SUBJECTIVE AND OBJECTIVE CONCEPTS OF HEALTH:
A Background Statement for Research

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OVERVIEW

An individual's view of his ability to function in his major life roles and his perceptions of his opportunities and probabilities of success in activities and accomplishments which he values are major components of his sense of well-being. These, together with any concerns, fears, and hopes which may accompany anticipations of the future are essential aspects of the individual's perceptions of the quality of his life. The major purpose of the proposed research is to describe populations and significant groups in terms of their perceptions of their health and its impact on the over-all quality of their lives.

As medical practice and modes of delivery of health care change, and as health programs evolve and develop, people's perceptions, expectations, and satisfactions will change. This research is planned to document and measure shifts in perceptions and attitudes and satisfactions with one's own health and with the health care which he perceives to be available.

For those charged with developing, operating, and evaluating health programs, this research can provide insights into how and, to some extent, why people respond as they do—behaviorally and affectually, to their health and to the health care system. An understanding of the individual vis-a-vis health care which is a sufficient base for health planning cannot be based solely on subjective evaluations. These may explain his responses, but from the viewpoint of the health professional, the responses may still be irrational, uninformed, inappropriate, or even harmful. That is, from the professional standpoint, the "layman's" perceptions of his own state of health and information about health services which are available may be quite erroneous or distorted.

To predict health behavior, which is essential for health planning, one must observe the person from two frames of reference—one from his own viewpoint, and the second from the more objective viewpoint of the professional. Observing health attitudes and behaviors from these two views provides a particularly powerful base for interpreting them.

This paper focuses more explicitly on the layman's view of health and health care—his personal and subjective perceptions. For each variable, however, we have considered for later research the duality of the objective and subjective and the insight which will emerge from studying the discrepancies between these two perspectives.
Both popular impression and research data reinforce the view that an individual's health is a central component in his over-all life satisfaction. Further, it is evident that the standard of health care in a society, since it is a major determinant of individuals' health, is an important measure of that society's over-all quality. From his research on human values, Rokeach reports that when people are asked to rank their values, good health is always in first or second place. Maslow maintains that physiological drives are so basic that other human needs do not even emerge until these are satisfied; he calls these "the most prepotent of all needs" (Maslow, 1954, p. 82). Current television commercials carry this to its logical extreme, telling us "If you've got your health, you've got just about everything." The centrality of health among values suggests that if there is a marked deviation, particularly a negative deviation, from one's acceptable standard, it will dominate his life to the point that satisfactions and dissatisfactions with other domains become unimportant. Cantril's data on "what Americans are concerned about" supports this hypothesis (Cantril, 1965, p. 6). He found that health is ranked second among factors which describe "best possible" and "worst possible" lives, and that it is more important as a component of the latter. The measurement of health and satisfactions with health and health care are, then, basic components in assessments of the over-all quality of life.

We are not unique in our interest in the quality of life, and we are certainly not alone in our desire to be able to measure health. The recent proliferation of proposed health indicators is largely, and quite properly, the result of different ideas concerning the conceptualization of "health." However, to a certain extent, it is the result of inadequate specification of the concept of health which is employed and the underlying value assumptions. According to Sawhill, "the principal barrier to quantification of health in the long run, at least, is not a lack of meaningful data, but a failure to define what is meaningful, to have a clear idea of what we want in various areas of social concern, or to give operational content to our ideas." (in Pleasas and Fein, 1972, p. 46).

Health is an elusive concept—everyone seems to know what it means, but there is no one generally shared definition. The problem with the various definitions which have been offered, says Moriyama, is that they "imply that 'health' and 'disease' are clear-cut notions," but none provide "any criteria to determine where the state of health or disease begins and ends." (Moriyama, 1968, p. 596). In his paper on the difficulties of operationalizing the concept of health, Sullivan remarks on the quandary of two subcommittees of the U.S. National Committee on Vital and Health Statistics whose task was to specify measurable criteria of health. Sullivan characterizes the committees' work this way: "Their deliberations and recommendations are primarily valuable for revealing the great diversity of meanings which can be concealed by these [health] terms." (Sullivan, 1966, p. 4). Five years after the second subcommittee, Lawton and his associates analyzed thirty different indices of health, trying to find common structures. Their factor analysis yielded definitionally vague factors, with low factor loadings and low explained variances. The researchers concluded: "We hope that this study and others ... will put to rest the idea that there is a single concept of health which may eventually be
reduced to an operational definition." (in Goldsmith, 1972, p. 218)

Lawton, et al.'s conclusion is no surprise if one looks at the variety of variables which have been measured in the name of "health." Consistent with Sullivan's view that "no one index can reflect all aspects of health," (Sullivan, April, 1971, p. 347) researchers have selected such fragmentary and dissimilar components as morbidity, disability, mortality, environmental sanitation, quantity of health personnel and facilities, and health service utilization. However, while this variety in approach is evidence that there is no single operational concept, the theoretical concepts of health which are purported to be measured, are in fact, quite similar. Despite such diverse roots as medicine, sociology, health care economics, planning, and public policy, most current formulations of "health" share three basic ideas. First, there seems to be universal acceptance of the notion that health encompasses a continuum of transitory states, from death to optimal health (though there is considerable disagreement as to how these levels should be defined). Second, there is widespread agreement that psychological and social, as well as physiological aspects are pertinent. Finally, health concepts commonly accept environmental factors, as well as personal characteristics, as being instrumental to the individuals' health status.

The most-quoted, prototypic formulation of this conception of health is that of the W.H.O. (1958) - "health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity." Some examples of other definitions which appear to state similar concepts are:

Sigerist:
"Health is . . . not simply the absence of disease: it is something positive, a joyful attitude toward life, and a cheerful acceptance of the responsibilities that life puts on the individual." (in Goldsmith, 1972, p. 213)

President's Commission on the health needs of the nation (1952-'53):
". . . Health is not a condition; it is an adjustment. It is not a state but a process. That process adapts the individual not only to our physical but also to our social environment." (in Donabedian, 1973, p. 136)

Wylie:
"Health is the perfect, continuing adjustment of an organism to its environment." (Wylie, 1970, p. 103)

Hoyman:
"Health is optimal personal fitness for full, fruitful, creative living." (in Goldsmith, 1972, p. 213)

Dubos:
". . . states of health or disease are the expressions of the success or failure experienced by the organism in its efforts to respond adaptively to environmental challenges." (Dubos, 1965, p. xvii)
4.

