things politicians do in office.
23.
 - a. Sometimes I can't understand how teachers arrive at the grades they give.
 - b. There is a direct connection between how hard I study and the grades I get.

4

- 24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what his job is.
- 25. a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.
- 26. a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people; if they like you they like you.
- 27. a. There is too much emphasis on athletics in high school.
b. Team sports are an excellent way to build character.
- 28. a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
- 29. a. Most of the time I can't understand why politicians behave the way they do.
b. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX IV

TREATMENT RESPONSE EVALUATION

Code Number:Hospital: St. Francis Queen's StraubDiagnosis:Stage of Disease:

Inhospital _____ Outpatient _____

Radiation Therapy is: Curative _____ Palliative _____

Response to TreatmentPlease circle the number that corresponds to the patient's response to the radiation therapy at this point in time.

1	2	3	4	5
Extremely poor response (virtually no tumor shrinkage)	Poor Response	Satisfactory Response	Good Response	Optimal response (maximum tumor shrinkage)

Does this patient use the word "cancer" to refer to the disease?

Yes _____ No _____

Does this patient have side effects associated with radiation therapy?

Yes _____ No _____

What is the length of the planned course of radiation therapy?

APPENDIX V
NON-CANCER RELATED LIFE-THREATENING ILLNESSES
OF CANCER SUBJECTS

Type of Illness/Dysfunction	Frequency
Kidney operation	1
Ruptured appendix	1
Throat surgery	1
Tuberculosis	1
Urinary tract infection (unclear as to nature of this infection as life-threatening)	

APPENDIX VI

NON-CARDIOVASCULAR RELATED LIFE-THREATENING ILLNESSES
CARDIAC REHABILITATION PROGRAM SUBJECTS

Diagnoses	Frequency
Diabetes mellitus	3
Tuberculosis	2
Appendicitis	3
Artery bypass, right leg	1
Brain concussion	1
Cardiac arrest	1
Congestive heart disease	1
D & C (dilatation and curettage)	1
Gastric hemorrhage	1
Gastric ulcers	1
Head injury from a fall	1
Hypertension	1
Kidney stones	1
Nervous breakdown	1
Polio	1
Rheumatic fever	1
Typhus fever	1

APPENDIX VII

NORMAL SUBJECTS' LIFE-THREATENING ILLNESS HISTORY

Type of Illness/Dysfunction	Frequency
Aircraft accident	1
Blood disease	1
Floating kidney	1
Meningitis	1
Renal failure	1
Scarlet Fever	1
Surgery for tumor removal	1
Near drowning	1

APPENDIX VIII

RADIOTHERAPY CANCER SUBJECTS' WORD ASSOCIATIONS:

Heart Disease

Response Category	Frequency
<u>Causes</u>	
Obese/fat	2
Over exertion	1
<u>Consequences</u>	
Death	4
Restricted activity	2
Invalid	1
Sorrow	1
<u>Symptoms/Signs</u>	
Danger	1
Illness	1
Pain	1
<u>Types</u>	
Heart attack	3
Stroke	2
Emergency	1

Note: Compiled word associations of 29 cancer subjects.

APPENDIX IX

RADIOTHERAPY CANCER SUBJECTS' WORD ASSOCIATIONS:

Asthma

Response Category	Frequency
<u>Causes</u>	
Allergy	1
Colds	1
Rain	1
<u>Consequences</u>	
Breathing/respiratory problems	10
Illness	1
Sorrow	1
<u>Symptoms/Signs</u>	
Wheezing	3
Choked	1
Gasping	1

Note: Compiled word associations of 20 cancer subjects.

