

To the Graduate Council:

I am submitting herewith a dissertation written by Frederick Bounty Henning entitled "Contracting for Health Risk Behavior Modification in a Rural Setting." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.

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CONTRACTING FOR HEALTH RISK BEHAVIOR
MODIFICATION IN A RURAL SETTING

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville

Frederick Bounty Henning
August 1981

3053633

Nothing so needs reforming as other
people's habits.

--Mark Twain

ACKNOWLEDGEMENTS

The author is extremely grateful to his wife Theresa Margaret Henning for her continual help and encouragement throughout the past three years. Without her, the effort would have been meaningless. Special thanks to my daughter Meggie for her cooperation.

Special appreciation is also extended to Dr. Warren Huffman for his understanding and advice. He gave invaluable assistance on more than one aspect of this research.

The author is particularly indebted to Dr. Andrew Brown for his help in the beginning of this project. He provided the opportunity to enhance the author's educational and professional growth.

Invaluable guidance and support has been provided by Dr. Bill C. Wallace, Dr. Velma Pressly, and Dr. Francis Trusty.

The author also extends appreciation to Dr. Wayne Wylie, Dr. Rick Boyd, and Mr. Shelton Clark for their assistance. The author is greatly appreciative of all the support received from his fellow graduate students.

Finally, the author is particularly grateful to his father Frederick J. Henning for his valuable comments and continual assistance throughout the years.

Without the financial support of the Tennessee Valley Authority and Levi Strauss and Company this research project would not have been possible.

ABSTRACT

The purpose of this research was to measure the effectiveness of contracting with support procedures to initiate positive health behaviors and attitudes among rural residents. A health promotion program was provided as a service of the Union County Medical Clinic, Maynardville, Tennessee. The focus of the program was to encourage willing participants between the ages of 25-65 to take an active role in improving their overall health status.

A sample of 34 volunteers were randomly assigned to one of two groups: control or experimental. All the subjects were pretested on their current health status and behaviors according to a Health Risk Appraisal Questionnaire. A Semantic Differential technique was also used to measure their attitudes toward specific health related concepts. Each subject was later provided with the Health Risk Appraisal results and received appropriate health education information. In addition, the individuals in the experimental group participated in a written contractual agreement procedure.

The contract used stipulated specific goals, time frames, and contingencies which the subjects were actively encouraged to establish and follow. To help maintain interest in the contract, the participants were contacted weekly by mail and by telephone. All health information and contracting arrangements were presented by a trained

Health Education Aide. The health information and contracting procedures that the Aide used were prepared in advance.

Both the experimental and control group were posttested after three months using the Health Risk Appraisal Questionnaire and Semantic Differential.

Data for this research were gathered and statistically analyzed using the Analysis of Variance, t-test, chi-square, and paired t-test.

The following questions were studied:

1. Will contracting with support procedures lead to a reduction in appraisal age?
2. Will contracting with support procedures change the projected causes of death?
3. Will contracting with support procedures lead to a decrease in risk reduction recommendations?
4. Will contracting with support procedures in the experimental group lead to a risk reduction in the area the subject contracted?
5. Will contracting with support procedures change attitudes toward the following concepts: Health Contracting, Health Information, Health Counseling, Personal Responsibility for Your Health Care, Early Detection of Disease, Prevention of Illness, Willingness to Change a Poor Health Behavior, Health Hazard Appraisal Questionnaire, Yearly Physical Examination, Ability to Improve Your Health?

From the analysis of the data it was determined that the contracting procedure utilized in this study did not initiate positive health behavioral changes or bring about a reduction in specific health risks. There were no significant changes in attitudes.

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CHAPTER I

INTRODUCTION

To continue to improve the health of the American people it is essential to combine programs that will prevent, as well as, strive to cure illness and injury. Emphasis on preventing the causes of health problems should reduce both suffering and the burden of excessive medical costs.

It is recognized a person's lifestyle can be a direct cause of, or significantly contribute to both his/her health and well being (44). Each year thousands of Americans die prematurely or are disabled due to inappropriate health behaviors.

In the United States billions of dollars are spent annually for health care and related expenses.

1. Expenditures for health care rose from \$42 billion in 1965 to \$212 billion in 1979, an average annual rate of growth of 12.3 percent (31).
2. In 1960 we spent less than six percent of our GNP on health care. Today, the total is about 9 percent. Almost 11 cents of every Federal dollar goes to health expenditures (39).
3. It is projected that, under current legislation, national health expenditures will reach \$279 billion in 1981, \$462 billion in 1985, and \$821 billion in 1990 (31).

Rising costs are one of the most pressing problems of the nation's health care system. An effort must be made ". . . to help restrain inflation in health care costs by relieving some of the preventable demands on health services" (18).

Until recently most of the resources within the health care system have been directed to ". . . treatment of disease and disability rather than prevention" (39). However, as the understanding of causes and risk factors of chronic diseases becomes more evident, emphasis on prevention of illness is possible. At present modern medicine can do little to affect the underlying problems causing many of the illnesses and premature deaths in our society. "Most of the bad things that happen to people are at present beyond the reach of medicine" (99). Health promotion must go beyond the present traditional medical care system and attempt to help people improve their lifestyles.

According to Fuch (32) the greatest current potential for improving the health of the American people is to be found in what they do or don't do to and for themselves. The Surgeon General's Report on Health Promotion and Disease Prevention, 1979 (39), emphasized:

For the individual often only modest lifestyle changes are needed to substantially reduce risk for several diseases. And many of the personal decisions required to reduce risk for one disease can reduce it for others.

Individual actions regarding smoking, use of alcohol, choice of diet, exercise, involvement in periodic screenings, speeds traveled on the highway and whether or not seatbelts are used are all of crucial importance. It is evident that appropriate action in these areas would do much to enhance the prospects of good health for many Americans (39).

To bring about the needed changes people must be

sufficiently motivated and educated. The purpose of health education is to promote behavioral changes ". . . from behaviors that are presumed to be detrimental to behaviors that are presumed to be conducive to present and future health" (44).

One behavioral self-management methodology used by health educators is contracting. It is designed to facilitate voluntary skill development and initiate behavior change. At present, few health promotion educational programs utilizing self-management strategies are being implemented in rural settings.

I. PURPOSE OF THE STUDY

The purpose of this study was to determine the effectiveness of contracting with support procedures in modifying specific health risk behaviors and attitudes among rural residents.

II. STATEMENT OF THE PROBLEM

The basic problem was to design and implement an experimental health education and behavior modification strategy which would initiate a positive change in individual health behaviors.

This study attempted to answer the following questions:

1. Will contracting with support procedures lead to a reduction in appraisal age?
2. Will contracting with support procedures change

the projected causes of death?

3. Will contracting with support procedures lead to a decrease in risk reduction recommendations?
4. Will contracting with support procedures in the experimental group lead to a risk reduction in the area the subject contracted?
5. Will contracting with support procedures change attitudes toward the following concepts: Health Contracting; Health Information; Health Counseling; Personal Responsibility for Your Health Care; Early Detection of Disease; Prevention of Illness; Willingness to Change a Poor Health Behavior; Health Hazard Appraisal Questionnaire; Yearly Physical Examination; Ability to Improve Your Health?

III. NEED FOR THE STUDY

Two primary objectives of health education are to:

1) provide opportunities for people to become more knowledgeable about health, and 2) instill in the target population the importance of taking active responsibility for their own well-being.

Today the major causes of death for ages 25-64 years are: heart disease, cancer, stroke, cirrhosis of the liver, and accidents, in this order (39). The incidence and effectiveness of treatment of all of these maladies are strongly influenced by the individual's personal health behaviors.

It is self-evident that early warning and diagnosis of disease increase the opportunity for effective treatment with a subsequent reduction in the patient's physical impairment and financial burden. It is essential to concentrate on what is causing the health problems rather than waiting for the problem to occur. "The challenge is one of altering or modifying reckless behavioral patterns to those which are health generating" (84).

Health education can change the present crisis and cure oriented medical system by emphasizing prevention. It is generally agreed that preventive care programs must be part of health care systems. If people's health knowledge, attitudes and behaviors can be positively influenced, the effect on the general health status of the nation may be significantly improved. According to Shirreffs, "An . . . educated individual will be able to act affirmatively and constructively in managing health problems" (84).

Americans should become more responsible and involved in their own health. This is especially a problem for people in rural areas. Health services in outlying districts of America are scarce, poverty is often prevalent, transportation facilities are inadequate, and educational opportunities are limited. Small populations scattered over large areas tend to make rural areas difficult and costly to serve. There is little doubt rural people will be better off if they learn to take an active personal

responsibility for protecting and promoting their health.

Health education can help by promoting needed lifestyle changes and guiding people in the proper utilization of available preventive health services. Eventually this effort should begin to relieve some of the strain on the health care system and reduce the individual hardships faced by many in rural areas.

Health educators should develop and utilize methods and procedures to effectively promote preventive health behaviors. One such method is contracting, a behavioral self-management technique, used to bring about the necessary changes. By implementing and evaluating strategies which have the potential of modifying specific health risk behaviors, health educators may be able to make significant contributions to overcome the prevailing health problems.

IV. DELIMITATIONS

The study was delimited as follows:

1. Participants were Union County, Tennessee, residents, 25-65 years of age.
2. The educational information provided to the subjects depended on their needs according to their Health Risk Appraisal Questionnaire printout and their areas of interest.
3. The focus of the health information program was restricted to five-eight minute presentations in

the following areas: alcohol, diabetes, self-breast examination, weight control, smoking, hypertension, exercise, seatbelts, mental health, and cervical cancer.

4. The program was actively conducted from September 1980 to January 1981.
5. The follow-up data were collected three-months after the first encounter with the subjects.

V. LIMITATIONS

The study was limited to the following areas:

1. All participants involved in the program were volunteers.
2. The Health Risk Appraisal Questionnaire utilized measured specific health risk behaviors.
3. The risks identified were limited by projected causes of death experienced by the subjects' corresponding chronological age group.
4. Information provided by the subjects regarding family history was dependent upon their memory and knowledge of such events.
5. Occasional inconsistencies between pretest and posttest Health Risk Appraisal Questionnaire answers may have influenced the results of the study.
6. Blood pressure, weight, and height were the only specific medical measures taken.

VI. ASSUMPTIONS

It was assumed in this study that:

1. Subjects responded honestly and to the best of their ability.
2. The information program and contracting procedures were uniformly provided to each participant in the study.
3. Both the experimental and control groups were equally influenced by external information and experiences.
4. The Health Risk Appraisal Questionnaire used in this research was a valid health risk evaluation instrument. The researcher was aware the Health Risk Appraisal Questionnaire had certain deficiencies. Risk factors in some areas are determined by professional medical actuarial judgments rather than extensive epidemiological research findings. However, the Health Risk Appraisal Questionnaire is a valid representative of the available instruments currently in use.

VII. DEFINITION OF TERMS

The following terms were adopted for this study:

Appraisal Age. The age compatible with an individual's health risks. This means an individual has the same chances of dying in the next 10 years as any person of this age.

An appraisal age younger or older than this chronological age does not mean an individual will live longer or die sooner, but that the individual's chances of dying are the same as a person of this appraisal age. For example, a 30 year old woman with high personal risk and risk-taking behavior may be appraised at 35 years of age.

Benefit Age. The age compatible with reduced risk factors after recommended changes are made.

Contracting. A written commitment that specifies the actions which have been agreed upon to take place to reach a specific goal, by the Health Education Aide and the subject.

Goals. Long term designated objectives, for example, lose weight, stop smoking, or exercising.

Health Education Aide. A part-time paid individual, indigenous to the community. The aide is trained to conduct a specific health education program under the direct guidance of a fully qualified health educator. The aide acts as a liaison between the health related disciplines and the consumer.

Health Risk Appraisal Questionnaire. A computerized questionnaire identifying individual risks which may lead to premature death, illness, or injury. It was developed through The Society of Prospective Medicine by John W. Travis, M.D., and published by Health Hazard Appraisal, Methodist Hospital, Indianapolis, Indiana. This

questionnaire is currently utilized by the Health Hazard Appraisal program of the Tennessee Department of Public Health.

Lifestyle. Refers to an individual's manner of living. In this report the term is used as it relates to the health behavior patterns that are considered to be a risk factor and/or precursors of major diseases or injury.

Self-rewards. Self-reward involves the self-presentation of rewards following the occurrence of a desired behavior (36).

Targets. Short term objectives which will eventually lead to the accomplishment of a goal.

CHAPTER II

REVIEW OF RELATED LITERATURE

The first section of the literature reviewed for this study focused on three general areas: 1) barriers to health care in rural America, 2) factors which affect health care decisions, and 3) the Southern Appalachian people. The second half of the literature reviewed concentrated on contracting, a behavioral modification strategy.

The literature search revealed that the barriers to health care in rural America are formidable and attitudes and behaviors, regardless of setting, are influenced by a wide variety of factors. Contracting as a behavioral modification procedure was revealed to be an effective motivational technique in a number of different situations.

I. BARRIERS TO RURAL AMERICAN HEALTH CARE

Approximately 56 million people now live in rural America. They are scattered throughout all regions of the country: the West, the Midwest, the Northeast, and the South (5). Rural Americans represent approximately 27 percent of the total population; they also represent 40 percent of the nation's poor. As Nolan and Schwartz (72) emphasize, ". . . the rural poor in this country number some 14 million." And Konyha (51) reported ". . . one out of every six people in rural areas have

incomes beneath the poverty level." Common characteristics of rural areas are: sparse population, low family income, inadequate schools, and a limited accessibility to health care.

The people living in rural America are facing special health needs. Many, according to Bible (10) ". . . lack goods and services considered essential to quality living. A basic aspect for quality living is access to health care." In 1976, Navarro (70) indicated ". . . 26 percent of the population is being served by only 12 percent of the nation's doctors and 18 percent of the nurses." Often rural areas lack the resources necessary to provide needed services and are forced to do without. When they are capable of financially providing for services, they can only attract a minimal amount, as compared to similar services provided in urban and suburban areas. The social and economical status of a rural community has a strong influence on the amount of health services obtainable.