Blum:

"Health consists of: 1) the capacity of the organism to maintain a balance appropriate to its age and social needs in which it is reasonably free of gross dissatisfaction, discomfort, disease, or disability; and, 2) to behave in ways which promote the survival of the species as well as the self-fulfillment or enjoyment of the individual."

(in Goldsmith, 1972, p. 213)

These definitions emphasize concepts of well-being, social functioning and harmony with the environment. They are, however, too brief, too abstract and non-specific to serve as a basis for agreement on research objectives or operations. How does one operationalize such notions as "perfect, continuing adjustment," "fruitful, creative living," etc? Moriyama's comment on the W.H.O. definition is applicable to all of these: It "may serve . . . admirably as an ideal or a slogan, but not as a goal to be achieved. Without satisfactory operational definitions of the various terms, it would not be possible to determine if and when a state of health has been achieved by any population." (Moriyama, 1968, p. 586)

Most investigators neither need nor want to measure health in the broad terms indicated by the above definitions. Instead they opt for more manageable, more available components of the total phenomenon of health, selecting those which they judge to be useful and efficient for their own purposes -- whether for research, planning, administration, or descriptive "score-keeping." As a result, most of the measures which have been in use for some time and many of those more recently proposed are what Etzioni and Lehman call "fractional measures" (in Plessas and Fein, 1972, p. 47) -- measures which define a concept in terms of a single indicator. Diverse as these indicators are, two common assumptions underlie virtually all of them. First, it is reasoned that health levels of persons or populations are the direct outcomes of the health care which is (or which is not) received. This somewhat tenuous assumption allows investigators to focus either on persons or on environmental variables and still claim to be measuring the same basic phenomenon, i.e., "health."

Another nearly universal assumption made by researchers in health is that medical science has the "truth," and that healthiness of persons and related variables must be operationalized in terms of physicians' or medical care professionals' evaluations. The measures to which this description applies are generally operationalizable and useful for some purposes. The data they require does not make unrealistic demands on time or money, and interpretation is relatively straight-forward. Thus, for example, cause-specific mortality data are feasible, sufficiently reliable and valid relevant measures if one's purpose is to allocate resources for medical research. Or, if one's purpose is to describe patterns of illness, measures of morbidity at various times and places are called for. The diverse information needs of biochemists, occupational therapists, safety experts, insurance agencies, productivity planners, and population experts may all be partially served by mortality, morbidity and disability data. Medical economists, health planners and policy makers tend to focus more on environmental
variables. Thus, measures of health which they have found useful and continue to emphasize include such things as dollars spent on health care, number of physicians and hospital beds, utilization of facilities, air and water quality, industrial accidents, etc. There is no doubt of the usefulness of measures of these types; however, their limited appropriateness and narrowness as "indicators of health" is also clear when the assumptions upon which they are based are kept in mind.

Besides the fractional measures, there are aggregate health indicators. These combine different kinds of variables and represent them with a single summary score, using "conceptual models as if they were real social units" (Plessas and Fein, 1972, p. 47). These measures are most useful for descriptive purposes, for comparing different population groups and as general measures of success in achieving a given standard of quality of life; therefore, they may serve as guides for planning and resource allocation. When aggregate measures include attitudinal and behavioral variables, they become the domain of social science research. Like the proponents of fractional measures, researchers of aggregate health indicators generally adopt the perspective of the medical profession and concentrate on data which have already been collected for other purposes or which are relatively easy to obtain. Thus, the basis of most of these indicators is morbidity, mortality, and disability statistics, sometimes interpreted in light of or combined with their implications for longevity, productivity, role-performance, or, less frequently, attitudes about health and health care. Some of these combine attention both to the person (or population) and the environment by looking at the interaction between the two. For example, the "Health Status Index" of Bush, et al. (see p.6) is an indicator of levels of functioning with respect to major life-roles, and it can be used in evaluations of the outcomes of health care (Fanshel and Bush, 1970; Bush, Fanshel and Chen, 1972). A number of the recent proposals for aggregate indicators have come from researchers associated with the Department of Health, Education, and Welfare. These include H.E.W.'s "expectation of healthy life" (U.S. Department of H.E.W., 1970), Sullivan's "total volume of disability" (Sullivan, July, 1971), Sanders' "effective life years" (Sanders, 1964), and Linders' "Gross National Health Deficit" (in Moriyama, 1968, p. 592). Studying the literature and research on health indicators has helped us in formulating our model and in planning our research. Some projects which have particularly interested us are described briefly below.

One effort to develop measures of health status which has influenced our thinking is that of Breslow, Hochstim, and Cissin in the California State Department of Public Health. Like the work which we propose, theirs is a generic, rather than disease-categorical, approach to the assessment of health. They have demonstrated the feasibility of utilizing survey methods to obtain laymen's self-reports of various physical abilities, activities and complaints, and to locate respondents on a scale of health levels ranging from severe disability at one extreme to no complaints and lots of pep at the other. We particularly agree with their recognition that "for many types of data related to health problems, household interviews are the best if not the only source" (Hochstim, 1969, p. 2) and that non-disabled and non-morbid states do not necessarily equal optimum health. Their conception of
health is similar to our own in that it encompasses physical, sociological, and psychological dimensions of functioning in major life roles. However, they make two assumptions, one implicit and one explicit, which distinguish their orientation from ours. First, they assume that these three dimensions of health are distinct so that separate measures can be obtained for each. Secondly, they hypothesize that if indices of each dimension are obtained, people will tend to have consistent positions on all three (Hochstim, 1969).

Bush and his associates at the University of California (San Diego) are also developing a "Health Status Index" based on a concept of health which is much like our own. Emphasizing the social implications of health, they have devised a scale of function levels ranging from optimal health to death. From our viewpoint, the most important feature which distinguishes this from most indicators projects is the attention given to specifying values. They point out that the very notion of disease as distinct from health is a value judgement and state that a sensitive measure of health must account for both the frequency and social value or utility of health conditions. Accordingly, their scale of function levels is ordered in terms of associated, measured values. Another feature of their work is the central position given to prognosis. A person's or population's position (or distribution) along the scale of functions is viewed as transitory and associated with a quantifiable probability of change to a higher or lower level. Thus, the physical and mental well-being of individuals or population groups can be summarized in terms of position along the scale of function levels and the expected time to remain in that level. The important distinction between this approach and our own is the question, "Whose values?" Bush, et al., are interested in a consensus of "society's" values and of medical opinion regarding probable futures -- "Where health begins and ends on a continuum from well-being to death is a matter of social values" (Patrick and Bush, 1971, p. 2). Our commitment to understanding individuals' perceived quality of life focuses attention on the individual's personal, even if idiosyncratic, values and in their subjective assessments of their prognoses.