APPENDIX X

RADIOTHERAPY CANCER SUBJECTS' WORD ASSOCIATIONS:

Cancer

Response Category	Frequency
<u>Causes</u>	
Cigarette	1
More study for cure	1
<u>Consequences</u>	
Death	6
Frightening/fear	2
Days numbered	1
Illness	1
Sorrow	1
Spreading	1
Surgery	1
Unpredictable	1
<u>Symptoms/Signs</u>	
Illness	1
Pain	1
Suffering	1
<u>Types</u>	
Breast	1
Malignant growth	1
<u>Miscellaneous</u>	
"What me too? My wife has cancer."	1

Note: Compiled word associations of 22 cancer subjects.

APPENDIX XI

RADIOTHERAPY CANCER SUBJECTS' WORD ASSOCIATIONS:

Arthritis

Response Category	Frequency
<u>Causes</u>	
Old age	2
<u>Consequences</u>	
Crippled/crippling	4
Lost/no life	1
Sorrow	1
Ugly	1
<u>Symptoms/Signs</u>	
Pain	7
Ache	2
Illness	1
Joints	1
Soreness	1

Note: Compiled word associations of 21 cancer subjects.

APPENDIX XII

RADIOTHERAPY CANCER SUBJECTS' WORD ASSOCIATIONS:

Diabetes

Response Category	Frequency
<u>Consequences</u>	
Diet	3
Blind	1
Chocolate	1
Fat	1
Illness	1
Insulin	1
Sorrow	1
Sorry	1
<u>Symptoms/Signs</u>	
Sugar	8
Hunger	1

Note: Compiled word associations of 19 cancer subjects.

APPENDIX XIII

CARDIAC REHABILITATION PROGRAM SUBJECTS'
WORD ASSOCIATIONS: Heart Disease

Response Category	Frequency
<u>Causes</u>	
Cholesterol	2
Fat/obese	2
Hypertention	2
Old Age	2
Stress/executive	2
Neglect or heredity	1
Rich food	1
<u>Consequences</u>	
Death/killer	7
Disability	3
Crippling	2
Cardiac rehabilitation	1
Change of occupation	1
Chronic	1
Livable	1
<u>Symptoms/Signs</u>	
Attack	4
Chest	2
Chest pain	1
Pain	1
Sudden	1
<u>Types</u>	
Heart attack	7
Stroke/cerebrovascular accident	2
Rheumatic fever	1
<u>Miscellaneous</u>	
Far off	1
Health	1
Parents and grandparents	1
Preventable	1

Note: Compiled word associations of 51 cardiovascular subjects.

APPENDIX XIV

CARDIAC REHABILITATION PROGRAM SUBJECTS'
WORD ASSOCIATIONS: Asthma

Response Category	Frequency
<u>Causes</u>	
Allergy	3
Atmosphere	1
Coal miners	1
Emotion	1
Pollen	1
Youth	1
<u>Consequences</u>	
Breathing	7
Breathing trouble	6
Suffering	2
Incapacitated	1
Livable	1
<u>Symptoms/Signs</u>	
Choke	3
Cough	3
Smother/suffocation	3
Bad cold	1
Lung	1
Oxygen	1
Respiratory	1
Wheezing	1
<u>Miscellaneous</u>	
Sister, mother	2
Cry baby	1
Fight it!	1

Note: Compiled word associations of 43 cardiovascular subjects.

APPENDIX XV

CARDIAC REHABILITATION PROGRAM SUBJECTS '
WORD ASSOCIATIONS: Cancer

Response Category	Frequency
<u>Causes</u>	
Alert to warning signs	1
Alcoholic	1
Cause unknown	1
Food	1
Germ	1
Mystery	1
Old Age	
<u>Consequences</u>	
Death/dying	9
Incurable/fatal	3
Terminal	3
Tragic	1
<u>Symptoms/Signs</u>	
Pain	6
Suffer	2
Agony	1
<u>Types</u>	
Malignant	2
Cancerous lesions	1
Lung	1
Skin	1
Tumor	
<u>Miscellaneous</u>	
People: Father, husband, grandmother	2
Ugh	1

Note: Compiled word associations of 41 cardiovascular subjects.