In 1976, the American Medical Association (5) summarized some of the basic reasons for the rural health care problems:

Rural people suffer from the "cost of space." They are relatively few and widely dispersed; therefore, more difficult and costly to serve.

The rural tax base is low, because the population is sparse and the per capita income is usually small.

Local rural government is fragmented into small and inefficient units that are generally conservative and resistant to change.

Rural people are less visible, less vocal, and less sophisticated than their urban counterparts in learning about or applying for assistance even though they are no less in need.

When Steinman (87) discussed the rural poor he stressed isolation as the most single condition that sets them apart from the more fortunate groups of rural Americans.

. . . The most extreme condition of rural poverty involve three kinds of isolation: graphic, economic, and cultural. Because of it, the rural poor remain unprepared by their environment, their education, their way of life, and their values to adapt to or benefit from social or technological change.

Barriers to health care in rural areas are formidable. They include dispersed population, poverty, low education levels, rugged terrain, and poor roads. Often there is no public transportation and many people lack dependable private transportation. In most rural communities there are low physician/population ratios, while habit and cultural attitudes tend to emphasize crisis oriented health behaviors (58, 97, 20, 50, respectively).

The health status of a population is also influenced by the housing conditions, nutritional levels, educational, and employment opportunities, as well as genetics, environment, and social groupings. All of these factors affect an individual's health experiences and quality of life.

Pond (76) stated that communicable and non-communicable diseases have struck most severely among the poor. Poverty provides the environment in which diseases flourish. However, Pond emphasized the lack of irrefutable proof that

poverty alone causes disease.

Sickness inevitably imposes a financial burden in the form of charges for health services.

The earning capacity of the bread winner may be destroyed and economic catastrophe may be visited upon the whole family.

Poverty acts as a barrier to preventive medical care.

Low income families tend to utilize preventive medical services less frequently than families having higher incomes.

The need to raise the standard of living and improve educational opportunities is evident (59). "Poverty and disease are often inseparable. The poor frequently have higher death rates from tuberculosis, cancer of the cervix, cardiovascular-renal disease, influenza, pneumonia, and home accidents" (37)..

Roemer (79) expounded upon the relationship which exists between social conditions, poverty, and health. He summarized the complexity of the problem succinctly:

The relationship between health and social well-being is reciprocal. It has long been known that poverty causes disease, insofar as the conditions of diet, housing, occupation, and behavior associated with poverty contribute to the genesis of illness, disability, and eventually death. . . . On the other hand, disease has long been known to be a cause of poverty. A physically disabled person is unable to work and earn a living. . . . Chronic illness and its treatment may also drain the financial resources of a family, obstructing the education of its children or blighting its development in other spheres.

Roemer (79) concluded that poverty and health are strongly linked and both need to be dealt with simultaneously.

Without arguing about which forces may be more powerful--disease as a cause of poverty or poverty as a cause of disease--there can be no doubt about the importance of good health in the maintenance of personal happiness and community progress.

This reciprocal relationship between health status and social well-being or effectiveness operates in all types of geographic and social settings. Indeed, it probably applies to rural areas more than to urban, because in such areas, . . . the resources for preventing and treating sickness are less developed. A specific disease or injury that has occurred, therefore, is likely to have more far-reaching social consequences for the rural patient than the same condition in a urban patient who is more accessible to prompt medical care.

Roemer stated that chronic disorders cause the greatest overall loss of time from productive work and the greatest drain on family finances and spirit. For such disorders the prevalence is clearly higher in rural than in urban populations. Moreover, the burden is greatest in low income families of rural areas.

The Surgeon General's Report on Health Promotion and Disease Prevention (73) emphasizes the effect poverty has on people. Poverty strongly influences the health of infants, young children, adults, and the old.

Poverty can affect health in various ways. It influences individual behavior that, in turn, can negatively affect health, and also largely determines the physical surroundings and conditions to which people are exposed.

Andersen and Anderson (6) in a national study of people's use of and expenditures for health services, found that people with low incomes are more likely to have no regular source of care nor do they make full use of available clinics.

Suchman (90) stated that medical care must become more personalized and focus more on the patient and his family "as whole units." Public health programs must "reach out" and take the services to the people ". . . rather than waiting for the people to show up at public clinics."

Wan (96) surveyed 18,445 persons in low income areas to identify demographic characteristics, health service utilization, and health status of residents in selected urban U.S. areas. He concluded that:

. . . the removal of barriers in access to care coupled with a concerned effort for providing preventive health education the underserved population can greatly facilitate the use of primary care services.

Wan also found that only a small proportion of the studied population sought any sort of preventive care.

To improve the health of rural people, Konyha (51) stated, it would be necessary to effect changes in the people's health habits or the environment in which they live. But changes in health behaviors would only come about when:

. . . a) rural people are aware of the behavioral changes that need to be made, b) learn how to make these changes, c) perceive both the economic and social incentives for doing so, d) and have access to adequate health treatment services and facilities when they are needed.

Residents in rural areas are often economically disadvantaged, isolated, and lacking in adequate education. These and other factors significantly handicap many of the rural poor from receiving medical care and participating

in health promotion programs.

People's attitudes, knowledge, and perceptions of their health needs strongly influence their involvement in health care programs. It is necessary to be aware of some of the influences which affect people's health and illness behaviors and to consider them in planning health promotion programs.

II. FACTORS WHICH AFFECT HEALTH CARE DECISIONS

Koos (52) in his study called The Health of Regionville, reported that family traditions and social class influenced health status. He identified different attitudes toward illness, medical care, and health. He then divided the people of Regionville into three groups according to occupation and income: 1) professional, 2) skilled and semiskilled workers, and 3) laborers.

The different attitudes of the three classes toward illness resulted in significantly different behavior patterns. The patterns were influenced by: 1) fear, 2) concern about cost, 3) relative need for treatment as related to age, 4) the role of the individual in the family.

Symptoms of illness might be overlooked if cultural influences are strong enough to dictate what should be done. For example, a low-income housewife stated, "If I went to the doctor for that (backache) my friends would hoot me out of town" (52). People are directed by their value system,

for example, how important was illness when compared with other needs and desires of the family?

The value of health, according to Koos, was often displaced downward by other desires. A low-income mother made this extremely clear when she summarized her views on seeking medical care.

I wish I could get it fixed up, but we've just got some other things that are more important. First our car's a wreck and we've got to get another one. We need a radio too and some other things. If my husband's job holds out we'll get them and then I'll have it done, if it doesn't cost too much. . . . But its got to wait for now, there's always something more important (52).

Straus (88) stated that the manner in which people regard their health and health practices is often influenced by the "beliefs held by those with whom the individual identifies and the sanctions exerted by the group toward conformity with these beliefs have great influence on individual behavior."

Steinman (87) surveyed over 200 non-respondents of a multiphasic screening program conducted for mountain poor. The major reasons given for non-participation were: family illness, job responsibilities, did not know the program was available, and no transportation. Attitudinal reasons included preference of own physician, belief that family was healthy and not in need of a check-up, fear that the examination would reveal illness, and fear of the physical examination.

Rosenstock (80) and Steinman (87) summarized factors

which influenced health and illness behavior: 1) the perceived threat to the individual and 2) the perceived value of the action at hand. Perceived threat was described by Steinman as the 1) susceptibility to the disease in question, 2) the perceived seriousness of the disease, and 3) the importance of health in the value hierarchy of the individual.

Steinman (87) concluded that past experiences with medical services, the cost of proposed action, inconvenience and discomfort, and perceived probability that the action will produce results, all play a part in influencing an individual's decisions. Rosenstock (80) stressed that "the person who fails to believe that he is likely to contract a given illness or that the illness is serious will not be motivated to take action regarding it; he must believe both."

Straus (88) summarized four sources people may turn to when faced with a decision about health practice. People may utilize 1) modern medicine, 2) faith medicine (rituals, specific beliefs that one relies on to avoid illness or to attain recovery from disease or injury), 3) folk medicine (responses learned from parents who in turn learned from their parents), 4) pseudo medicine (included in this category are nostrums which modern scientific medicine rejects, but are claimed by many to provide a vast variety of cures). Any or all of these choices may be sought in an effort to cope with an illness and are often acted upon

according to the individual's past experiences and present beliefs.

Kasl and Cobb (47) suggested that preventive health behavior is a function of two factors: the perceived threat of disease and the attractiveness of value of the health behavior. Both of these perceptions seem to be influenced by education, occupation, and income.

It is evident that occupation, income, education, or some combination of these factors have a significant influence on the use of preventive health programs. Jaco (43) emphasized that cultural and social conditions play an important, though not an exclusive role, in patterns of illness behavior. Race, peer pressure, age, sex, and education also strongly influence attitudes toward risks and health care behaviors (43).

Rosenstock (80) hypothesized that the decision to practice preventive health behaviors or to seek detection tests in the absence of symptoms depends a great deal on three conditions:

1. The individual is psychologically ready to take action relative to a particular health condition. The extent of readiness to act is defined by whether the individual feels susceptible to the condition in question and the extent to which its possible occurrence is viewed as having serious personal consequences.
2. The individual believes that the preventive or test in question is both feasible and appropriate for him to use, would reduce either his perceived susceptibility to or the perceived severity of the health condition and no serious psychological barriers to the proposed action are present.
3. A cue or stimulus occurs to trigger the response.

Rosenstock (80) emphasized an individual must be motivated to take action, because people who are not aroused are probably not going to regard any information provided as important or relevant to them. If, by chance, they do focus in on such material, they will fail to learn, accept, or use the information.

According to Rosenstock, people vary a great deal in the degree of acceptance of susceptibility to a specific danger. At one point some may deny any possibility of risk, others may admit a "statistical" possibility, and still others will express a real fear of being in danger. Perceived seriousness is often influenced by such factors as the effect the condition might have on family life, income, or social relationships. Taking appropriate action is dependent upon an individual's belief concerning the benefits of such action. Other factors such as cost, unpleasantness, perceived inconvenience, fear or anxiety may also influence the health action taken.

Rosenstock (80) emphasized that a "trigger to trip off appropriate action appears to be necessary." Readiness to act is influenced by an individual's attitude toward susceptibility and severity. It is the energy or force to act. "However, the combination of these could reach quite considerable levels of intensity without resulting in overt action unless some instigating event occurred to set the process in motion" (80). The required intensity of a cue

powerful enough to instigate behavior varies with the state of readiness of the individual: psychological readiness requires intense stimuli, while high readiness levels are susceptible to slight stimuli.

Hochbaum (41) made an effort to identify the factors that induce people to obtain chest x-rays for tuberculosis. Personal interviews were conducted with 1,200 persons. It was concluded that a person must have the "conviction that he himself could really contract tuberculosis." A second factor which influenced people to action was the conviction that they might have tuberculosis without knowing it or displaying symptoms. A third influence was the belief that early detection of tuberculosis would decrease the problems and worries which he thinks would arise for him should he ever contract the disease.

Hochbaum (41) warned against concluding that people in general are not informed about the role of x-ray in identifying tuberculosis. It is a matter of "belief and of a conviction" on the part of the public. He stated:

. . . a person must know what to do, when to do it, and how to do it before he can take action. But merely knowing these things will usually be insufficient to elicit the action to which they relate. Each of us keeps a storehouse of knowledge about things to do for our own health and welfare. But there is a gap between having this knowledge and applying it in our own behavior.

Behavior is strongly linked to cultural influences and situational experiences, according to Kriesberg (53). Cultural influences are the parental transmission of values

and beliefs which in turn determine the behavior. Situational factors refer to social conditions, patterns of interaction and financial resources. Different values and beliefs are the result of accommodating to certain social situations. Kriesberg explored a group of adults' specific responses concerning their health care attitudes, their parents' behavior, their childhood experiences, as well as their current attitudes and behaviors. Kriesberg also investigated the behavior and attitudes of the children of these adults. The relationship between parents' behavior and attitudes and that of their teenage children was analyzed. His results indicated that situational factors which influence the utilization of dental services, for example, are: income, availability of services, and interaction between the dentist and patient. Kriesberg also indicated that other factors such as belief in the efficiency of professional dental care and the importance an individual places on maintaining one's own teeth have a strong relationship on the utilization of dental services.

Coe and Wessen (19) emphasized that besides certain social and demographic attributes that patients have, they will also use a system of selective attention symptoms, meaning that they employ a lay referral system in response to illness. Perception of symptoms of illness can often threaten a person's self-concept in terms of pain, incapacitation, disfigurement, and even death. They

contended that a patient's lack of knowledge of the meaning of the symptoms coupled with fear of unfamiliar surrounding of the medical facility strongly influence an individual's response to illness. Coe and Wessen concluded that this situation of uncertainty, fear and anxiety may be further influenced by the nature of the therapist-patient interaction. If a patient feels his self-concept is threatened, it may ". . . make it difficult for the patient to continue the interaction" (19) and he will withdraw from care or seek another source of help.

In a survey conducted in Washington, D.C. among low-income blacks, two types of acceptance were found to exist toward modern medicine. The first was called Forced Acceptance, meaning the high correlation between severity of illness and treatment obtained. "The more serious a specific condition . . . the more likely it was to receive medical care" (19).

The second type of acceptance found was Broad Acceptance. This was measured by medical treatment for various levels of medical conditions, preventive medical care, and awareness of community health facilities. It was found that broad acceptance was strongly related to a middle-class value system. Watts (97) and the other researchers concluded that those people in lower classes who are rising in socio-economic status will begin to take on middle-class values. However, this process is frustrating and if people

are not adequately prepared, educationally and psychologically, social problems result. To facilitate the process of acceptance of modern medical facilities it is "necessary to disseminate specific health information" not so much to "those who are rising or have risen, who will absorb such knowledge as part of their style of life, but to those at the lowest levels."

Williams and Wechsler (100) conducted two studies to determine the interrelationship of preventive behaviors. These two authors reported that the pattern of specific behaviors has definite implication for preventive health programs.