The "Sickness Impact Profile" being developed at the University of Washington (Seattle) is of interest because of its unusual approach. Gilson (Gilson, 1972) describes the measure as a rating of the severity of the impact of illness on the individual, as expressed by that individual, through his behavior. Changes in behavior which result from episodes of illness would be catalogued, by interviewer-observers on the basis of direct observation, the subject's reports, and information obtained from relatives and health care workers. The individual's scores on scaled sets of behaviors related to such things as social interaction, ambulation or locomotion, and intellectual functioning would be presented in profile format. The researchers believe that pretest results indicate the feasibility of constructing a profile which reflects common concepts of health held by both laymen and professionals and whose descriptive detail would be useful for evaluating health care (Gilson, Gilson, et al., 1973).
Of the research currently underway, that by Ware, Snyder, et al., at Southern Illinois University is most similar to ours, both in objectives and in conceptualization of "health." Their interest is to improve evaluation of medical education and medical care by developing and validating measures which take into account the attitudes and beliefs of consumers. Specifically, they are developing scales of: patient satisfaction with services, perceived health, perceived value of health, perceived quality of care, perceived efficacy of care, and perceived institutional efficacy. These concepts, as well as their hypothesized structures, overlap substantially with our own. Using survey methods these researchers hope to tap the belief, attitudinal, and evaluative aspects of each concept. Their interest in the value of health, however, is primarily at the level of determining the position of health in relation to other valued life domains. They consider as "low priority in relation to other project goals" (Ware and Snyder, 1973, p. 16) investigating what it is about health which is valued. Both these questions are central in our proposed studies. Besides the differences in priorities, a very important distinction between this research and what we propose is that Ware and his associates are exploring each of the health concepts separately (indeed, the measures are being developed in separate projects) while we are most interested in the interrelationships among such concepts, their predictors and outcomes. Even more important is that while Ware et al. are concerned exclusively with consumer evaluations of health and health care, our conceptual model focuses on the duality of lay versus professional perceptions.

In addition to the literature which is directly concerned with health indicators, we have made an extensive search of the behavioral sciences literature on health topics. This has provided the foundation of our conceptualization of research variables and their interrelationships. From a variety of non-medical perspectives -- both academic and popular -- this literature describes a wide spectrum of health and health care issues. Medical sociologists describe such things as sick-role behavior, doctor-patient relationships, and the influence of socioeconomic factors on health behavior. Anthropologists describe the different interpretations, evaluations and responses to health phenomena which characterize different cultural groups. And, psychologists offer some research findings on such things as attitudes and concerns about one's body, disability, and aging. However, within this substantial body of literature, there is little discussion of the inherent differences between medical and lay perceptions of health and health care; and, consequently, there is little mention of the implications of these discrepancies for health policy.
THE SUBJECTIVE-OBJECTIVE DUALITY

Our concept of health and approach to its measurement is distinguished from the reviewed literature by a basic difference in treatment of values and frames of reference. The research described above begins with the assumption that there is only one valid, important set of health phenomena -- namely, scientific (medical) facts -- and only one important perspective for interpreting and evaluating these "facts" -- the perspective of the medical profession. We, however, are committed to the duality of objective and subjective frames of reference and the different values each implies. The assumption that both frames of reference are valid and important in efforts to improve health and health care is the starting point of our concept of health.

A person's perceptions of his health status and of the characteristics of health services depend, basically, on his information about them and his ideas as to what they should, ideally, be like. Subjective and objective views are, by nature, different. To the person assessing his own health, certain information is accessible and meaningful; some of this information is and some of it is not fully knowable to an objective viewer. Similarly, some information is exclusively accessible and meaningful to the objective viewer. Depending on the nature of the symptoms and signs, the education and sensitivity of the respective viewers, the two sets of information will be more or less congruent. There may be no overlap at all; take as an example a person who knows only his discomfort and anxiety, with a physician who is only interested in clinical findings.

Discrepancies between subjective and objective viewpoints may also arise in interpretation of the information. The physician, equipped with what he learned in medical school, from his patients and his research, makes a diagnosis and a prognosis. The layman (who may or may not be a patient) frequently makes a diagnosis and a prognosis too -- based on what he has learned from relatives, friends and the media, his personal health history, vicarious experience, hopes and fears, etc. Even when the subjective and objective observers share a good deal of information, differences as to what they judge to be relevant and important may lead to widely discrepant interpretations. For example, while both may be aware of a lump, concern about, say, its visible versus its X-rayed characteristics could result in very dissimilar diagnoses and prognoses. Madow's (Madow, 1967) finding of discrepancies between patients' reports and medical records of chronic conditions is one example of possible differences in interpretation.

Evaluations of health status and health care are judgements of "goodness" or "badness." Beyond such generally held values as "health is good," "pain and disability are bad," there are innumerable other criteria for evaluation which are likely to result in widely divergent subjective and objective evaluations. For example, physicians may be concerned with such things as maintaining their patients' confidence, preserving "affective neutrality" (see footnote, p. 9), improving their professional reputation, and maximizing their income. Patients, on the
other hand, are more likely interested in being able to do their work, avoiding medical expenses, minimizing anxiety, and optimizing their social engagement. The implications of the dissimilar frames of reference for evaluation of health care are indicated in these quotes:

"The professional expects patients to accept what he recommends on his terms; patients seek services on their own terms." (Freidson, 1961, p. 171)

"The initiation of the medical care process and its successful operation depend on the degree of congruence between [the lay and professional] views of need." (Donabedian, 1970, p. 88)

There is still another potential manifestation of the discrepancy between subjective and objective perceptions of health and health care -- the reports given to data collectors. It has generally been assumed that the objective (professional) observer is relatively neutral and, therefore, that his report is unbiased and as accurate as his medical knowledge and observational skills. The subjective observer, however, since he has more immediate concern with the state of health in question, is thought to be more hesitant to disclose information. In an effort to cope with such things as perceptions of their own abnormalities, socially undesirable conditions or inappropriate behavior, individuals reporting about themselves may well give distorted information (or they may have unconsciously distorted the perceptions themselves). It should be obvious too, that objective reporters are influenced by their own motivations for misperceiving or misreporting.