APPENDIX XVI

CARDIAC REHABILITATION PROGRAM SUBJECTS'
WORD ASSOCIATIONS: Arthritis

Response Category	Frequency
<u>Causes</u>	
Old age	4
Cause unknown	1
Weather	1
<u>Consequences</u>	
Crippled/crippling	4
Restricted activity	2
Crooked	1
How long to live?	1
Lameness	1
Livable	1
Nobby fingers	1
Poor guy	1
<u>Symptoms/Signs</u>	
Pain	15
Excruciating	1
Hurt	1
Misery	1
Painful Joints	1
Sore arm	1
Stiff	1
Suffer	1
<u>Types</u>	
Chronic	1
Hip	1
Joints	1
Rheumatism	1

Note: Compiled word associations of 45 cardiovascular subjects.

APPENDIX XVII

CARDIAC REHABILITATION PROGRAM SUBJECTS'
WORD ASSOCIATIONS: Diabetes

Response Category	Frequency
<u>Causes</u>	
Youth	1
<u>Consequences</u>	
Diet/dieting	9
Fat/obese	5
Insulin	2
Needle	2
Shots	2
Blindness	1
Limitation	1
Livable	1
Medicine	1
Suffer	1
<u>Symptoms/Signs</u>	
Sugar	16
Slow healing sores	2
Black out	1
Weak	1
<u>Miscellaneous</u>	
People: mother	1

Note: Compiled word associations of 43 cardiovascular subjects.

APPENDIX XVIII

NORMAL SUBJECTS' WORD ASSOCIATIONS:

Heart Disease

Response Category	Frequency
<u>Causes</u>	
Fat/obese	2
Cholesterol	1
High Blood Pressure	1
Over worked	1
Spreadable (?)	1
<u>Consequences</u>	
Death/fatal	3
Jogging	2
Weak/sickly	2
Care	1
Danger	1
Deterioration	1
Disabling	1
Rest	1
<u>Symptoms/Signs</u>	
Pain	2
Blood	1
Pale	1
Sudden	1
<u>Types</u>	
Heart attack/coronary	15
Stroke	1
Chest	1
Heart	1
Heart failure	1
Prevalent	1
<u>Miscellaneous</u>	
People: Dad, grandfather, mother-in-law, male	4

Note: Compiled word associations of 49 normal subjects.

APPENDIX XIX

NORMAL SUBJECTS' WORD ASSOCIATIONS:

Asthma

Response Category	Frequency
<u>Causes</u>	
Child, children (sons)	5
Allergy	3
Dust	1
Emotional	1
<u>Consequences</u>	
Breath/breathing problems	24
Gasping for breath	3
<u>Symptoms/Signs</u>	
Wheezing	6
Attack	1
Coughing	1
Respiratory	1
<u>Miscellaneous</u>	
Mother	1
Sunland, Calif.	1

Note: Compiled word associations of 48 normal subjects.

APPENDIX XX

NORMAL SUBJECTS' WORD ASSOCIATIONS:

Cancer

Response Category	Frequency
<u>Causes</u>	
Cells	2
Complex	1
Immunological	1
Insidious	1
No known cure	1
Radiation	1
<u>Consequences</u>	
Death/dying	17
Terminal	4
Scarey/fear	2
Bad	1
Loss	1
<u>Symptoms/Signs</u>	
Pain	5
Helplessness	1
Growth	1
<u>Types</u>	
Big C	1
Cyst	1
Malignant	1
Tumor	1
Uterus	1
<u>Miscellaneous</u>	
People: Ann Turnage, father, friend, women	4

Note: Compiled word associations of 48 normal subjects.