In general, there is a lack of correlation between going to a physician for a checkup and practicing certain preventive behaviors. For example, medical checkups were not correlated with not smoking, getting an adequate amount of sleep, exercising, limiting cholesterol intake, and not being obese, thus indicating to some extent that physicians do not attempt or are not successful in getting their patients to practice these behaviors.

Tradition, social class, peer group, values, fears, and many other forces strongly influence people's health care choices and lifestyles. The identification of the forces which direct people's actions must be identified and understood in each specific population.

Health educators should have a general knowledge of the participants who are in their health program. Environment, background, and present behaviors will undoubtedly influence the program's structure.

III. SOUTHERN APPALACHIA

Southern Appalachia is usually considered to include the mountain regions of Kentucky, Virginia, West Virginia, Tennessee, South Carolina, North Carolina, Mississippi, Georgia, and Alabama.

The Appalachians are old mountains worn by the passage of time. The region referred to as Appalachia is bisected by the steep slopes, the plateaus, foothills, and the valleys of the Cumberlands, the Great Smokies, the Black Mountains, and the Blue Ridge Mountains, which separate the broad Piedmont of the Atlantic coast from the basin of the Mississippi River Valley. It is a beautiful country of high, rocky crags, laurel thickets, and deep, narrow valleys with such steep walls that the valley floor seldom see direct sunlight (73).

The mountains and rough terrain has had a profound effect on the people who inhabit the area. "The walls of majestic mountains, the rocky soil, the inaccessibility of isolated valleys--all have influenced the personality development of the people who live in this region" (73).

The people living in Southern Appalachia face many of the same basic living conditions and lack of services common to much of the country's rural populations. For years Appalachia, despite its wide variety of resources, has suffered from chronic cultural deprivation and economic and environmental degradation. Some of the major problems have been: ". . . isolation; a lack of transportation to counteract its inaccessibility; boom-and-bust cycles of prosperity and poverty; unemployment; inadequate public facilities; a lack of social services" (7). According to

Crase (21) ". . . rural mountaineers have been denied proper schooling, medical care, and access to other amenities, long available to urban dwellers. Consequently, the mountaineer's health status has been inferior."

People in many sections of rural Appalachia, according to Crase (21), suffer from poor dietary habits as a result of limited incomes and inadequate education. Lehmann (57) pointed out that ". . . adult obesity and dental problems are also common consequences of the local diet."

Rural mountain people tend to be crisis oriented and preventive measures are of low priority. Crase (21) wrote:

A physician is contacted only after months, perhaps years, of pain and agony, self-diagnosis, and a lot of self-treatment. This phenomenon is also observed in other behaviors. For example, a person becomes a church member only after surviving a near fatal accident or disease. Health and/or medical insurance is not secured until it is too late.

It is generally felt by many Appalachian men and women that little can be done to improve upon their present health status. Crase also stated:

A good deal of fatalism, or the feeling that nothing much can be done to prevent or correct a disorder, accompanies this environment of distrust and fear of modern medical science. It becomes difficult then to convince the young smoker, for example, that by moderating or eliminating the habit, years may be added to life or that the modification of high fat diets or the control of hypertension could lead to better health.

This fatalistic outlook extends to all facets of life and fosters attitudes of dependency rather than self-reliance. An excerpt from a paper of the Ohio Department of Education (73) emphasized this point:

The dependency fostered by being cared for with credit plans or welfare encourages an apathy about the future and a hopelessness that borders on lethargy. These attitudes are currently found in Appalachia. It is, in fact, a cycle: paternalism fosters dependency; dependency carries with it an expectation of being cared for.

A survey of 300 household respondents, conducted in Bell and Harlan counties in Southeastern Kentucky, by Carlton (14) indicated that many ". . . perceived sickness and disability to be an inherent part of their lifestyle." It was found people were ". . . both unhappy and pessimistic about the state of their health."

This attitude towards health appears to be prevalent in other rural poor areas, as well. A study by the Department of Community Health and Family Medicine of Florida (9) explored the health attitudes of residents in a northern Florida rural county. They reported that, "As these rural groups view their past and present health, they consistently reported a lower level of functioning and experienced well-being." Referring to this study Banks (9) wrote, "All sub-populations report significantly poorer general health. All feel distinctly less 'healthy enough to carry out the things I would like to do.'" It was interpreted in this study that the "socially disadvantaged have difficulty seeing themselves as initiators, asserters, colleagues in the delivery of health care. On the contrary, they see themselves as objects to be worked upon." Thus as Banks pointed out, it is not surprising these people wait before seeking

care and when they do go for it, it is for extremely serious conditions.

The People of Appalachia

The residents of Southern Appalachia should not be thought of as a homogeneous group of poor people, incapable of providing and caring for themselves. "The average mountaineer is lean, inquisitive, and shrewd" (48).

Appalachian families like those everywhere else vary in their abilities to cope with the problems of survival. Southern Appalachian people can be considered homogeneous only in speech, customs, and experiences (48).

Years ago the residents of the Appalachian region were forced to be independent; geographic isolation made this essential. Families in the hills had to depend on their own talents, strengths, and resourcefulness to survive. However, in time ". . . old self-reliance of the highlander became individualism, a more self centered trait. Group activities are engaged in only to the extent that his private ends are served" (59). The Southern Highlanders tend to be bound by traditionalism. "He is bound to the past, its traditions, ideas, and values. Through the years his outlook has been regressive, to the old ways" (59).

Today these people of the mountains must deal with change and are forced to acquire different patterns of living.

As the new era dawns, everywhere, the highways of civilization are pushing into remote mountain fastnesses. . . . Along with this economic revolution will come, inevitably, good schools, newspapers, a finer and more liberal social life. The highlander at last, is to be caught up in the current of human progress.

To deal with this strong individualistic group of people takes time and an understanding of their customs and attitudes. They can not be abandoned, but must be motivated in directions that will utilize the resources available.

The families of Southern Appalachia are strongly influenced by tradition and a sense of obligation. ". . . a family member still has strict obligations to other family members even though he may no longer feel any affection toward them" (59).

The family is a basic structure of importance in Appalachia. "Despite the low standard of living that prevails in the backwoods, the average mountain home is a happy one as homes go" (48).

In the home the man is in charge. "He takes no orders from anybody at home or abroad" (48). However, women in the family exert a great deal of influence. The women often serve quietly and without complaint.

At table, if women be seated at all, the dishes are passed first to the men; but generally the wife stands by and serves. . . . And yet it is seldom that a highland woman complains of her lot. She knows no other (48).

The close family system has a strong effect on the children. Often an ". . . individual's own growth and development is subordinated to the prime task of maintaining

the family as a close unit" (59). Most mountain parents are super indulgent parents. Their boys, especially, grow up with little restraint beyond their own natural sense of filial duty (48).

Looff and Ford (59) offered a summary of the conditions of the Southern Appalachian family:

. . . two general attributes of families in poverty as they relate specifically to Appalachian families. The first of these attributes is the severe stress under which such families must operate as a result of their chronic exposure to a great number and variety of severe problems. The second is the limited number of alternative solutions to these problems which they perceive as being available to them. . . .

There are a number of reasons why poor families do not perceive many alternative solutions to their problems. The most obvious, of course, is that remedial services cost money, which low-income families do not have. But lack of money is not the only restrictive factor. Being less informed, in general, the poor are less likely to know where to turn for help, even when it is without cost to them. In the case of most isolated areas of Appalachia, there has actually not been very much assistance of the kinds we might find readily available in urban areas. Community institutions have been, and still are, relatively underdeveloped. Consequently, the family has been virtually the only institution upon which they could depend.

East Tennessee Health

There is no single illness characteristic of rural East Tennessee. For the purposes of this research, Eastern Tennessee is considered that area running from the North Carolina border westward to the Cumberland Plateau, specifically the following counties: Union, Scott, Campbell, Claiborne, Morgan, Anderson, Grainger, Hamblen, Knox,

Jefferson, Roane, Loudon, Blount, Sevier, Cocke, and Monroe (Appendix A). Residents of the area suffer heart attack, develop cancer, and are disabled by strokes with about the same frequency as people living in metropolitan areas. As in other sections of the country, the leading causes of death are heart disease, cancer, stroke, and accidents. According to Health Systems Plan for East Tennessee 1978-1983:

These four leading causes account for 85 percent of all deaths in the area. Although the heart disease mortality rate is considerably lower than the state or national rate, heart disease kills four out of ten persons in the health service area. Cancer accounts for nearly three of every ten deaths. The mortality rate for stroke in the area is higher than the rest of the state or the nation. Among non-white families, diabetes replaces accidents as the fourth leading cause (38).

Accidents are also a leading cause of death and are higher than the national average for persons between age 1 and 44. Motor vehicle accidents accounted for more than one-half of the accidents in the region. "The motor vehicle mortality rate for 1976 was 31.1 per 100,000 compared to 27.0 for Tennessee and 21.8 for the U.S." (38).

The most often self-reported chronic health conditions of adults are arthritis, high blood pressure, and depression. "Of the 10 leading self-reported chronic conditions in East Tennessee, the case rates in the rural counties were higher than in the intermediate or metropolitan counties" (38).

The abuse of alcohol is another outstanding health problem in the region. "According to the East Tennessee

Council on Alcoholism and Drug Abuse, approximately 5 percent of the area's population suffers from an alcohol related disability" (38). (See Appendix B for specific death rates per 100,000 in Tennessee and Union County.)

Union County

Union County in East Tennessee is classified as rural. It has a population that fluctuates around 10,000 people. The average yearly income in the county is about \$9,000. However, 34 percent of the people in the county have incomes below the poverty level (38). In 1978, 6.2 percent were unemployed. At present, 42 percent of the people are considered to live in inadequate housing, i.e., they lack complete plumbing; 51.5 percent have no flush toilets. For many families in this area, mobile homes are the only affordable shelters they can purchase (38).

Many of the people in Union County lack a high school education, which is a handicap to their opportunities. The people who live in Union County are traditionally individualistic and do not tend to come together to work jointly on common problems. This lack of community spirit severely limits growth and improvement activities.

Union County has two full time primary care physicians who are located in Maynardville. One of these physicians was sponsored by the Tennessee Regional Health Department at the time of this study. There are no hospitals or nursing homes in the county. The Public Health Department has

a limited budget and facilities. One of the county's physicians serves as family practitioner and county health officer. There was only one and one-half part-time dentists in the county. As of 1978, Union County was 1 of 10 counties in East Tennessee designated as an area of high need and lacking in sufficient health manpower and facilities (Appendix A).

Prevention

By definition prevention means the act of hindering or stopping an action. It is interesting to note the word stems from the Middle English verb preventen, which means to anticipate or forestall. It is largely in this sense that the word is used today in matters relating to sickness and disease. In health activities, prevention is usually divided into primary, secondary, and tertiary areas.

Primary prevention includes those activities conducted to prevent illness or disease. Secondary prevention is the action conducted to detect disease before the symptoms become apparent (65). Leavell and Clark (56) describe secondary prevention as early diagnosis and screening and, secondly, the process of providing treatment to stop disease and any other complications that might result. Tertiary prevention is the procedure undertaken to prevent the progression or spread of a disease or illness.

It is increasingly evident people should become involved in the prevention aspect of health care. If everyone becomes conscious of the behaviors in their

lifestyles which adversely influence their health, and if everyone learns to utilize the existing preventive screening techniques available for the early detection of disease, it is evident the individual, the community, and the nation would benefit greatly.

The U.S. Department of Health Education and Welfare's Surgeon General's Report on Health Promotion and Disease Prevention 1979 (39) continuously emphasized that the incidence of cancer, heart disease, cirrhosis of the liver, and accidents could be appreciably reduced through better individual health habits, such as not smoking, diet control, moderating use of alcohol, and proper exercise regimes, continual use of seatbelts, and active participation in health screening activities. For example, the current decrease in cardiovascular disease is directly linked to preventive measures such as high blood pressure detection and control, reduction of smoking, prudent diet, and enhanced physical fitness (39).

It is generally agreed there are some health actions for which the individual must take some basic responsibilities. Health education programs can assist and encourage people to take better care of themselves. Such health education programs can enhance present traditional treatment programs by focusing on the ultimate goal of preventing illness and injury (82). "A shift in emphasis is developing from the traditional treatment of the sick to a purposeful

plan for keeping people well, using facilities especially designed for the promotion of health" (82, 94). However, this concept only applies to those who are capable of accepting the responsibility and refers only to those health matters for which the individual must make the initial step in protecting his health.

There are two basic situations where a person has the responsibility for his health. One is a disease state within which the individual is called upon to adhere to a prescribed course of treatment. The second is a wellness state. Here the individual is responsible for taking action which will prevent sickness and disability (65).

There is no question that individual behavior related to smoking, drinking, nutrition, rest, and work habits among others can have a dramatic effect on the morbidity and mortality of the individual (24).

Programs should be developed to assist individuals to modify detrimental lifestyles (39).

Presently much of the information available and relevant to health status is ignored by the public. For example, the proven link between lung cancer and cigarette smoking. Many people fail to "realize the power that they have to maintain their own health and fail to recognize the relation between their lifestyle and their health" (35).

There are a number of conditions that do not directly cause death or disability but are considered risk factors which increase the likelihood of illness. Such risk factors are not necessarily causes, but are associations. Personal

habits (smoking), bodily characteristics (hypertension) are not in themselves sufficient to classify an individual as having a particular disease (12). However, a variety of personal habits, physiological characteristics, biochemical traits, anatomical features, genetic predispositions, and specific bodily changes can be associated with increased frequency of disease and its consequences (12). For example, the risk factors for coronary heart disease have been linked to:

. . . hypertension, sedentary living, obesity, electrocardiographic (EKG) abnormalities, personality factors, family history and diabetes, smoking and high blood cholesterol (12).

Risk factor intervention as a means of controlling chronic disease should first focus on identifying and qualifying certain personal characteristics and habits; then try to deal with them in a manner to help prevent the disease. A corresponding effort should also be made to identify the disease process in its early stages so steps can be taken to avoid the progression of the disease (12).