Given the diverse bases underlying perception, interpretation, evaluation and disclosure, researchers should anticipate discrepant reports of diagnoses, prognoses, satisfaction, and appropriate behavior. Discounting the layman's perceptions of his state of health and the health services in his environment, and his interpretation and evaluation of these, has serious implications for health research and for all efforts to improve the public's health. Thus, discrepant reports by a layman and a professional of, say, symptoms or conditions, should not automatically be regarded as indicators of inadequate methodologies (as has frequently been done), but recognized as possible indicators of the success or failure of communication between particular professionals and their clients or between the health care system and the public generally.* For, if information and concerns are adequately communicated professionals and laymen will come to agree about health status, appropriate behavior, and satisfaction with outcomes.

*Wilson (1970, pp. 283-84) has discussed norms of medical practice which, while intended to protect the patient, actually serve to limit communication between the physician and his patient. These norms are "affective neutrality," "universalism" and "functional specificity." The first is defined as the core of the professional attitude toward the patient; it is the "vital distancing mechanism which prevents the physician from becoming the patient's colleague in illness, from entering an emotional compact whose mute provision would destroy his objective judgment..."
To summarize, there are two distinct phenomena of health, two distinct views of health services, two distinct sets of evaluative criteria. "Objective health" and objective views of health care are comprised of data about the individual and his environment as they can be described or measured by the "objective" methods of scientists and health professionals; they exist independent of the subject's perceptions. On the other hand, "subjective health" and subjective views of health care are contingent upon the individual's personal, lay perceptions and they may diverge widely from the objective view. Since no absolute standards for evaluating, or even for defining, health status or health care have been determined, it is arbitrary and unproductive to assume that one set of perceptions is inherently more correct, more valid, or more important than the other.

Neither subjective nor objective data alone constitute a sufficient basis for planning and administering health care. It is our viewpoint that research which will be most meaningful to health planners and those whose function it is to administer, teach, or in any way communicate with laymen about health, must have some grasp of both objective and subjective aspects and must learn the nature and reasons for discrepancies between the two. A person may perceive health needs which are not valid by objective criteria and a physician may advise procedures which are inappropriate to the patient's subjective needs. Differences between the professional's and the layman's view of health and what could or should be done about it are a major cause of preventable illness, over- and under-utilization of services, and non-compliance with physician instructions -- indeed, all kinds of unmet expectations and all kinds of inefficient or inappropriate utilization of health resources. When both subjective and objective perspectives are understood and when the extent of and reasons for discrepancies are identified, it will be possible to assess how well and in what ways the health care system meets the needs of people -- both their objectively determinable needs and their subjectively perceived needs.

RATIONALE FOR CONCENTRATION ON SUBJECTIVE HEALTH

Our review of the health indicators and health behavior research seems to substantiate D'Onofrio's claim that the health profession is characterized by the "technician's uncritical acceptance of his professional point of view" (D'Onofrio, p. 207). And, social scientists, who are at home with subjective data, have so far neither dealt adequately with the objective-subjective duality themselves nor convinced medical professionals of the need to study it. Among the results, "Universalism" is the norm of treating all patients alike. This implies that all patients may be assumed to share the same middle-class values and cognitions. Finally, "functional specificity" compels the physician to limit his attention to the "medical" sphere. Perhaps the goal of health would be better served if providers of care were open to communications about whatever concerns are relevant to patients.
discrepancies between objective and subjective reports have been treated as primarily methodological problems and data which are inappropriate to research objectives (e.g., surveys of laymen to study prevalence of clinical conditions) have been collected. Another result has been the perpetuation of an unwarranted value assumption which has far-reaching implications for all aspects of professional-patient interaction. "Public health philosophies," says Simmons (Simmons, 1966, p. 37), "incorporate the middle-class ethic on the assumption that it is good for everyone." These results argue for the need for research on subjective health.

There is another strong argument for developing health measures which can maximize the importance of the lay public's perceptions and evaluations in the deliberations of policy-makers. That is, citizens have a right to participate in decisions about the allocations of society's resources -- both among different kinds of health programs and whether to health instead of, say, education. As the government's role in health expands and as the long debate on alternative programs continues, citizen input becomes increasingly important. We agree with Strickland (Strickland, 1972, p. 16) that "the public deserves to play a role in finding solutions ... and the views of the U.S. citizen are all the more important because of the apparent inability of health professionals, policy advisors, and public officials to come to agreement."

Our initial research activity will be devoted to clarifying the issues and implications of the concept of subjective health and to developing measures of it. Clarification of popular lay concepts of health and health services has enormous potential for use in efforts to improve the utilization and, consequently, the efficacy of health services. From the viewpoint of the professional, the layman's decisions about health behavior are often based on "mis-information," "errors" of diagnoses, and attitudinal "distortions." Whether the subjective perceptions are viewed as "right" or "wrong," they are the motivators of health behavior and, therefore, important as predictors (see, for example, Rosenstock, 1966; Becker, Drachman, and Kirscht, 1972). Learning about the public's perception of what health behavior is appropriate, feasible, and satisfying, and gaining an understanding of the physical, psychological, and social variables which frustrate or facilitate desired behaviors, will increase the ability to predict and improve health behaviors and expectations. As Suchman (Suchman, 1965, p. 10) states it:

While subjective reports (of symptoms, illnesses and chronic conditions) may constitute doubtful indices of actual disease conditions, they do represent a valid picture of health status of the individual as he perceives it, and may, in fact, be more predictive of how he behaves in the face of illness than the correct medical diagnosis. . . .

Studies which adopt the medical perspective typically concentrate on negative dimensions of health, such as morbidity and disability, rather than on the total spectrum. Many laymen have a more balanced concept of health than do medical professionals, including not merely illness, but such positive dimensions as strength, vitality, and endurance (National Analysts, 1972) and feeling mentally active or alert. A subjective view, therefore, leads to fuller consideration of positive deviations from a symptom-free state and of negative deviations from
very positive (aspired or ideal) states of health. This is important because the individual's perceptions of positive as well as negative health conditions will greatly influence his satisfactions and his behavior. This leads, for example, to the speculation that dissatisfaction among patients may result from a discrepancy between the professional's and patient's health values and ideas as to what constitutes health. The physician may feel that he has been successful when the patient no longer has signs of illness, but the patient may have higher aspirations for himself.