APPENDIX XXI

NORMAL SUBJECTS' WORD ASSOCIATIONS:

Arthritis

Response Category	Frequency
<u>Causes</u>	
Elderly/aging/old	3
Women	1
<u>Consequences</u>	
Cripple/crippling	9
Stiffness	2
Creak	1
Disablement	1
Lack of movement	1
<u>Symptoms/Signs</u>	
Pain	16
Joints/bones	6
Hands	3
Hurt	1
Sore	1
<u>Miscellaneous</u>	
People: me, grandmother	3

Note: Compiled word associations of 48 normal subjects.

APPENDIX XXII

NORMAL SUBJECTS' WORD ASSOCIATIONS:

Diabetes

Response Category	Frequency
<u>Causes</u>	
Inherited	1
Possible (?)	1
<u>Consequences</u>	
Diet	4
Insulin	3
Shots	3
Blindness	1
Complications	1
Fat	1
Inactivity	1
Orange juice	1
Spasms	1
Terminal	1
Troublesome	1
<u>Symptoms/Signs</u>	
Sugar/sweets	24
Food	1
<u>Miscellaneous</u>	
People: Mother, son	2

Note: Compiled word associations of 47 normal subjects.

APPENDIX XXIII

SUMMARY OF SIMILAR WORD ASSOCIATIONS:
CATEGORY BY GROUP BY WORD

Category	Cancer n=23+ f %		Cardiovascular n=41+ f %		Normal n=48+ f %	
<u>Causes</u>						
<u>Heart Disease:</u>						
Fat/obese	2	10	2	4	2	4
Cholesterol			2	4	1	2
Hypertension			2	4	1	2
<u>Asthma:</u>						
Allergy	1	5	3	7	3	6
<u>Cancer:</u>						
No similarities						
<u>Arthritis:</u>						
Old Age	2	10	4	9	3	6
<u>Diabetes:</u>						
No similarities						
<u>Consequences</u>						
<u>Heart Disease:</u>						
Death/fatal	4	20	7	14	3	6
Disabling			3	6	1	2
<u>Asthma:</u>						
Breathing problems	10	50	13	30	24	50
<u>Cancer:</u>						
Death/dying	6	27	9	22	17	35
Terminal/fatal			6	15	4	8
Fearful	2	9			2	4
<u>Arthritis:</u>						
Crippled/crippling	4	19	4	9	9	19
<u>Diabetes:</u>						
Diet/dieting	3	16	9	21	4	9

APPENDIX XXIII (continued). SUMMARY SIMILAR WORD ASSOCIATIONS: CATEGORY BY GROUP BY WORD

Category	Cancer n=23± f %		Cardiovascular n=41± f %		Normal n=48± f %	
Fat/Obese	1	5	5	12	1	2
Blindness	1	5	1	2	1	2
Insulin	1	5	2	5	3	6
Shots						
<u>Symptoms/Signs</u>						
<u>Heart Disease:</u>						
Pain	1	5	1	2	2	4
Sudden			1	2	1	2
<u>Asthma:</u>						
Wheezing	3	15	1	2	6	13
Choked	1	5	3	7		
Respiratory			1	2	1	2
<u>Cancer:</u>						
Pain	1	5	6	15	5	10
Suffer	1	5	2	5		
<u>Arthritis:</u>						
Pain	7	33	15	33	16	33
Joints	1	5	1	2	6	13
Sore	1	5			1	2
<u>Diabetes:</u>						
Sugar	8	42	16	37	24	51
<u>Types</u>						
<u>Heart Disease:</u>						
Heart attack	3	15	7	14	15	31
Stroke	2	10	2	4	1	2
<u>Cancer:</u>						
Malignant	1	5	2	5	1	2
Tumor						

APPENDIX XXIII (continued). SUMMARY SIMILAR WORD ASSOCIATIONS: CATEGORY BY GROUP BY WORD

Category	Cancer n=23+ F %		Cardiovascular n=41+ f %		Normal n=48+ f %	
<u>Miscellaneous</u>						
<u>Heart Disease:</u>						
People			1	2	4	8
<u>Asthma:</u>						
People			2	5	1	2
<u>Cancer:</u>						
People	1	5	2	5	4	8
<u>Diabetes:</u>						
People			1	2	2	4