The basic question faced by health workers is: 1) how to best implement a risk reduction intervention program, 2) motivate individuals to change their poor health habits and/or take appropriate health detection tests.

Contracting

Contracting as defined by Thompson and Poppen (91) means: ". . . an agreement between two or more parties

which cause each party to recognize the other in a way which states the future intentions of each party."

To facilitate learning and appropriate action, a variety of basic principles must be incorporated into the contracts. Some of the major ones are:

The learner has both choice and voice in selecting alternatives for meeting learning objectives. (The learner is more apt to become totally involved in a project which he has helped select and plan.)

The learner is given opportunities to exercise responsibility through making commitments to complete personal learning goals.

The differential learning styles of students are considered in providing alternatives to learning.

The learner feels a sense of freedom from the threat of failure.

The learning task falls within the learner's range of challenge--that area where the task is neither too easy nor too difficult and the probability for success is good, but not certain.

Progress in learning depends to a considerable extent on how the learner perceives (through reinforcement or encouragement) the appropriateness of his efforts to accomplish the learning objectives; rewarded behaviors are naturally more likely to be repeated.

Thompson and Poppen emphasized that differential learning styles are the most important reasons for using contracting. Differences in background, experiences, family, friends, skills, and perceptions all play a part in influencing a person's values, attitudes, motives, drives, and fears. Each of these factors influences the way a person learns and reacts.

Hommes et al. (42) stressed that when a contract is

being developed it must be fair. The terms incorporated in the contract must be agreed upon by all parties involved. Also, terms of the contract must be clearly stated so the individual knows how much is expected and what can be expected as a reward.

Contracts can be established between two or more people or can be with the individual himself.

Clients who are able to identify their own behaviors often acknowledge that their current actions are resulting in some undesirable consequences. They state how they would like the consequences to be different (goals). They may or may not realize that in order to change the consequences they must first modify the behaviors producing them (36).

Changing behaviors is a slow and difficult process which requires time, patience, and effort. To initiate change in behavior it is essential to get the client to make a commitment to change. This can often be accomplished by using a contract. The contract ". . . specifies what actions the client agrees to take in order to reach the desired goals" (36) or to change a specific behavior. The contract specifies where the client will undertake such actions, how the client will carry out the actions, and when the tasks will be completed.

Hackney, Cromier, and Mahoney et al. (36, 62) stated that contracts are often more effective if they include a system of self-reward. "In other words, clients are more likely to commit themselves to a contract if they know there will be some kind of reward resulting from achievement

of the contract terms." This process can also be reversed to include a form of punishment when a designated goal or contract term has not been met. Getting people to commit themselves to goals is strongly influenced by two specific factors. The first is the client's perception of the worth of the stated objectives. Are there enough advantages to make the time and effort worthwhile? The second influence on an individual's commitment is the amount of support and assistance available.

Homme (42) emphasized that the ultimate objective of behavioral motivation technology is to develop self-management skills, so that the individual eventually assumes responsibility for motivating and controlling his own behavior.

People need to learn how to fulfill their needs in a responsible manner. To help people help themselves learn responsibility for their behavior involves three specific procedures. As Glasser (33) stated, there first must be involvement by the client and therapist.

Developing a therapeutic involvement may take anywhere from one interview to several months depending upon the skill of the therapist, his control over the patient, and the resistance of the patient.

Second, the therapist must reject the behavior which is unrealistic. The client ". . . is no longer allowed to recognize what he is doing or his responsibility for it." The last step involves teaching the patient better ways to fulfill his needs.

The focus is on behavior rather than attitudes.

. . . once we are involved with the patient we begin to point out to him the unrealistic behavior. . . . Changing behavior leads quickly to a change in attitude which in turn can lead to fulfilling needs and further better behavior.

It is extremely important the patient and not the therapist, decide whether a particular behavior is irresponsible and if a change should be made. For example, if a man feels there is nothing wrong with being fat and over-eating, it is not likely any obesity treatment will work (33). On the other hand, if a patient admits his behavior is not a responsible one, relearning can start. "The emphasis must be on the present and future goals and the establishment of boundaries within which specific right and wrong behaviors can be easily recognized" (33).

According to Stuart (89), there are four assumptions that must be made when utilizing contingency contracting. The first is that positive reinforcement is a privilege to be earned. The second is that a reinforcement procedure is fundamental to the agreement. Thirdly, an effective interpersonal agreement is achieved by the strength, rate, and diversity of the reinforcements established. The fourth assumption is that the contract limits behaviors, but is must also foster freedom, by clearly stating "privileges" to be granted to the individual.

Contracts, Egan (27) emphasized, need not be viewed in strictly legal terms, but can be quite humanistic:

". . . indeed, they are what we make them." Life is a series of contractual agreements people make with themselves and with others. Contracts ". . . may be explicit or implicit, conscious or unconscious, unilateral or multi-lateral, voluntary or coercive."

Contracting methodology and variations of it have been applied successfully with children, families, prisoners, patients, and in many other situations. Its marked success as a behavior management technique has established it as one of the significant developments of the twentieth century in applied psychology (42).

Kiesler and Sakumura (49) defined commitment as a pledging or binding of the individual to behavioral acts. They also suggested that an individual will try to "resolve inconsistencies between the attitude he holds and behavioral acts which he, for one reasons or another, is induced to perform." The authors indicated that the effect of the degree of commitment can be manipulated by concentrating on the following: have a number of tasks for the subjects to perform, make the acts public and clearly defined, make it difficult for the subject to give up on his stated objectives, and allow the subject a choice.

Lovitt and Curtiss (60) analyzed the effects of contingency management techniques on an individual student. The purpose of the study was to measure the effects of "self-imposed versus teacher-imposed contingencies on the

behavior of a particular pupil as measured by academic response." In the first experiment the student was subject to the teacher's arrangement of the academic program. A contingency contract was developed to accompany each academic area. "For example, the student was granted two points for each page read. . . . and one point per 10 mathematic problems, (points = free time)." In the second experiment the student was allowed to alter all the teacher imposed requirements and grant himself more points per response. The results of the two experiments disclosed that higher academic rates resulted when the student was allowed to stipulate his own contingency requirements. In a third experiment only the magnitude of the reinforcement was affected. It was done to determine if the amount and reinforcement had caused the rise in academic response. It was found the student acting as the contingency manager accounted for the student's improved performance. The reinforcement magnitude was not an important factor.

Evidence from this experiment suggested the self-scheduling of events enhances performance. Arranging one's own environment appears to lead to increased academic performances. Such experimental data may have implications in other educational settings and situations.

MacDonald, Gallimore, and McDonald (61) solicited "community people" to work out a behavior modification program for students who were identified as chronic

non-attenders. The mediators (community volunteers) worked out contracts or "deals" with their assigned student. The contracts specified reinforcers that the students could earn if they attended school on a regular basis. The reinforcers varied from student to student and included such items as use of specific clothes, money, and weekend privileges. Student attendance increased. Conversely, when the "deals" were not utilized at a later date, attendance again decreased. Two replications of this study had similar results.

Contingency management techniques have been used in educational programs for adult male prison inmates. Such individuals are considered to be extremely difficult to motivate. By and large, prison populations have a negative attitude towards education. Most experiments have ended in failure, often resulting in an increase of mutual hostility. However, when contingency management procedures were used, they proved effective in motivating the inmates to study. Enhanced academic progress was achieved when compared to the results obtained through other methods (61).

Rickard and Taylor (77) used a contingency-management approach with emotionally disturbed children who attended a summer camp. Different groups were introduced to the contracting technique at different times in the program. The campers attended classes for 40 minutes, five days a week and worked on a programmed text. After baseline data were

gathered on the amount of work completed, a contract format was introduced. The children entered a verbal contract with their teachers, specifying the amount of work they would perform. Usually their baseline was a score of 80 percent on work they had completed plus 10 percent. If the children met individual contract requirements they were free to leave class early. The results showed the contractual arrangement produced an increase in work response in all groups.

Wysocki, Hall, Iwata, and Riordan (101) used behavior contracting to encourage physical exercise among college students. The students left personal items with the experimenters which they could earn back on fulfillment of the contractual agreement.

Subjects selected weekly aerobic point criteria, which they could fulfill by exercising in the presence of other subjects. In addition, subjects contracted to observe and record the exercise of other subjects and to perform an independent reliability observation once each week, with both of these activities monitored by the experimenters.

Results of this study indicated that behavior contracting was an effective technique in modification of exercise behavior. Seven of the eight subjects followed the contracts negotiated. Only one student failed to meet the contract terms. However, other factors involved in the program may have influenced the results. For instance, the process of individual goal setting by subjects and subtle social reinforcement for exercise, may have contributed to the increase in exercise.

Krumboltz and Thoresen (54) used behavioral contracts to help individuals who wanted to lose weight. They focused on specific procedures emphasizing the individual's role and making sure the treatment process was clearly understood.

In this program, individuals were assured they would lose weight and still be allowed to eat all they wanted, if they followed the contract agreement.

The contract stated that whenever the person eats he is to do so formally (i.e., set the table, if only for a candy bar) and that he may not do anything else when he eats between regular meals (i.e., talk to someone, read, watch television, listen to music), and he must attend a periodic group meeting to discuss his contractual behavior with the other members of the group. If he keeps the contract, it is likely that he will lose weight, for the pain of doing without food between meals eventually becomes rewarding.

The contract focused on getting people to commit themselves to specifically defined procedures. When they did, it was successful.

Aragona, Cassady, and Drabman (8) used contingency contracting as a behavioral technique to help parents facilitate their children's weight loss. Parents were taught behavior modification procedures to alter their children's eating and exercise habits in an effort to encourage weight loss.

Parents who were assigned to the response cost contract group were required to deposit a specific amount of money with the experimenters. They could redeem the money by completing the following tasks, 25 percent for attendance,

25 percent for submitting completed weight charts, and 50 percent if their child lost weight as predetermined in the contract. Each week contracts were negotiated between parent, child, and experimenter. Other reinforcing events such as praise, tokens, and money were also incorporated into the contracts.

This group was compared to a second group of parents of subjects who received the same treatment as parents in the first group, except that they were not given reinforcement information. Their contract did not stipulate that their children were to receive rewards for desired weight loss.

A control group was also established. Pre and post weights and heights were measured but no contract was made. "After treatment, there was an eight week, no contract follow-up for all three groups. Finally, there was a post follow-up check 31 weeks later" (8).

The results indicated that behavior modification techniques were useful in enabling parents to help their children lose weight. At the end of the 12 week treatment period both experimental groups had lost significantly more weight than the control group. The 31 week no contract follow-up failed to show a treatment effect but it did show a trend toward slower weight gain in the contract plus reinforcement group.

Mann (63) used contingency contracting techniques in

an attempt to facilitate weight loss in adults. The contingency contract stipulated all of the procedures in the weight control program. The major feature of the contract required subjects to give up a large number of their own items of value. The contract explicitly stated how these items could be "earned back" or permanently lost, if the requirements of the program were not met. The contract was tailored to each subject's specifications as to number of pounds and rate of which the weight was to be lost.

The results of this experimental study indicated that the items considered valuable by the subjects and originally their property "could be used to modify the subject's weight when used as reinforcing and as punishing consequences."

Mann emphasized that the contract utilized a variety of different features which enhanced the program's effectiveness. Not only were items of personal value surrendered to the researcher, but this process was conducted in a legal and formal manner and in front of a witness. The contract also required subjects to be available for behavioral measurements and consequences, if required. Another feature was that the contract procedure was designed as a behavior trap ". . . a relatively simple response is necessary to enter the trap, yet once entered, the trap cannot be resisted in creating general behavioral change" (63).

The contingencies of the contract acted as a "trap" by motivating the subject to stay in the program and lose weight.

Tobias and MacDonald (91) made an effort to determine what effects an individual's perception of personal control had in weight loss programs. The researchers solicited 100 obese undergraduate women and assigned them to one of five experimental conditions. The highlights of the procedures used with each group were as follows: In the weight reduction manual group, members were told their obesity resulted from learned eating patterns and that more appropriate eating habits could be learned. Participants in the second group were told their obesity resulted from a failure to exert sheer determination of willpower. Lessons stressed that their particular personality scores indicated that they would lose weight most effectively if they realized they must assume full responsibility. The individuals in the behavioral contract group were told they would be most responsive to programs that provide external motivation for weight loss. Consequently, they were instructed at their group meeting to designate some tangible reward, either monetary or material, to be held in escrow until the completion of the study. Each person in the group signed a legal contract specifying the reward to be surrendered. Persons in the fourth, an effort control group, were informed by letter their treatment would have to be delayed

until the following semester. The final segment, called the no-contract group, were told there was no room for them in the program (92). They were encouraged to work on their own without professional guidance.

It was found the weight reduction manual and behavioral contract treatments were the most effective. Thus, it appears that perceived responsibility in itself is not enough to motivate an individual to lose weight.

A classic study conducted by Kanfer, Cox, Greiner, and Karoly (46) utilizing a cold pressor test (subjects placed their hand in ice water 1° centigrade) found water tolerance was greater when specific written statements of procedures and goals were signed by subjects, than merely providing oral instructions stating the same information. Kanfer, et al. felt that specific instructions facilitated performance and limited doubts about requirements. The experimenters also found that subjects who believed they had failed to meet contract conditions would, on a second trial, tolerate the ice water longer than those who believed the experimenter failed to meet the conditions specified.

When reinforcement is received it appears to be of critical importance. Subjects who anticipated reinforcement after fulfilling their stated contracts, left their hands in the cold water longer than subjects who were not reinforced or received reinforcement immediately after

stating their intention to tolerate the cold water. The implications of this experiment for educational and clinical situations is that:

. . . reinforcement of a promise from a person to execute a particular behavior that has aversive components is less likely to encourage fulfillment than is the promise of reinforcement contingent upon execution of the desired behavior (46).

The most important aspect of these experiments is that personal commitment or social agreement incorporated into the execution of an unpleasant task has a profound influence on a person's behavior.