Finally, measures of subjective health are especially suited to our interest in providing indicators which will be useful for describing and improving the health component of the quality of life. Our understanding of life quality is based on subjective perceptions, or as Campbell and Converse (Campbell and Converse, 1972, p. 442) put it, "Ultimately, the quality of life must be in the eye of the beholder." In this context, a person's perceptions of his health (however he conceptualizes "health"), and his perceived ability to utilize resources within his environment to optimize his health have a profound influence on his general life satisfaction. Secondarily, we are interested in the relationships of satisfactions with health status and health care to satisfactions in other life domains, such as employment, housing, safety, etc. Ongoing work at the Institute for Social Research, on several different aspects of the quality of life makes possible comparisons of indicators from various life domains. Of particular interest is the hypothesis that satisfaction with health (and, indirectly, with health care) is a necessary precondition for satisfaction with life in general. Indicators of perceived health and health resources will permit measurement of our position on societal goals in terms of positions on common individual goals.

Meaning of Subjective Health

Subjective health is an expression of the individual's perception of his relationship to his environment. Persons and the environments in which they find themselves exert demands on each other and provide for each other various supplies. When these demands and supplies exist in balanced, harmonious combinations, the personal and environmental characteristics "fit," and the person is "healthy." Health includes the whole spectrum of positive as well as negative states; physical, social, and psychological dimensions; present and future; fact and opinion. This comprehensive view of health is consistent with the goal of learning the extent and nature of the individual's awareness, concern, and motives for what he regards as health. Conceptualization of the research problem has been guided by our objectives to obtain an understanding of the predominant lay views of health, the kinds of data people consider to be health related, the relative importance of different health components, and criteria for evaluating the level of their health.

"Perceived Functioning" The health literature and research findings indicate that the majority of people value good health because of the type and level of activities it allows them to do and fear ill health because it interferes with desired activities (Apple, 1960; DiCicco and Apple, 1960; Wilson, 1970). Research findings, the concept of interacting personal and environmental demands and supplies, and our
interest in a relatively healthy (noninstitutionalized) population lead
to a focus on aspects of health which are relevant to the individual's
ability to function in major life roles, i.e., abilities to meet work,
family, social, and recreational responsibilities and aspirations. This
functional approach is the reason we have labeled the perceived fit of
the person to his environment as "perceived functioning."

Positive as well as negative deviations from the individual's
personal health expectations are accommodated by this functional
orientation. As examples, take the vigorous, athletically inclined
individual who finds that he is unable to perform as well as in previous
years, someone who feels that he just "can't get going," or, on the
other hand, someone who perceives that he is able to work longer and
out-perform his peers.

Attention to both personal and environmental characteristics
accommodate physiological, psychological, social, and physical barriers
and facilitators to functioning. While concerned primarily with physical
health, we do not wish, nor does it appear possible, to make a distinc­
tion between the physical and psychological. So, while no attempt will
be made to measure mental health per se, this research will identify
the extent to which individuals consider mental health variables in
evaluating their ability to function, the extent to which they acknowledge
the effects of mental states on their well-being, their behavior, and
their satisfactions.

In addition to deviations in health variables which affect functional
abilities, our concept of health includes other kinds of positive and
negative phenomena which are either interpreted as indicating some
level of well-being or which are associated with pain, distress, or
worry. Baumann's (1961) study of conceptions of health and physical
fitness finds that laymen have three main orientations toward health.
They understand it either in terms of their ability to perform daily
activities, freedom from symptoms, or the way they feel. Our concept
of health includes each of these different orientations. Also particu­
larly relevant is the amount of worry or concern associated with health
status, whether this is related to life-threat, cost of care, implications
for job security, social desirability, etc. An important research aim
is to discover the relative values of diverse health impacts and to
specify the characteristics of health conditions, of persons and of
environments which are perceived as relevant to health or amenable to
some health behavior.

Existing research indicates that norms of health and illness differ
for various segments of the population. Studies by Koos (1954), Mechanic
(1968), Suchman (1964, 1965), Phillips (1965), Zborowski (1952),
Hollingshead and Redlich (1958), Harris (1968), Hetherington and Hopkins
(1969), and King (1962) reveal differences according to certain demo­
graphic, cultural, and personality characteristics. For example, Harris
(1968) reports that nearly two-thirds of Americans say that "feeling
fine" means "nothing is wrong" with them, while nearly two-thirds of
ghetto blacks and poor rural whites say "feeling fine" means "not as sick
as usual." Different cultural and social environments provide people
with different frames of reference for viewing health and different
standards for evaluating it. For some, health may be perceived in
relation to other times, such as "When I was young," while for others
it may refer to "when I had my operation," or to other persons, such as a sick friend, a spry grandparent, or an athletic idol. Health may be evaluated either in view of realistic expectations or idealistic aspirations.

Another element of central importance to the concept of health is "subjective prognosis." Much of the individual's current behavior and his satisfaction with his health and with the health facilities available to him arises from his perception of what his health will be like in the future. This may be a prediction of the course of a specific morbid condition from which he suffers at present or it may reflect a more generalized expectation of his future health needs and the ability of his health environment to permit him to cope successfully with these needs. He may expect change or no change in status and he may locate expected change either in himself or in the environment. The subjective prognosis is derived from one's health knowledge, personal and vicarious experience with different degrees of health and with particular conditions; his confidence in his abilities to withstand environmental threats (e.g., resistance to illness) and his confidence in the efficacy of available health care. Prognosis is then an essential element in assessments of health status and of health care.

"Perceived Need-Meeting Capacity" The discussion so far has focused on the layman's perception of himself, his personal abilities and bodily sensations. In evaluating his health, however, the individual considers not only his personal characteristics, but also certain characteristics of his health environment, particularly the health care which is available. He evaluates both health care and his own health in view of his perceptions of the capacity of the available health services to meet his present needs and anticipated future needs, that is, to maintain or restore his health. For shorthand we have labeled this second kind of person-environment relationship "perceived need-meeting capacity."

Taking the frame of reference of the consumer or potential consumer of health services leads to a consideration of the health environment which differs in concept from those used by investigators interested in describing elements of the health system per se. Parallel to the subjective and objective orientations toward health there is a duality of viewpoints toward the environment. The purposes and objectives of some health professionals call for "objective" information about the environment -- the number of physicians available to a population, the number of hospital beds, the accessibility of ambulance service, the cost of care, etc. Laymen perceiving their health environments, however, have a much broader range of concerns. In addition to the environment's capacity to improve their clinical condition, laymen are concerned with the demands made on them personally by those who would provide help. They are concerned with such variables as: how much will it cost? is the doctor pleasant? is his office convenient? does he keep appointments on time? does the hospital have a "good reputation?" etc. Many are also concerned with the care provided by non-medical components of the health environment -- such providers of care as chiropractors, faith healers, Christian Science practitioners, etc. (In order to
Include use of these non-medical providers of care in our study of health behavior, we use the expression "health care" rather than "medical care" throughout our work. As the variables which are relevant to the subjective viewpoint suggest, individuals perceive the health environment in terms of its appropriateness, accessibility, and helpfulness to themselves. The subjective health environment can then be defined as the repository of all the resources an individual looks about for improving or maintaining health, and characteristics of those resources which act as facilitators and barriers to the fit between his needs, abilities, and motives to utilize resources. This includes resources which are relevant to current needs as well as to anticipated future needs ("potential needs").