APPENDIX XXIV

Item Analysis Correlations to Scale and Total

Item	Scale	R(Total)	R(Scale)	Difference R(scale)-R(Total)
1	1	0.3799	0.4997	.1198
2	3	0.4861	0.5930	.1069
3	4	0.4648	0.5512	.0864
4	1	0.4278	0.5504	.1220
5	2	0.2231	0.2527	.0296
6	1	0.3155	0.5391	.2236
7	2	0.4641	0.4911	.0336
8	1	0.2912	0.5245	.2333
9	3	0.5692	0.6560	.0868
10	2	0.2545	0.3642	.1097
11	1	0.3214	0.4042	.0828
12	4	0.4397	0.5753	.1356
13	2	0.3885	0.4719	.0834
14	1	0.4834	0.4685	-.0149
15	3	0.4632	0.6918	.2286
16	2	0.4381	0.4468	.0087
17	2	0.4329	0.4588	.0259
18	4	0.5791	0.6286	.0495
19	2	0.5201	0.6241	.1040
20	1	0.4343	0.5915	.1572
21	2	0.4460	0.4734	.0274
22	1	0.4996	0.5577	.0581
23	3	0.4842	0.6737	.1895
24	4	0.5025	0.7006	.1981
25	3	0.5495	0.5667	.0172
26	1	0.4003	0.3037	-.0966
27	4	0.3804	0.6220	.2416
28	1	0.3274	0.4885	.1611
29	3	0.5584	0.6400	.0816
30	2	0.3167	0.4437	.1270

Scale Key: 1 = Internal
 2 = External
 3 = Chance
 4 = Filler

APPENDIX XXV

Item Analysis Correlations to Scale and Total

Item	Scale	R(Total)	R(Scale)	Difference R(Scale)-R(Total)
1	5	0.4329	0.5370	.1041
2	1	0.4064	0.4997	.0933
3	3	0.5134	0.5930	.0796
4	4	0.4833	0.5512	.0679
5	5	0.4524	0.4935	.0411
6	1	0.4571	0.5504	.0933
7	2	0.2386	0.2527	.0141
8	1	0.3174	0.5391	.2217
9	2	0.4527	0.4911	.0384
10	5	0.2564	0.4532	.1968
11	1	0.3276	0.5245	.1964
12	5	0.4220	0.5817	.1597
13	3	0.5643	0.6560	.0917
14	2	0.2056	0.3642	.1586
15	1	0.3219	0.4042	.0823
16	5	0.3135	0.4719	.1584
17	4	0.4108	0.5753	.1645
18	2	0.3896	0.4719	.0823
19	1	0.4530	0.4685	.0155
20	3	0.4276	0.6918	.2642
21	2	0.3983	0.4468	.0485
22	2	0.4087	0.4588	.0501
23	5	0.3491	0.4992	.1501
24	4	0.5515	0.6286	.0771
25	2	0.4852	0.6241	.1389
26	5	0.4641	0.3840	-.0801
27	1	0.4032	0.5915	.1883
28	5	0.4231	0.5631	.1400
29	5	0.3708	0.4111	.0403
30	2	0.4336	0.4734	.0398
31	1	0.4926	0.5577	.0651
32	3	0.4522	0.6737	.2215
33	4	0.4682	0.7006	.2324
34	2	0.5349	0.5667	.0318
35	1	0.4100	0.3037	-.1063
36	4	0.3858	0.6220	.2362
37	5	0.3722	0.3431	-.0291
38	1	0.3437	0.4885	.1448
39	3	0.5239	0.6400	.1161
40	2	0.2972	0.4437	.1465

Scale Key: 1 = Internal
 2 = External
 3 = Chance external
 4 = Chance internal
 5 = Filler

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