Contingency contracting methodologies have also been applied in treatment programs for alcoholism. A common focus of many persons was aimed at modifying drinking behavior itself (67, 69, 11, 66). A second approach centered on other aspects of alcoholics' behavior, including marital relations (16) and social skills (30).

For example, Miller (69) provided goods and services on a contingency basis to a number of skid row alcoholics. Ten male alcoholics received goods and services contingent upon negative breath analyzer tests. While the control group received goods and services on a non-contractual basis, the experimental group had fewer arrests, a significant decrease in drinking, and a positive increase in productive working hours.

Cheek et al. (16) used contracting to train wives of alcoholics to improve marital relationships and reduce

disruptive behavior. A majority of the wives who finished the program stated that family relations improved.

Miller et al. (68) investigated different forms of behavioral contracts. Subjects were put into four groups: 1) verbal instruction, 2) written agreement signed by subject and experimenter, 3) verbal instruction plus reinforcement for compliance, and 4) written agreement plus reinforcement for compliance. The results of this experiment indicated that signed agreements and clear instructions had an influence upon responses and their drinking rates.

Contingency management techniques have been used in a wide variety of situations. Neiworth and Moore (71) taught parents contingency management procedures to reduce the duration of coughing, wheezing, and gasping of their seven year old asthmatic son.

A number of researchers have had good results using contracting procedures in case studies involved in stopping specific behavior. Tough, Hawkins, and MacArthur (93) used contracting to stop young children from bed wetting. Foxx and Azrin (29) taught toilet training to 34 young children utilizing contingency management techniques.

There is a current realization that medical services to individuals as passive recipients is probably dysfunctional (83). Alderman, Green, and Flynn (2), reviewing 11 studies on blood pressure control sponsored by the National Heart, Lung, and Blood Institute, found that patient

involvement was essential to health improvement. In all studies it was found that short term improvements in blood pressure control can be achieved by almost any intervention that provides time for discussion and a number of different contacts between a health care provider and a hypertensive patient (2). Another generalization drawn from these 11 studies is that patients who are actively rather than passively involved in setting goals for their own blood pressure control achieved better results.

For example, Steckel and Swain (86) found that contracting and rewarding patients was quite effective in ultimately controlling blood pressure and enhancing behavior changes. Steckel and Swain randomly assigned 115 hypertensive outpatients to three groups. One group received routine clinic care, the second group received routine care and an educational component with counseling, and the third group participated in contingency contracting in addition to receiving routine care and education. The authors found that the written contract group had significantly better knowledge improvement in their scores, stayed in program longer, and missed fewer appointments. Above all, the written contract groups had better overall control of their blood pressures. The contracts were negotiated periodically and aimed at helping the patients meet success and thus experience a sense of control over their health condition. Patients were encouraged to choose tangible

rewards for themselves which they received for meeting the contract specifications.

Contracting procedures have also been used in a pilot program conducted by General Foods in White Plains, New York (28), to induce overweight employees to join a weight reduction program. Twelve overweight individuals signed contracts and put up 100 dollars which would be returned to them if they attended classes faithfully. If they missed classes they forfeited the money. At post-treatment the group had lost an average of 16 pounds. However, a six month follow-up revealed that 9 of the 12 subjects had regained the lost weight. The program ultimately was proved not to be cost effective.

Martin and Pear (64) stated if a contract agreement is going to be effective, it should include these seven criteria:

1. A clear statement of the target behaviors.
2. The method of data collection.
3. Reinforcers to be used, their schedule of delivery, and who will deliver them.
4. Potential problems and their resolution.
5. Bonus and/or penalty clauses.
6. A schedule of review for progress.
7. Signatures of all involved and the dates of the agreement.

According to the authors, a contract can ensure everyone

involved in the agreement understands the goals and procedures. The contract should be stated in behavioral terms so it can be determined how close everyone comes to reaching the stated objectives. Finally, the contract allows the clients to determine in advance what the cost and effort of the program will require. Martin and Pear (64) warn that a contract often has to be renegotiated before successful and satisfactory results can be achieved.

Contracting has been proven to be an effective method in facilitating a behavioral change. "It can be very effective when the therapist controls the total environment (e.g., hospitals)" (1), but in many situations when the therapist is no longer involved it appears the effected change does not often last. It is essential to integrate contracting techniques into the individual's normal routine, environment, and prevent it from merely being an artificial procedure.

Summary

In many respects medical services to rural areas today are severely limited. Sparse population, poverty, rugged terrain, poor transportation, too few physicians and facilities, and cultural attitudes all contribute to the general lack of quality medical programs. All of these problems are clearly evident in Southern Appalachia. For years the mountaineer's health status has been considered inferior in comparison to that of the rest of the nation.

Individual health and illness behaviors are influenced strongly by how threatened the person feels by disease or illness, the perceived value of the action to be taken and the power of a stimulus to provide motivation.

Many of the current health problems are strongly linked to personal habits. Much of the information available on how to stay healthy is ignored. There is a clear need to develop awareness of existing behaviors that impede good health practices.

To meet this demand appropriate and effective educational methods are essential. Contracting was explored as a possible means of intervention and motivation strategy to enhance the present health status.

Contracting techniques have been used successfully in a number of settings: schools, prisons, hospitals, and in the home. Contracting allows an individual to become actively involved in setting his own goals, specifying methods to be used to accomplish these goals, and in identifying immediate consequences of his action.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine the effectiveness of contracting with support procedures in modifying specific health risk behaviors among rural residents. Health education and contracting were utilized together to initiate reduction in life threatening and health risk factors. The program focused on identifying individual health hazards, providing individuals with appropriate health information, and implementing an efficient contracting method in an effort to bring about a reduction in behaviors that would or could jeopardize the individual's well being.

I. EXPERIMENTAL DESIGN

The study design utilized two groups of subjects. The experimental design is commonly referred to as a pretest-posttest control group design.

$$\begin{array}{c} R \ O_1 \ X \ O_2 \\ \hline R \ O_3 \ \quad O_4 \end{array}$$

The R in the above formula represents random allocation of subjects to one of the two groups. O_1 and O_2 represent the pretest and posttest for the treatment groups. X indicates the treatment. O_3 and O_4 represents the pretest and posttest for the control group. The dash line indicates

the group below the line is a true control group due to randomization (85).

There were 17 subjects in the control group and 17 subjects in the experimental group. The control group subjects were pretested, received health education information, and were posttested. Subjects in the experimental group were pretested, received health education, participated in contractual agreement procedures, and were posttested. Table 1 presents a schematic representation of the research strategy.

TABLE 1
SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

Group	Pretest	Educational Information	Treatment Contracting	Posttest
Experimental	X	X	X	X
Control	X	X		X

II. SPECIFIC PROCEDURES

Education Methodology

The education aspect of the program was designed to utilize a conceptual approach. Flip charts were used to facilitate learning. The charts had been previously prepared by the researcher (Appendix C). They provided visual information as well as a printed message. All content

information was printed on the back of the charts for easy reference. This introductory material was designed to be five to eight minutes in length. Material was developed in the following areas: alcohol, diabetes, self-breast examination, weight control, smoking, hypertension, exercise, seat belts, mental health, and cervical cancer. Flip charts were utilized in the presentation of all these areas, with the exception of mental health. It was felt that because of the sensitivity of this area, the Health Education Aide would be more effective if she were restricted to encouraging and assisting the subject to seek professional guidance. Counseling services were provided at the Union County Medical Clinic.

All materials were developed after gleaning a number of appropriate resources and adopting the information into short instructional units.

The flip charts were submitted to a jury for review. The panel consisted of physicians, health educators, and other related professionals (Appendix D).

Knowledge Test

Following the health educational information presentation, a brief multiple choice test was administered to all participants (Appendix E). This short quiz acted as a review and served to provide some new information. All test results were reviewed with the subjects.

Health Education Aide

A 26 year old female, native to Union County, was employed as the Health Education Aide. She had a high school equivalency diploma. She had no previous experience in the health field. The Health Education Aide's salary was provided in part by Tennessee Valley Authority grant funds, the Comprehensive Employment and Training Program Title 2B Out of School Work Experience Program, and the researcher. The Health Education Aide was employed from September 1980 through January 1981 and worked a 20 hour week.

The Health Education Aide was trained by the researcher and provided with appropriate information to enable her to conduct a meaningful educational experience with each subject. The Health Education Aide training program was 31 hours long and focused on the following areas:

1. Orientation to the Union County Medical Clinic.
2. Facts on specific health problems.
3. Health education methods, materials, and contracting procedures.
4. Interview techniques and data collection.
5. Function and proper utilization of data collection instruments.
6. Use of sphygmomanometer for measuring blood pressure.
7. Practice presentations.

The Health Education Aide was under the direct guidance

of the researcher. During the first three weeks, meetings were conducted three times per week to review procedures and findings. Subsequently such sessions were held once a week. Occasionally the researcher accompanied the Health Education Aide on home visits.

The Health Education Aide was responsible for making her own appointments with each of the participants in the program. At each meeting the Health Education Aide would review the Health Risk Appraisal results, provide information utilizing flip charts, and contract with the subject, if it were appropriate. Most sessions lasted 30 to 40 minutes.

Sample Selection

The majority (77 percent) of the participants in this study were patients that came to the Union County Medical Clinic during the months of July, August, and September 1980. Twenty-three percent of the subjects were approached while at the Union County Community Service Building. These individuals were not Union County Clinic patients. All subjects were 25 to 65 years of age and residents of rural counties. Only those willing to take part in the program were included. Individuals who refused to take the time, or were too ill to become involved, were excluded. In all, 53 people initially agreed to participate in the program.

Program Implementation

In compliance with the Union County Medical Clinic physician's demands, only one or two individuals a day were approached and asked to take part in the health promotion program.

The researcher introduced all willing participants to the program. Following this introduction, the participants completed a consent form, a personal data card, Health Risk Appraisal Questionnaire, and a Semantic Differential attitude scale.

All participants were then randomly assigned to either the experimental or the control group.

Contacting Subjects

Each subject in the control and experimental groups was initially contacted by telephone or by mail (contact by mail was made only when a phone was not in the home). All subjects were encouraged to come to the clinic and discuss their test results and what could be done. Those who indicated it was impossible for them to come to the clinic within a given period were scheduled for a home visit. If an appointment could not be arranged within seven days, the subject was listed as not interested in the program. If a clinic appointment was not kept, a second contact effort was made to arrange for a clinic or home meeting. Failure to meet the Health Education Aide at the second arranged

time indicated the subject was not interested and was so listed.

Control Group

After the initial meeting and processing of the Health Risk Appraisal Questionnaire, a second meeting was scheduled between the subject and the Health Education Aide. Arrangements were made to meet the subjects either at the Union County Medical Clinic, the subject's home, or place of employment.

At this time subjects were given an overview of all their health risks as indicated by their Health Risk Appraisal printout. They were then asked which areas they would like to learn more about and be willing to work to improve. The Health Education Aide provided the appropriate information and promoted discussions on the indicated topic. Each subject then completed a brief knowledge test.

Experimental Group/Behavior Intervention

During the first session the experimental group received the same program as the control group with the single exception of the introduction of the contracting procedures.

Contracting

After the subjects received the appropriate information relating to the area of his/her indicated health risks and interests, the contract procedure was introduced

(Appendix F). The stipulated goals, target (short term objective), time frames and contingencies (rewards) covered in the contract were examined and explained. When the subject understood and was comfortable with the procedure, the Health Education Aide negotiated a short term contract with the subject on the behavioral change he/she had selected.

All subjects were encouraged to become actively involved in filling out their contracts. The subjects were to identify behaviors they would be willing to work on immediately. The activities chosen were to be relatively simple and within the subject's power. Subjects were encouraged to reward themselves after the target behavior had been performed. It was emphasized that they should pick rewards which were meaningful and could be acquired on a short term basis. For instance, to watch television on a particular day was dependent on exercising or reduction in the number of cigarettes they smoked. The Health Education Aide was to offer suggestions and encouragement throughout the process whenever it was appropriate. After the contract was completed it was signed by both parties and a copy was made for the Health Education Aide's records. The contract was to be actively followed for three weeks.

Contract Maintenance

In order to encourage the participants' adherence to the contractual agreement and allow opportunities for

re-negotiating contracts, weekly contact procedures were established. The subjects were told that this periodic contact with the Health Education Aide would prevent them from inadvertently forgetting they had specific goals and at the same time help them establish specific targets.

Once a week for three weeks the Health Education Aide contacted each subject. The Health Education Aide was to informally discuss the subject's progress, problems, and provide suggestions. If a new contract was indicated, it was negotiated at this time.

In addition to the weekly contacts by the Health Education Aide, a postcard was mailed to each participant once a week for three weeks. This card contained one sentence, which was meant as a reminder of the subject's intended goal (Appendix G).

III. DATA COLLECTION PROCEDURES

Pretest Phase

The Health Risk Appraisal Questionnaire (in Pocket) and the Semantic Differential attitude scale (Appendix H) were the primary instruments used in this study. The Health Risk Appraisal Questionnaire printout served as the basis for evaluating personal health risks, interpreting individual results, and the effectiveness of the contracting procedure. The Semantic Differential attitude scale were used to measure individual attitudes toward specific

concepts relating to health promotion. The pretest instruments are listed in Table 2. The informed consent form was used to familiarize participants with the program and to solicit their cooperation. The personal data form was used to gather information on education levels and participant's form of payment for medical services (Appendix I).

TABLE 2
PRETEST AND POSTTEST INSTRUMENTATION

Pretest	Posttest
1. Informed Consent Form	1. Health Risk Appraisal Questionnaire
2. Personal Data Form	2. Semantic Differential
3. Health Risk Appraisal Questionnaire	3. Follow-up Phone Calls
4. Semantic Differential Scale	

Posttest Phase

The final contact with the subjects was made approximately three months after the first educational visit with the Health Education Aide. The same Health Risk Appraisal Questionnaire and the same Semantic Differential scale were used in the pretest and the posttest phase of the program.