The variables which influence the layman's (and not the professional's) evaluation and attitudes about the need-meeting capacity of environmental resources include such things as the extent and nature of his experience with health services, his psychological needs for, e.g., sympathy, patience, respect, and the health attitudes and expectations of his family and friends. Some variables, for instance, competence of doctors and adequacy of facilities, are important to both laymen and professionals, but these are likely to be evaluated differently. In evaluating accessibility of services, professionals generally are concerned with travel time and distance, ratio per population, and cost. For the layman other aspects as well are salient -- does he have the car today? how long will it take? will the doctor really understand him? will he understand the doctor? The effectiveness of any of these variables as barriers or facilitators to the behavior which seems appropriate to the individual depends on the environmental supplies and on the relative values he attaches to alternative behaviors. The extent to which a physical check-up meets a person's needs depends on whether his environment provides a competent physician to do it, sick leave, and expendible income (among other things) and on the relative values of getting preventive care vs. using the time or money for other things. Clearly, the important role of the layman's personal values must be given full consideration.

**Health Behavior**

As used here, "health behavior" is considered to be any behavior by which individuals endeavor to improve or maintain their present perceived health status or their anticipated future health status. This includes such traditional variables as doctor visits and consultations when ill and preventive behaviors such as getting check-ups and it includes any activities which people do or avoid doing because of their perceived health implications: using seat belts, knowing emergency phone numbers, dieting, exercise, etc. In addition to utilization of medical services, our interest includes assistance provided by other practitioners and other laymen. It includes self-prescribed behaviors as well as those recommended or required (e.g., physical exam required for insurance) by other persons.*

*Though the distinction about whose decision it was should be made whenever possible.
Health behavior may be motivated by perceived need for advice, referral, diagnosis, preventive, or therapeutic services. And, we make no pre-assumptions either about the individual's current health status or the utility of the behavior. (Obviously, these are too many behaviors fitting this definition to explicitly investigate in a single research project.)

Within the context of health behaviors, some broad distinctions can be made according to the concepts of the person-environment fit model. First, there is the distinction between coping responses and psychological defenses. Coping responses are those by which the individual takes positive steps to improve his fit, either by changing something in himself or in his health environment. These are the kinds of behaviors we are initially concerned with. In defensive behaviors, the individual attempts to improve his fit either by distorting his perception of his condition, his perception of his environment, or of the value of fit itself. These include such behaviors as rationalizing, exaggerating, and denial, behaviors which may manifest themselves in response-bias.

Another distinction can be made between personal health behaviors, those defined above, and what we call "environment-oriented health behaviors." The former are oriented to improving or maintaining perceived functioning (the individual's abilities to meet environmental demands); and the latter are oriented to improving or maintaining "perceived need-meeting capacity" (the environmental supplies for satisfying the individual's needs). Some examples of these environment-oriented health behaviors are: donating blood, volunteering to work for the cancer society, and voting for candidates who share one's values concerning how health services should be allocated. There are cases in which behavior oriented toward the environment, rather than a complementary personal health behavior, is more appropriate for improving health, when assessed by such criteria as efficacy, efficiency, facility, and permanence of result. Joining a citizens' group to pressure for pollution control may be perceived as beneficial for both the individual and others in his environment. The implications of this for health education policy are obvious. An individual's attempt to change something in his environment is an indication that he perceives barriers to obtaining help or inadequacies within the system of personal health services. Environment-oriented health behaviors are indicators of personal and social values and have implications for the kind of health environment which citizens expect or desire. Most importantly, these behaviors, more than mere verbal expression of social values and attitudes, indicate the kinds of public policies individuals will support and the kinds of social programs for which they will work.

The literature indicates general agreement that the behavior in which the individual actually engages is the result of three kinds of variables: perceptions of need, of ability to obtain help, and predisposing factors. Different researchers have named these three kinds of variables differently and have given them different relative weight as determinants of behavior. Our concept of health organizes them in a way which recognizes them all and allows for differences in their relative importance for different people. We view the individual's perceptions of his health status and health needs as the starting point
in his decision process. That is, perceived need is usually the major force in an individual's health behavior. The severity, urgency, familiarity, and particular nature of the perceived need are important criteria which guide him in determining what special behavior, if any, is called for. Then, whether or not the behavior which the individual believes to be appropriate is that which he does depends largely on his perceived ability to do it. Whether or not he has a regular source of care, can afford to pay for it, can leave his normal responsibilities long enough, and can get to the source of care himself are examples of major "enabling factors." In combination or individually these may make desired behaviors difficult or impossible. It is important to realize that the individual's estimation of his ability to secure care may, objectively, be very wrong. * Individuals may fail to seek care because they think, erroneously, that no help is available. And, on the other hand, a difference between the behavior the person engages in and that which a professional advises may be misinterpreted as the result of different perceptions of need when it may in fact be the result of insurmountable barriers intervening between the individual and the desired action.

Perceptions of need and ability to secure help predispose individuals toward various health behaviors. Other important predisposing factors are values, motives, expectations, habit, opinions, and attitudes about seeking help, about being healthy, and about the specific services which are available. Particularly important is previous satisfaction with or perception of the need-meeting capacity of available resources. This will influence both one's desire to obtain help and the specific resource which he thinks will help. A person who has little confidence in physicians and has had success with non-prescription drugs is likely to be predisposed toward self-medication. The person who feels that his information about health conditions and appropriate behaviors is inadequate, may be more likely to seek another person's advice and less likely to rely on self-help.

Satisfaction

Satisfaction with health status and satisfaction with health resources are topics of central interest to the study of health because of their role in perceptions of quality of life and pivotal position between past and future health behaviors. This research regards satisfaction both as predictors and as outcomes of perceived-functioning and of need-meeting capacity.

Satisfaction with Health

The centrality of satisfaction with health in the individual's over-all view of his life quality has been discussed earlier. Other relevant aspects of satisfaction with health include the role of satisfaction in motivating health behavior and its usefulness as an outcome measure of the efficacy of health behavior. Satisfaction with health is closely tied to perceptions of health needs which were considered

*For this reason, studying subjective perceptions of ability to secure help is especially pertinent in research on discrepancies between objective and subjective perspectives.
above as motivators of health behavior. If a person is satisfied with his perceived health status, he perceives that his needs for health have been met, i.e., that his functioning is adequate. Or, if he is dissatisfied, he perceives that he has unmet needs (though he may not know what they are), and that his functioning should be improved. Once the individual has acted he evaluates the effects on his health status. If he perceives improvement in his health or lessening of his anxiety about it, he will be more satisfied. If he attributes the improvement to a particular action, he is likely to repeat this behavior when the need is again present.

The extent to which the individual expects his needs and values to be met plays an interesting role in mediating satisfactions with health and with health care. In different aspects of perceived functioning and perceived need-meeting capacity, different degrees of fit may be satisfying to a particular individual. Certain kinds and amounts of misfit between personal and environmental components are accepted as the best that can be expected or tolerated as good-enough fit. This happens when limitations of either the person or the environment (or both) are perceived to be unchanging or unchangeable. Many people are satisfied with their abilities to function despite physical handicaps, and many others accept air pollution or expensive hospital care as necessary evils. This may be the result of revising downward their values to more closely match their expectations of personal abilities or environmental resources. This implies that measurable discrepancies between personal and environmental components are not always correctly interpreted as indicators of dissatisfaction.

Satisfaction with Health Care

Perceptions of and attitudes toward the need-meeting capacity of resources for coping with health problems are salient on two levels; the level of specific resources and the level of the formal health care system as a whole. Individuals may, then, have two dissimilar sets of attitudes and information which affect their satisfactions and their behavior. For instance, opinions and information about specific helpers (persons or facilities) directly affect which health action is taken, and attitudes about the system generally may serve either as a barrier or a facilitator for all health behaviors. Some of the same factors give rise to attitudes at both the general and specific level; however, they may not determine the same attitudes. For example, while higher levels of education have been found to be associated with greater satisfaction with professionals' competence (Hulka, Zyzanski, et al., 1971), increased education is likely to also be associated with increased awareness of and dissatisfaction with the low professional standards characteristic of parts of the health care system.

Recognition that consumers' satisfaction with health resources is a major determinant of health behavior and providers' increasing attention to consumer opinion generally have spurred a number of recent studies to determine which characteristics of health care are important to various kinds of consumers. In Koo's (1954) study of "Regionville," a town chosen for its "averageness," respondents chose as their family doctor someone whom a friend recommended, whom they knew socially, or who had served the family in a previous generation. Preferred
physicians were those who would make house calls, would prescribe as the patient requested, didn't press for payment, and, in general, were considered "our kind of doctor." Alpert, et al. (1970) studying low income mothers, found that satisfaction with pediatric care depended on waiting time, feeling that the doctor gave enough time, finding the doctor and nurse easy to talk to, and believing that the doctor explained just what the trouble was. And to Mechanic's (1968, p. 160) sample of Madison, Wisconsin mothers, a sample which provided a "strong middle class portrait," the most important attributes of a "good" doctor were competence, personal interest in the case, and general behavior toward the patient. Research findings provide strong evidence that consumer concerns frequently relate to the aspects of care which professionals consider superfluous, secondary, or even, out of their domain. But to patients, who are generally unequipped to evaluate the medical aspects of care, the other aspects are extremely important. For instance, the quality of the hotel services which hospitals must provide may indeed be secondary to the quality of the medical services, but they play an important role in the patient's morale, and hence, frequently in his speed of recovery and willingness to return to the hospital in the future. In relationships with private physicians, in hospitals and in clinics, it is evident that the patient's degree of satisfaction is largely due to the extent and nature of the interpersonal relationships. Koos found this 20 years ago, and in the meantime health care has become increasingly fragmented and depersonalized. Such variables as adequacy of communication between consumer and provider, social support, trust, and personal interest, therefore, are not merely important, but perhaps increasingly important as predictors of the consumer's satisfaction with care and his subsequent behavior.

Among the factors which affect attitudes and opinions, about both health and health resources, it is expected that demographic characteristics such as race, age, sex, income, ethnicity, urbanity, and education will differentiate persons. Some of these will correlate with degrees of favorableness toward the health care system generally because of different value standards and different experiences which characterize the involvement of different groups in the system. For example, persons who have experienced discrimination and indignities within the health delivery system, whether because of their race, poverty, or ethnicity, will develop opinions and attitudes which are quite negative compared to those of middle-class, white suburbanites. And, immigrants who are accustomed to scarce medical services in their country of origin may feel that, in comparison, the prevalence of illness and meager health services in America's ghettos are acceptable.

THE OPERATIONAL MODEL

The conceptual basis for this research is the "Person-Environment-Fit" model of French, Rodgers, and Cobb (1974). This is a general model of the relationships between persons and their psycho-socio-physical environments and of the subjective/objective duality; it is particularly relevant to health variables. The model is a useful scheme for conceptualizing the individual's behavioral and affective responses to his relationship to his environment and it provides a basis for development of measures. The key components of the model have been discussed earlier in this paper. The model is presented here to draw these
components together and to clarify some of their inter-relationships.

Figure I illustrates the subjective/objective duality of the person, his environment, and their interrelationships. Here it may be useful to restate the meanings of the major components of objective health and subjective health. The "subjective person" consists of one's perceptions about himself, his physical characteristics, traits and abilities; the "objective person" refers to the individual as he appears to "objective" observers such as health professionals. Similarly, the "subjective environment" refers to the psycho-socio-physical environment as it exists in the perceptions and attitudes of the individual; the corresponding "objective environment" exists outside the individual and is independent of his perceptions. In Figure I, the broken lines joining the subjective person to the subjective environment and the objective person to the objective environment represent the degrees of "fit" between the needs and abilities of the person and the supplies and demands of his environment. The parallelism of the model suggests that just as components of the individual's perception of himself and his environment may be either closely matched or widely divergent, so may the components of the objectively viewed person and environment.

The model proposes that improving our understanding of why the individual behaves as he does toward his health involves study of the individual's subjective view of his health, his health environment, and their fit. The arrows in Figure I (and the detail in Figure II) show how studying the person, his environment and their interaction will permit prediction of behaviors and satisfactions. Specifically, the horizontal arrows in Figure I represent the direction of influence between the person-environment fit and the person's behavioral and affective responses. The diagonal arrows indicate that components of either the person or his environment may have an independent influence on the response (see pg.24)*.