All posttest Health Risk Appraisal Questionnaires were reviewed for inconsistencies in such areas as: natural

mother's and father's ages, natural mother's and father's ages at death, mother or father having had or presently having high blood pressure or cancer, chronological age, and height. Whenever it was possible, all inconsistencies were corrected by contacting the subject again and submitting a new Health Risk Appraisal Questionnaire. The posttest data were collected in the home, place of employment, or at the clinic by the Health Education Aide.

In an effort to determine the effectiveness of the program, follow-up telephone calls were made to each household. Responses were solicited from the subject's spouse or a close relative. The questions focused on the subject's spouse or close relative's awareness of the program and its effect on the participant (Appendix J).

In all, 23 subjects were contacted; 11 in the experimental group and 12 in the control group.

IV. INSTRUMENTATION

The Health Risk Appraisal Questionnaire used in this research was prepared by The Society of Prospective Medicine, under the direction of John M. Travis, M.D., and printed by Health Hazard Appraisal, Methodist Hospital, Indianapolis, Indiana (77). This form is used by the Preventive Health Program of the Tennessee Department of Public Health. Use of the form was approved by the Tennessee Department of Public Health.

The Health Risk Appraisal Questionnaire uses certain demographic and physiological data and a computerized program to compute the respondents risk of death during the next 10 year period. It is based on the average risk of death per 100,000 people of the same age, sex, and race.

The Health Risk Appraisal Questionnaire (55) printout provides a variety of information. It indicates:

. . . the probabilities of dying that the participant's risk group may expect (as a group). This is summarized as the individual's "appraisal age" which may be above, below, or equivalent to his or her chronological age. . . . the appraisal does not add or take years off one's life, but merely indicates that the person is a member of a group which has a particular predicted mortality experience.

The form also provides information on how to reduce the "appraisal age." Suggestions are made to change specific behaviors or to utilize appropriate screening procedures.

These suggestions are:

. . . automatically fed into the computer in relation to the individual's original input. This results in a "new" appraisal indicating the potential for lowering the risks originally determined. This is translated into a "benefit age" which is usually lower than the "appraisal age" (55).

Personal data were collected on the subjects' age, sex, level of education, and form of payment for clinic services.

V. ATTITUDE SCALE

The semantic differential technique was used to measure the attitudes of the participants in this research.

This technique is a method of constructing an instrument rather than an instrument per se (1). It consists of a number of adjective pairs of opposite meanings separated by a seven point rating scale. The purpose of the scale is to measure people's reactions to a specific concept.

The major objective of the semantic differential is to get measurements on three dimensions: evaluation, potency, or activity. A number of studies have identified these three dimensions as valid and reliable when used with a wide variety of concepts, people, and scales (40). In this study the evaluative dimension adjective pairs which measure the evaluative meaning of a concept (58) were considered the most appropriate. The evaluative factors are also the more reliable in measuring meaningful judgments than either potency or activity (40, 74). A few "filler" adjective pairs were used to make the instrument less obvious (58). A common procedure for selecting adjective pairs is to pick adjectives on the basis of published factor analyses (40). These published factor analyses studies provide a pool of scales to draw from and match a concept.

The bipolar adjectives were selected by the researcher from a pre-established list provided by Osgood, Suci, and Tannenbaum (1957) (74). They were chosen as an estimate of the individual's perception of his/her attitude pertaining to selected concepts. The following bipolar adjectives were

used: good-bad, needed-unneeded, helpful-unhelpful, valuable-worthless, clear-hazy, successful-unsuccessful, negative-positive, meaningful-meaningless, unpleasant-pleasant, wise-foolish, interesting-boring, passive-active, unfair-fair, high-low, safe-dangerous, pleasurable-painful, important-unimportant, brave-cowardly, healthy-sick, weak-strong, serious-humorous, sensitive-insensitive, incomplete-complete, false-true, fast-slow, complex-simple. These 26 adjective pairs were chosen as an estimate of an individual's perception of his/her attitude pertaining to the selection of health concepts.

Ten scales measured attitudes toward the concepts:

- 1) Health Contracting, 2) Health Information, 3) Health Counseling, 4) Personal Responsibility for Your Health Care, 5) Early Detection of Disease, 6) Prevention of Illness, 7) Willingness to Change a Poor Health Behavior, 8) Health Risk Appraisal Questionnaire, 9) Yearly Physical Examination, 10) Ability to Improve Your Health (Appendix H).

VI. STATISTICAL TREATMENT

Statistical treatment of the data was designed to describe the sample and answer the five proposed research questions.

1. Personal data on each subject were collected. This information included: sex of the subject, their chronological age, whether they were clinic or

non-clinic patients, their educational level, perceived social/economic status (low, medium, or high), and their form of payment for medical services received. These data were used to describe the individuals who withdrew from the program as well as the individuals who were in the experimental and control groups. This was done to determine if there were any outstanding differences between the program's participants and non-participants. The analysis of variance test was used to determine the variation between chronological mean ages of the non-participants and participant groups. The analysis of variance analyzed the variation between the sample mean chronological ages, as well as the variation of chronological age within each group at the .05 level of confidence.

To determine if there were any differences between the program's participants and non-participants according to sex, educational level, form of medical payment used, clinic-non-clinic patients, and perceived socio-economic level, the following chi-square test was used (15):

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

O = the observed value for each cell

E = the expected value for each cell

Yates correction for continuity was used to modify the over-estimate of χ^2 when the expected cell frequencies were small.

2. The chi-square test was also used to determine if any characteristic differences existed at the .05 level between the experimental and control groups. The following nominal characteristic variables were used: sex, education, form of medical payment, clinic or non-clinic patient, and socioeconomic status.
3. The first research question in this study was: "Does contracting with support procedures lead to a reduction in appraisal age?" For each participant in the study, a Health Risk Appraisal Questionnaire appraisal age change was determined. A t-test for differences between means was calculated to determine if there were any differences between the experimental and control groups. The following t formula was used (15):

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\frac{S\bar{X}_1 - \bar{X}_2}{\sqrt{n}}}$$

$\bar{X}_1$ = sample mean 1

$\bar{X}_2$ = sample mean 2

$S\bar{X}_1 - \bar{X}_2$ = standard error of the difference
between the two means

4. Question number two was: "Does contracting with

support procedures change the projected causes of death?" Risk estimations are generated by modifying data on the average risk in a population according to the presence or absence of risk related characteristics in an individual.

Eight risk factors were examined: accidents related to motor vehicles, heart disease, cirrhosis, stroke, diabetes, cancer of the lungs, cancer of the cervix, and cancer of the breast.

The chi-square test was used to determine if the experimental and control groups decreased their risk, remained the same, or increased their risk of death in each of the specific categories.

5. Question number three was: "Does contracting with support procedures lead to a decrease in risk reduction recommendations?" Each subject was provided with specific recommendations, that would improve their health status. The years of increased life expectancy were also provided. Each subject's total years risk reduction change score was computed. A t-test for the differences between means were calculated to determine if there were differences between the experimental and control groups.

A paired t-test was calculated to determine if there were any significant changes in the

benefit years possible with the experimental and control groups before and after the program.

The following paired t-test formula was used (25):

$$t = \frac{\bar{d} - D}{Sd / \sqrt{N}}$$

D = 0, true population mean of the distribution of differences

$$Sd = \sqrt{\frac{\sum d_i^2}{N} - \frac{(\sum d_i)^2}{N^2}}$$

6. Question number four was: "Did contracting with support procedures utilized in the experimental group lead to a risk reduction in the area the subject contracted?"

The paired t-test was used to determine if significant differences before and after the program within the experimental and control groups existed in the areas the subjects contracted.

7. Question five in this study was: "Does contracting with support procedures change attitudes toward the following concepts: Health Contracting, Health Information, Health Counseling, Personal Responsibility for Your Health Care, Early Detection of Disease, Prevention of Illness, Willingness to Change a Poor Health Behavior, Health Hazard Appraisal Questionnaire, Yearly

Physical Examination, Ability to Improve Your Health?" Attitude change was measured by taking the differences between each adjective pair on the pretest and on the posttest. There were 10 adjective pairs for each of the 10 concepts. For each concept a change score was calculated. A t-test for differences between means was calculated to determine if there were differences between the experimental and control groups.

Summary

Seventeen subjects were assigned to the experimental and control group. All the participants in the experimental group were pretested utilizing the Health Risk Appraisal Questionnaire and a Semantic Differential attitude scale. Subjects were provided with an overview of their health risks according to the Health Risk Appraisal Questionnaire and specific health information. After receiving the health information, each participant was asked to take part in a contract procedure. The contract was used to identify specific health related behaviors the subject would be willing to change or improve. A reinforcement procedure was also implemented. All information and contractual arrangements were conducted by a Health Education Aide.

The control group received the same program as the experimental group with the exception that the contracting procedures were not used.

Both the experimental and control groups were given posttests after three months utilizing the same Health Risk Appraisal Questionnaire and Semantic Differential attitude technique.

CHAPTER IV

RESULTS

The purpose of this study was to determine the effectiveness of a contracting methodology and support procedures in initiating positive health behavior among rural residents. Data were gathered from four sources: descriptive information about each of the participants, pretest attitude scores/posttest attitude scores, pretest Health Risk Appraisal Questionnaire results, and posttest Health Risk Appraisal Questionnaire results. Additional information was acquired informally through a follow-up telephone survey.

I. GENERAL CHARACTERISTICS OF THE SAMPLE

Initially, 53 rural county residents agreed to participate in the health promotion program. See Table 3 for a summary of the descriptive characteristics of the sample. Forty-one (77 percent) participants were Union County clinic patients. These people were solicited while they were waiting to visit the Union County clinic physician. Twelve (23 percent) individuals who asked to take part in this program were not clinic patients. These people were approached while at the Union County Community Service Building for other than medical purposes.

Of the 53 participants, 19 (35 percent) individuals

TABLE 3

SUMMARY OF DESCRIPTIVE CHARACTERISTICS OF NON-PARTICIPANTS AND PARTICIPANTS
IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81

	Non-Participants	Participants	
		Control Group	Experimental Group
Males	6	5	4
Females	13	12	13
Mean Chronological Age	35	35	36
Clinic Patient	17	10	14
Non-Clinic Patient	2	7	3
High School Graduates	10	11	11
Non-High School Graduates	9	6	6
Perceived Socio-Economic Status			
Low	5	1	8
Medium	13	14	9
High	1	2	0
Form of Payment for Medical Services			
Direct	7	9	9
Medicare	1	2	0
Medicaid	4	2	5
Insurance	5	4	3
No Response	2	0	0
Total Number in Each Group	N=19	N=17	N=17

were not included in the experiment for the following reasons: 16 were not interested in continuing the program, one died, one moved out of the county, and one individual could not be located for follow-up.

The descriptive characteristics of those individuals who stayed in the program in its entirety and those individuals who did not complete the program are described below. Any outstanding differences between the participants and non-participants might serve to explain why people did not continue in the program.

Description of the Non-Participants

The non-participant group consisted of 13 (68 percent) females and six (32 percent) males. The group's mean chronological age was 35 years with a range of 25-62 years of age. Of the 19 non-participants, 17 (89 percent) were clinic patients and 10 (52 percent) people were high school graduates. In response to the question, "Do you think your social and economic status is low, medium, or high?": 13 (68 percent) individuals indicated they felt their socio-economic status was medium, five (26 percent) people in the non-participant group said they perceived their socio-economic status to be low, one (6 percent) individual in this group stated his socio-economic status was high.

Seven (37 percent) people in the non-participant group indicated that they paid the physician directly for medical services. Five (26 percent) people in this group stated

that they had private medical insurance, four (21 percent) used medicaid, and one (6 percent) individual said he used medicare to pay for medical services. Two (10 percent) individuals in this group did not reveal how they paid for their medical services.

Description of the Participants

The participants in this health promotion program were randomly divided into two groups, control and experimental.

Control Group: The control group consisted of 17 subjects who participated in the program in its entirety. This group was composed of 12 (71 percent) females and five (29 percent) males. The group's mean chronological age was 35 years with a range of 25-66 years of age. Of the 17 members in the control group, 10 (59 percent) were clinic patients. Eleven (64 percent) individuals in this group were high school graduates. Fourteen (82 percent) individuals felt their socio-economic status was medium, two (12 percent) individuals perceived their socio-economic status to be high, and one (6 percent) felt it was low.

In response to the question, "How do you pay your medical bills?": nine (53 percent) individuals stated they paid the physician directly for his services, four (23 percent) people in this group said they had medical insurance, two (12 percent) used medicaid, and two (12 percent) individuals had medicare.

Experimental Group: The experimental group consisted

of 17 individuals which included 13 (76 percent) females and four (24 percent) males. The mean chronological age of this group was 36 years with a range of 25-62 years of age. Of the 17 individuals in the experimental group, 14 (71 percent) were clinic patients. Eleven (64 percent) people in this group were high school graduates.

Nine (53 percent) individuals in this group indicated that their socio-economic status was medium and eight (47 percent) individuals perceived their socio-economic status to be low. No one in this group felt they were in the high socio-economic bracket.

Nine (53 percent) people in the experimental group paid their physician directly for his services, five (29 percent) people stated they used medicaid, and three (8 percent) people said they used private medical insurance. No one in the experimental group stated they had medicare.

II. STATISTICAL TREATMENT OF NON-PARTICIPANTS' AND PARTICIPANTS' CHARACTERISTICS

The analysis of variance test was calculated to determine the variation between chronological mean ages of the non-participant and participant groups. The observed F value .0150 was not significant at the .05 level of significance as shown in Table 4. The results indicated there were no significant differences between the mean ages of the groups.

TABLE 4

AN ANOV SUMMARY OF NON-PARTICIPANTS AND PARTICIPANTS (CONTROL, EXPERIMENTAL)
 CHRONOLOGICAL AGES IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
 PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Source of Variation	SS	df	MS	F	P.05, 3.18
Between	4.8	2	2.4	.0150	
Within	7981.5	50	159.6		
Total Variation	7986.3	52			

To determine if there were any disproportional differences in the distribution of specific characteristics between the non-participant and participant groups, a chi-square test was calculated. The following variables were analyzed: sex, educational background (high school or non-high school graduates), and form of payment they used for medical services (insurance or direct payment). Other variables examined were the differences between proportions of the non-patients and patients of the Union County Medical Clinic physician and what they perceived their socio-economic status to be (high, medium, or low). The computed chi-square values were not equal to or larger than 3.841 at the .05 level of significance in any of the specific categories tested as shown in Table 5 (Appendix K contains individual chi-square computations). Based on these results, it was concluded that there were no differences between the non-participants' and participants' groups in respect to any of the specific characteristics analyzed.

III. STATISTICAL TREATMENT OF CONTROL AND EXPERIMENTAL GROUPS' CHARACTERISTICS

The chi-square test was used to evaluate distribution of the nominal characteristics of the control and experimental groups. The differences in the following variables were analyzed: sex and educational background (high school or non-high school graduates) and the form of payment used

TABLE 5

SUMMARY OF THE CHI-SQUARE VALUES OF PROPORTIONAL CHARACTERISTIC OF NON-PARTICIPANTS/PARTICIPANTS IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81 (N=53)

Descriptors	χ^2	P.05, 3.841
Sex	0.14	
Education Level	0.77	
Form of Payment Used for Medical Services	0.75	
Clinic/Non-Clinic Users	1.58	
Perceived Socio-Economic Status	0.00	

*Significant at .05 level.

for medical services (insurance or direct payment). Union County Medical Clinic patients or non-clinic participants and their perceived socio-economic status (high, medium, or low) were also examined. A summary of all the chi-square results are found in Table 6 (Appendix L contains individual chi-square computations).

The observed differences were only significant in one area, perceived social and economic status. The chi-square value of 5.49 exceeds the critical value 3.841 at the .05 level of confidence for the perceived socio-economic status variable. The experimental group perceived itself to be of a lower socio-economic status than the control group.

TABLE 6

SUMMARY OF THE CHI-SQUARE VALUES OF PROPORTIONAL CHARACTERISTICS OF THE EXPERIMENTAL AND CONTROL GROUPS IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81 (N=53)

Descriptors	χ^2	P.05, 3.841
Sex	0.00	
Educational Level	0.00	
Form of Payment Used for Medical Services	0.00	
Clinic/Non-Clinic Users	2.26	
Perceived Socio-Economic Status	5.49*	

*Significant at .05 level.

IV. THE RESULTS OF THE HEALTH PROMOTION PROGRAM

Specifically the data were collected under the following conditions:

1. Control Group: 17 subjects were pretested concerning their current health status and behaviors according to the Health Risk Appraisal Questionnaire. Attitudes toward specific health related concepts were also measured. A health information program was provided by a trained Health Education Aide. Three months later a posttest was administered to each of the program participants.

2. Experimental Group: 17 subjects were pretested and received health information from the same Health Education Aide. In addition, these individuals participated in a contract agreement and support procedures for three weeks. Support procedures were weekly contacts with each of the experimental group participants. Once a week for three weeks the Health Education Aide telephoned each subject to discuss the subject's progress. Postcards were also mailed to each person in the experimental group once a week for three weeks. Posttest data were collected after three months.

Data for this research were gathered and statistically analyzed. The t-test, chi-square, and paired t-test were used to determine the effectiveness of outreach health promotion methodology conducted among rural county residents. Effectiveness was measured in terms of the non-rejection or rejection at the $p < .05$ level of significance for two tail test.

The program's effectiveness was measured through the analysis of the following five research questions:

1. Does contracting with support procedures lead to a reduction in appraisal age?

Appraisal age averages rather than going down went up in both groups. The mean pre-program appraisal age for the experimental group was 35.8

years post-program and three months mean appraisal age was 38.4 years, an increase of 2.6 years. See Table 7 for the pretest/posttest appraisal ages for experimental and control groups. The control group mean pre-program appraisal age was 32.8 years post-program and three months mean appraisal age was 34.29, an overall increase of 1.49 years. For each participant in the study, appraisal age change was calculated. A t-test for differences in change between means was calculated to determine if there was a difference between the experimental group and the control group. The t-value $-.973$ was not significant at the .05 level of significance, as shown in Table 8. Contracting with support procedures did not significantly reduce appraisal ages.

2. Does contracting with support procedures change the projected causes of death?

Eight specific projected causes of death were analyzed for change: accidents related to motor vehicles, heart disease, cirrhosis of the liver, stroke, diabetes, cancer of the lungs, cancer of the cervix, and cancer of the breast. A chi-square value was computed for each separate category. This test was used to determine if a significant relationship existed between the experimental and

TABLE 7

CHRONOLOGICAL AGES, SEX, PRETEST, AND POSTTEST APPRAISAL AGES OF EXPERIMENTAL, AND CONTROL GROUPS IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81 (N=17)

Experimental				Control			
Chronological Age	Sex	Pretest Age	Posttest Age	Chronological Age	Sex	Pretest Age	Posttest Age
25	F	26	27	25	F	22	27
25	F	24	24	25	F	24	26
25	F	17	22	25	F	20	22
25	F	27	28	26	F	21	30
26	F	28	30	27	F	23	23
26	F	26	30	29	F	20	23
27	M	28	30	31	F	28	29
29	F	26	27	32	F	36	38
29	M	19	32	32	M	40	39
30	F	32	30	32	M	32	32
31	F	30	29	33	M	23	19
39	F	36	37	35	F	33	33
46	M	48	48	35	F	34	34
51	F	58	62	36	F	34	35
56	F	55	60	45	M	45	45
59	F	58	58	64	F	60	63
62	M	72	80	65	M	63	65
$\bar{x} = 35.9$		$\bar{x} = 35.8$	$\bar{x} = 38.4$	$\bar{x} = 35$		$\bar{x} = 32.8$	$\bar{x} = 34.29$

TABLE 8

t-TEST FOR DIFFERENCE IN APPRAISAL AGES BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS
IN THE UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean Difference	Standard Deviation	t	df	p.05, 2.046
Experimental	17	-2.6	3.7	-.97	32	
Control	17	-1.5	2.8			

control groups in regards to a decrease or no change in one of the specific areas. None of the comparisons yielded a significant chi-square value. Table 9 depicts the chi-square values for all categories (Appendix M contains individual chi-square computations). There were no significant differences between the experimental and control groups. Contracting with support procedures, therefore, did not have an effect on changing specific projected causes of death.

3. Does contracting with support procedures lead to a decrease in risk reduction recommendations?

Each subject's pretest and posttest computer program health status evaluation listed specific recommendations for health improvements. It also provided the total number of years of increased life expectancy possible if these recommendations were followed. Utilizing this information, each subject's total years risk reduction change score was computed. A t-test for the differences between the means were calculated to determine if there were differences between the experimental and control groups.

The computed t-value 2.59 was significant at the .05 level of significance as shown in Table 10. The significance of the t-value indicated that a

TABLE 9

SUMMARY OF EXPERIMENTAL AND CONTROL GROUPS CHI-SQUARE VALUES
FOR THE PROJECTED CAUSES OF DEATH, UNION COUNTY MEDICAL
CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81

Descriptors	N	χ^2	p.05, 3.841
Motor Vehicle	32	1.12	
Heart Disease	34	1.10	
Stroke	34	1.08	
Lung Cancer	16	3.20	
Breast Cancer	25	0.12	
Cirrhosis	34	0.56	
Diabetes	21	0.02	
Cancer of Cervix	24	0.25	

*Significant at .05 level

TABLE 10

t-TEST FOR DIFFERENCES BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS TOTAL RISK
REDUCTION YEARS POSSIBLE, UNION COUNTY MEDICAL CLINIC HEALTH
PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean Difference	Standard Deviation	t	df	p.05, 2.042
Experimental	17	-1.18	3	-2.59	32	
Control	17	.82	1			

difference existed between the two means with respect to reduction in years of risk. The difference between the two groups appeared to be due to the fact that the experimental group, as a whole, regressed as shown in Table 11. Six (35 percent) people in the experimental group risk reduction years increased rather than decreased. This indicated that these people's health related behaviors which they control, became worse. Four (23 percent) people in the experimental group showed a reduction in risk recommendation indicating they had reported an improvement in their health status or health practices. Seven (41 percent) people in this group reported no reduction.

To determine if there were any significant changes in the benefit years possible within the experimental group, before the program and after the program, a paired t-test was calculated. The calculated t-value -1.44 does not fall into the rejection region at the .05 level of significance as shown in Table 12. This indicated that the contracting process used had no effect on the participants within the experimental group.

It is interesting to note that significant changes took place with the control group, as shown in Table 13. Ten (58 percent) people in

TABLE 11

PRETEST AND POSTTEST TOTAL RISK REDUCTION YEARS POSSIBLE
 FOR EXPERIMENTAL GROUP, UNION COUNTY MEDICAL CLINIC
 HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
 TENNESSEE, 1980-81 (N=17)

Pretest	Posttest	Difference
4	3	1
3	2	1
2	1	1
3	2	1
3	5	-2
5	6	-1
8	15	-7
4	5	-1
2	14	-12
4	5	-1
2	2	0
2	2	0
2	2	0
12	12	0
1	1	0
4	4	0
2	2	0

N = 17

$\bar{X} = -1.17$

TABLE 12

PAIRED t-TEST FOR TOTAL RISK REDUCTION YEARS FOR THE EXPERIMENTAL GROUP FOR BEFORE
AND AFTER THE PROGRAM, UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Experimental Group	N	Mean	Standard Deviation	t	df	p.05, 1.746
Before and After Differences	17	-1.17	3.36	-1.44	16	

TABLE 13

PRETEST AND POSTTEST TOTAL RISK REDUCTION YEARS POSSIBLE
 FOR CONTROL GROUP, UNION COUNTY MEDICAL CLINIC HEALTH
 PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE,
 1980-81

Pretest	Posttest	Difference
2	1	1
5	4	1
3	2	1
15	14	1
3	2	1
3	0	3
7	5	2
4	2	2
2	1	1
5	1	4
0	3	-3
1	1	0
0	0	0
2	2	0
0	0	0
1	1	0
5	5	0

$N = 17$

$\bar{X} = .823$

this group showed a reduction in risk recommendations. This indicated that these individuals reported improvements in their health status and practices. Six (35 percent) people in this group reported no change in their recommendations over a three month period. This indicated that these individuals did not follow any of the specific recommendations provided. For one individual in the control group, risk reduction years increased. This indicates that his health status or health practices became worse.

A paired t-test was computed to determine if any significant changes in risks occurred within the control group. The resulting t-value 2.29 was significant at the .05 level as shown in Table 14. The fact that the t-value was significant indicated that the control group health risks recommendations were reduced within the three month time frame.

4. Did contracting with support procedures utilized in the experimental group lead to a risk reduction in the area the subject contracted?

There were seven different areas that the subjects within the experimental group chose to contract. In Table 15 there is a list of the specific areas individuals contracted and pretest/

TABLE 14

PAIRED t-TEST FOR TOTAL RISK REDUCTION YEARS FOR THE CONTROL GROUP FOR BEFORE AND AFTER THE PROGRAM, UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Control Group	N	Mean	Standard Deviation	t	df	p.05, 1.746
Before and After Differences	17	.823	1.50	2.29	16	

TABLE 15

AREAS SUBJECTS CONTRACTED IN AND TOTAL BENEFIT YEARS
 POSSIBLE ON THE PRETEST AND POSTTEST WITHIN THE
 EXPERIMENTAL GROUP, UNION COUNTY MEDICAL
 CLINIC HEALTH PROMOTION PROGRAM,
 MAYNARDVILLE, TENNESSEE,
 1980-81

Sex	Area	Pretest	Posttest
F	Exercise	0.7	0.5
	Pap Test	0.7	0.8
M	Exercise	0.1	0.3
	Smoking	0.7	2.4
F	Weight	0.3	0.0
	Smoking	1.3	1.3
	Seatbelts	0.1	0.3
M	Blood Pressure	2.2	2.7
F	Seatbelts	0.1	0.0
F	Exercise	1.8	1.3
	Weight	1.3	1.2
F	Weight	0.1	0.1
	Exercise	0.1	0.6
M	Blood Pressure	5.5	7.4
	Weight	1.3	1.8
F	Weight	3.5	3.2
F	Weight	10.9	9.3
F	Smoking	1.4	1.5
F	Weight	0.7	0.4
F	Depression	---	---
F	Exercise	0.1	0.3
F	Smoking	0.9	0.0
	Weight	0.6	0.4
F	Smoking	1.1	1.6
F	Exercise	0.8	1.1

posttest benefit years possible in each area. A subject could work on one or more areas. Among the 13 females in this group, six chose to increase their present level of exercise. Six chose to reduce their weight. Four women chose to reduce the number of cigarettes they smoked. Two indicated they would begin wearing seatbelts. One woman chose to work on blood pressure. One women indicated she would have a pap test. The four males in the experimental group concentrated on exercise, smoking, weight, and blood pressure. Within this group, 10 individuals reported that they reduced, to some extent, their total risk reduction years. Twelve people reported an increase in possible benefit years in the area they contracted. This indicated that these individuals did not improve the areas they chose and reported their performance as worse than in the beginning of the program. Three individuals indicated no change in benefit years.

To determine if there were any statistically significant differences before and after the program within the experimental group, a paired t-test was calculated. The t-value of $-.66$ was not significant at the $.05$ level as shown in Table 16. Individuals within the experimental

TABLE 16

PAIRED t-TEST FOR DIFFERENCE IN BENEFIT YEARS POSSIBLE BEFORE AND AFTER PROGRAM
 WITHIN THE EXPERIMENTAL GROUP, UNION COUNTY MEDICAL CLINIC HEALTH
 PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Experimental Group	N	Mean	Standard Deviation	t	df	p.05, 1.714
Before and After Differences	24	-.096	.71	-.66	23	

group did not significantly reduce their health risks in the areas they contracted.