The agreement or discrepancy between subjective and objective responses is another important dimension. This potential discrepancy is represented by the horizontal broken line connecting the two response boxes. Subjective responses include the individual's decisions about what health behavior is appropriate, his actual behavior, his satisfactions with health care and his health status. Objective responses are the health professional's evaluation of the subject's behavior, of the quality of health care, and of the subject's health status. (It should be pointed out that health status may or may not actually be influenced by health care.) Comparisons of the agreement or discrepancies between corresponding responses would provide a basis for evaluating health behavior and attitudes, for determining whether or not they are appropriate, whether they are based on false information, biased perceptions, negative attitudes, etc.

*For purposes of clarity, other hypothesized directions of influence among components of the model are not shown. Examples of important additional relationships are the influence of objective reality on subjective reality, and the feedback from responses to perceptions of the person and environment.
LEGEND: The model illustrates the parallelism of the subjective and objective elements of health. Arrows indicate the direction of influence. Broken lines represent discrepancies. Subjective and objective responses include valuations of the interaction of elements of the person and environment. These are designated, respectively, as "satisfactions," and as "evaluations."
To the extent that objective and subjective perceptions and evaluations are different, behaviors which professionals and laymen consider appropriate and their affective responses will constitute two distinct sets of responses, as depicted in Figure I. Discrepancies between these sets of responses are indicators of such things as poor communication between physician and patient, inappropriate patient management, ineffective cures, failure to seek needed health care, and unmet expectations. In fact, however, those professionals and laymen who come together in a provider-patient interaction at all, usually share some common information and motivations. This degree of commonality will be reflected in their responses so that, for example, the more similar their respective information and motivations, the more similar will be the professional's assessment of quality of care and the patient's satisfaction with that care.

The apparent simplicity of this version of the P-E fit conceptualization of health should not obscure the fact that operationalizing the model requires a good deal (and allows an almost endless amount) of specification and elaboration. The model presented in Figure I provides the conceptual framework for an entire long range program of research. Our first research interests take two major directions. These are:

1) Studies which describe the subjective health, health environments, and responses of populations (of cities, regions, or the nation) and relevant component groups within these populations.

2) Studies of more restricted population groups which include both subjective and objective components of health and permit studying the discrepancies between the two.

A third goal is to integrate methodological investigations within the substantive studies. This would permit research to proceed simultaneously on both substantive topics and methodological findings geared to improve the measures.

A more operational statement of the model is needed to clarify the basis for these research objectives. An enlargement of Figure I, Figure II details the major sub-concepts of the subjective person and his environment, namely, needs and abilities, supplies and demands. (A model of the objective elements would be parallel.) Examples of needs are: perceived need for strength and endurance, for supportive inter-personal relationships, or for a medical check-up. Abilities include perceived ability to do physical labor, self-confidence, and ability to pay for desired health care. The subjective environment is composed of such supplies as a convenient pharmacy, or sympathetic spouse, or an adequate supply of physicians; and such demands as an occupation demanding agility and speed, or a family problem demanding emotional strength, or a hospital demanding proof of health insurance. These refinements of the model, general as they are, illustrate how various measurable dimensions of fit (health) can be derived. That is, different dimensions can be expressed quantitatively by matching the person against corresponding environmental characteristics, as indicated
FIGURE II - SUBJECTIVE HEALTH

SUBJECTIVE PERSON
1. Perception & Evaluation of Health Needs:
   a. Physical requirements
   b. Psychological needs (including values and expectations)
   c. Needs for health care

2. Perception & Evaluation of Health Abilities:
   a. Physical strengths and weaknesses
   b. Psychological and social strengths and weaknesses
   c. Resources (e.g., money, time for securing health care)

SUBJECTIVE ENVIRONMENT
1'. Perception & Evaluation of Health Supplies:
   a'. Safety and healthfulness of physical environment
   b'. Available social and psychological support
   c'. Available health care facilities and personnel

2'. Perception & Evaluation of Demands on Health
   a'. Physical demands of life roles, aspirations, and goals
   b'. Psychological and social stresses
   c'. Barriers and facilitators to securing health care

LEGEND: The model represents the interaction of characteristics of the person with characteristics of his environment and how these influence responses.

Pairs of similarly numbered items within the person and environment boxes (e.g., 1a and 1'a', 2c and 2'c') indicate commensurate dimensions whose "fit" predicts to responses.

Arrows indicate the direction of influence. Broken lines represent discrepancies.
in Figure II by the numbered pairs, 1:1', 1a:1'a', 1b:1'b', 2:2'. This can be done for any number of person and environment variables (i.e., for more detail than given in Figure II) so long as the paired variables are conceptualized on commensurate dimensions. This means, we must ask, for example, "How much of the environmental supply does the person need to completely satisfy his motive?" and "How much of this supply is available in his environment?" The answers to both questions can be located on the same scale, and these scaled responses provide a measure of P-E fit by subtracting the demand from the supply (ability from demands, needs from resources). The fit between a person's eyesight (2a.) and a job requiring attention to detail (2'a) is an example of what we have called "perceived functioning." The match between a person with no means of transportation (2c) and a doctor who refuses to make house calls (2'c') or between need for a personal physician (1c) and availability of a physician who will take that person as a patient (1'c') are examples of "need-meeting capacity."

As the arrows in Figures I and II indicate, health behavior and satisfactions are determined by needs, abilities, demands, and supplies. Discrepancies between paired dimensions will predict to the various behavioral and affective responses (because the basic concepts from which they are derived have interdependent effects); even after the predictive power of the components taken separately have been accounted for (i.e., partialled out of the dependent variables). In principle, we would make an even stronger assumption, namely that the basic concepts of demands and supplies (or demands and abilities) have no independent effects; each is important only in relation to the other. However, the existing means of measuring each concept are far from perfected, so that pure measures of supplies, uncontaminated by demands, or vice versa, are unlikely to be available for some time. For this reason, only the weaker assumption is made at this time (French, Rodgers, Cobb, 1974).

CONCLUSION

This discussion has presented our viewpoint and conceptual formulations for studies of health and health care. These constitute a comprehensive approach, with potential for a full program of research. To date, we have completed two exploratory investigations to test our concept of subjective health and the layman's responses to his health status and health care environment. In addition, a doctoral dissertation using the conceptual model to study dental health and dental health care is being conducted. Based on these preliminary studies in the health area and on more complete studies of person-environment fit in other areas, we believe that this conceptual formulation will yield a better understanding of the operation of the health care system and a better basis for health planning.
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