The control group was examined closely to determine if there were any improvements made in the seven areas in which the individuals chose for health education. A list of the specific areas and pretest/posttest benefit years is presented in Table 17.

In the control group, seven women and one man chose exercise as a topic of interest. Two females and two males chose to learn more about weight control. One female and one male chose the topic of smoking. Two women indicated they were interested in learning more about the pap test. One woman indicated that she wanted to learn how to perform self-breast-exams. One male chose the topic of blood pressure, and one female chose the topic of seatbelts.

Eleven individuals in the control group had a decrease in benefit years possible. Four people in this group had an increase and five people remained the same.

To determine if the control group made any significant changes in the areas in which they were educated, a paired t-test was computed. The t-value 1.28 was not significant at the .05

TABLE 17

AREAS SUBJECTS EDUCATED IN AND TOTAL BENEFIT YEARS
 POSSIBLE ON THE PRETEST AND POSTTEST WITHIN THE
 CONTROL GROUP, UNION COUNTY MEDICAL CLINIC
 HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
 TENNESSEE, 1980-81

Sex	Area	Pretest	Posttest
M	Weight	3.9	4.0
F	Exercise	0.9	1.0
F	Exercise	1.0	0.0
M	Smoking	4.1	3.8
F	Exercise	1.0	0.5
M	Exercise	2.4	0.0
F	Pap Test Self-Breast Exam	2.5	0.9
F	Pap Test	0.5	0.0
F	Exercise	0.0	0.0
F	Exercise	0.6	2.0
F	Seatbelts	0.0	0.0
	Weight	0.0	0.0
F	Pap Test	1.1	1.5
F	Exercise	0.6	0.3
	Smoking	0.6	0.0
F	Weight	0.0	0.0
	Exercise	0.0	0.0
F	Exercise	0.0	0.4
M	Weight	1.3	1.0
M	Blood Pressure	2.4	1.5

level as shown in Table 18. This indicated that the individuals in the control group had not reported any definite improvements within the areas in which they were educated.

5. Does contracting with support procedures change attitudes toward the following concepts: Health Contracting, Health Information, Health Counseling, Personal Responsibility for Your Health Care, Early Detection of Disease, Prevention of Illness, Willingness to Change a Poor Health Behavior, Health Hazard Appraisal Questionnaire, Yearly Physical Examination, Ability to Improve Your Health?

For each concept a change score was determined. A t-test for the difference between means was computed to determine if there were differences between the experimental and control groups. The t-value calculated for each of the concepts were not significant at the .05 level of significance as shown in Table 19 (Appendix N contains the individual t-test computations). The contracting process utilized did not influence the participants' attitudes.

Results of Telephone Follow-Up

In an effort to verify the results, and to check on the self-reported behaviors of individuals, an informal

TABLE 18

PAIRED t-TEST FOR DIFFERENCES IN BENEFIT YEARS POSSIBLE BEFORE AND AFTER THE
 PROGRAM WITHIN THE CONTROL GROUP, UNION COUNTY MEDICAL CLINIC HEALTH
 PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Control Group	N	Mean	Standard Deviation	t	df	p.05, 1.730
Before and After Differences	20	.22	.77	1.28	19	

TABLE 19

SUMMARY OF t-TEST FOR DIFFERENCES IN ATTITUDES BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81 (N=34)

Descriptors	t	p.05, 2.042
Health Contracting	0.16	
Health Information	-1.29	
Health Counseling	-1.50	
Personal Responsibility for Your Health Care	0.23	
Early Detection of Disease	-0.50	
Prevention of Illness	1.45	
Willingness to Change a Poor Health Behavior	0.25	
Health Hazard Appraisal Questionnaire	-0.57	
Yearly Physical Examination	0.29	
Ability to Improve Your Health	-0.68	

telephone survey was conducted (see Appendix J for an example of the survey used). Responses were solicited from the subject's spouse or a close relative.

Within the experimental group, 11 people (64 percent) in the group were contacted. Six people (35 percent) in the group could not be reached. Of the 11 people contacted, four (36 percent) close relatives or spouses indicated they were aware of the subjects having made some effort to change a specific health behavior within the last four months. Seven people (64 percent) indicated that they did not notice any effort being made by the subject to initiate a change in a specific behavior. None of the subjects were reported to be making any effort to change a behavior at the time the phone call was being made. Only one of the respondents indicated that they noticed an overall improvement in the subject's health behaviors.

Within the control group, 12 (70 percent) of the close relatives of subjects were contacted. Five individuals (30 percent) of the group could not be contacted. Of the 12 close relatives contacted, seven (58 percent) noticed that the subject had, in the last four months, made some effort to change a specific health behavior. Six (50 percent) indicated that the subject was still actively involved in the process. However, only four relatives (33 percent) indicated that they had seen any overall improvements.

These results seemed to indicate that the contracting procedures utilized had no effect on initiating positive behavior changes. The follow-up survey results were closely related to reported behaviors in both the experimental and control groups.

Conclusion

The purpose of this experiment was to determine if contracting with support procedures would lead rural county residents to significantly change some of their negative health related behaviors and attitudes. By comparing the experimental and control groups' Health Risk Appraisal Questionnaire and attitude scores, it was concluded that the contracting process, as used in this study, was not an effective motivational technique.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

Many diseases, premature deaths, and the causes of disability that occur today can be directly linked to poor health related behavior. This necessitates that preventive health treatment and health education programs be implemented which will encourage positive lifestyle changes as well as promote effective use of the available medical services.

One appropriate location to establish health intervention programs is in rural Appalachia. The people in many Appalachian communities are forced to do without adequate health services. Poverty, lack of transportation facilities, isolation, inadequate education, and cultural attitudes all form barriers to the health care system. There is an urgent need for people in these regions to become aware of the health behavior changes that should be made to enhance their health status. It has become essential for many of the Appalachian people to make positive changes in their lifestyles and to understand the economic and social benefits of doing so.

In an effort to meet this educational need of the people and enhance the quality of services provided in one rural Appalachian clinic, this preventive health promotion

program was instigated and evaluated. The purpose of the program was to provide health education and assess the effectiveness of the methodology used to initiate positive behavioral changes. The method utilized and evaluated was contracting with support procedures. The program was provided as a service of the Union County Medical Clinic in Maynardville, Tennessee. It was offered to all rural county residents who were willing to take part in the program. All participants were solicited while at the Union County Community Service Building. Both Union County clinic patients and non-clinic users were asked to participate.

A research design involving one experimental group and one control group was established. The experimental group consisted of 17 subjects. They were pretested concerning their current health status and behaviors according to a Health Risk Appraisal Questionnaire. Their attitudes toward specific health related concepts were also measured. After the Health Risk Appraisal Questionnaire was tabulated, each subject in the experimental group was provided with the results of the appraisal and received appropriate health education information. They also participated in a contractual agreement procedure. Posttests were conducted after three months.

The contract process used in this experiment stipulated specific goals, time frames, and contingencies which the subject established and followed, in order to bring about a

specific behavior. The contract was to be actively followed for three weeks. To encourage continued participation in the contract arrangement, the subjects were contacted each week through the mail and telephone by a trained Health Education Aide.

The control group also consisted of 17 subjects. They were pretested and received health education, but did not participate in a contracting procedure. Posttests were conducted after three months.

The Health Education Aide provided all health information to the control group and experimental group. She also made all contracting arrangements in the experimental group. The informational materials used were presented in flip charts. A jury of 18 health professionals reviewed the material and commented upon their appropriateness and accuracy.

Evaluation of the program involved multiple comparisons of program participants with individuals who did not stay in the program. Comparisons were made between the pretest and posttest responses of the experimental and control groups related to: 1) Health Risk Appraisal Questionnaire results, 2) attitude scores, and 3) telephone follow-up survey. The study sought to answer the following questions:

1. Will contracting with support procedures lead to a reduction in appraisal age?

2. Will contracting with support procedures change the projected causes of death?
3. Will contracting with support procedures lead to a decrease in risk reduction recommendations?
4. Will contracting with support procedures utilized in the experimental group lead to a risk reduction in the area the subject contracted?
5. Will contracting with support procedures change attitudes toward the following concepts: Health Contracting, Health Information, Health Counseling, Personal Responsibility for Your Health Care, Early Detection of Disease, Prevention of Illness, Willingness to Change a Poor Behavior, Health Hazard Appraisal Questionnaire, Yearly Physical Examination, Ability to Improve Your Health?

II. FINDINGS

Based on the analysis of the data, the findings of this research are as follows:

1. There were no significant differences between the mean chronological ages of the individuals who did not stay in the health promotion program and those who participated in the program.
2. There were no disproportional differences in the number of males/females, number of high school/non-high school graduates, form of payment used

for medical services, clinic/non-clinic patients, or perceived socio-economic level between the subjects that participated in the health promotion program in its entirety and those individuals who did not continue.

3. There were no disproportional differences in the number of males/females, number of high school/non-high school graduates, form of payment used for medical services, or clinic/non-clinic patients between the experimental and control groups.
4. There was a significant difference in perceived socio-economic level between the experimental and control groups. The experimental group perceived itself to be of a lower socio-economic level than the control group.
5. There was an increase in appraisal ages in both the control and experimental groups after three months.
6. There were no significant differences between the experimental and control groups' appraisal ages after three months.
7. There were no significant differences in projected risk of death from motor vehicle accidents, heart disease, cirrhosis, stroke, diabetes, cancer of the cervix, cancer of the breast, and cancer of the lung between the experimental and control groups.

8. There was a significant difference between the experimental and control groups' years of risk reduction possible. The control group's health risks were reported to be substantially reduced. There was no risk reduction within the experimental group.
9. Individuals in the experimental group did not significantly reduce their health risks in the areas they contracted.
10. Individuals in the control group did not report any significant change in their health risks in the areas they were educated.
11. There were no significant differences in attitude change scores between the experimental and control groups.
12. The telephone follow-up survey with close relatives of program participants confirmed participants' health reported behaviors.

III. CONCLUSIONS

The following conclusions are based on the findings of this study.

1. Contracting with weekly support procedures did not promote positive health behavioral changes or bring about a reduction in specific health risks after three months.

2. Contracting with weekly support procedures did not cause any changes in attitudes toward specific health related concepts after three months.
3. The fact that the experimental group perceived itself to be from a lower socio-economic status than the control group may have influenced the experimental group's participation. The individuals in this group may have felt restricted by such forces as financial burdens, lack of self-esteem, or lack of appropriate skills. These factors may have been strong enough to counteract any desire for health behavior change.
4. The short term contracting and the three weeks of support procedures were not powerful enough forces to maintain a change in attitude or behavior over a three month period. Stronger incentives are necessary.
5. It will take an extremely powerful force and long term effort to bring about a change in behavior in adults.
6. The subjects in the program may not have had a desire or felt a need to change their current health status.
7. The contracting procedures and educational information program conducted by a Health Education Aide were not adequate to promote a change in behavior or attitudes among rural residents.

8. The Health Risk Appraisal coupled with appropriate educational information may be an adequate method in itself to promote behavior changes among adults.
9. The self-directed contracting and support procedures used were too sophisticated to be utilized with this population to promote positive changes in attitudes and behaviors.

IV. RECOMMENDATIONS

On the basis of the findings of this study and the experience gained in conducting this research, the following recommendations are made:

1. Further efforts must be made to enhance health educational opportunities and preventive services in rural medical clinics.
2. Further research related to specific health education methodologies and health behavioral change techniques should be conducted in rural settings.
3. The effectiveness of Health Education Aides and other outreach workers in rural communities must be continually explored in an effort to identify the skills and specific areas in which an aide is most productive and cost effective.
4. In settings similar to Union County it is advisable to have two Health Education Aides of the

same sex to work together, especially when home visits are required. This companionship offers a degree of safety and could serve to enhance the quality of the education provided.

5. Research is needed related to the role of the family in assisting a family member to make appropriate behavioral changes and use of health intervention programs.
6. Improved measures are needed which will identify causes of diseases and detect possible health hazards. It would be appropriate to consider instruments that can be administered and scored by para-professionals. Concurrent with this need it is essential to develop health risk appraisal instruments that are suitable to rural people's lifestyle and can be used with illiterate populations.
7. Health professionals, physicians, and nurses have the opportunity, as well as the obligation, to provide services and information which can promote better health practices. In-service programs will enhance the medical staffs' understanding of the role of health education, as well as improve upon their patient education skills. Such programs must be implemented and evaluated. These programs would, hopefully, encourage cooperation between

the medical personnel and health education program providers.

8. The cost-effectiveness of health education must be documented which will justify the funding of such programs in rural medical clinics.
9. Replication of this study would be desirable with the following modifications: 1) choose another setting, preferably outside of Union County, 2) train the Health Education Aide more extensively, 3) utilize the contracting procedure but extend the support process over a longer period of time, 4) explore alternate forms of support procedures, 5) compare contracting with support procedures with a variety of other educational methodologies, i.e., small groups, bibliotherapy, home education to ascertain the most effective and cost efficient methods.

CHAPTER VI

EPILOGUE

Epidemiological evidence reveals that specific lifestyle behaviors will ultimately affect an individual's quality of life. Behavior related to smoking, diet, drinking, driving habits, and lack of utilization of health detection techniques, i.e., self-breast examination, pap test, tuberculosis test, x-rays, and others can significantly influence an individual's life expectancy as well as increase chances of future disability. Nowhere is such evidence more apparent than in rural Appalachia. Preventive health practices are rarely used with the result that the general population's health status is adversely effected. Many people within the Appalachian region are handicapped by poverty and struggle to meet the bare basic needs. They are also uneducated and strongly bound by traditional ways of living. These factors influence their health attitudes, health practices, and their general outlook on life.

Due to the lifestyle many people follow, the idea of preventing future health problems does not appear to be a major concern. The possibility of being sick or disabled years in the future is of little present consequence. The future is seen in terms of next week, not years from now. Prevention is often looked upon more as an inconvenience

often manifesting itself as a relinquishment of desired immediate pleasure.

Surviving today is more important than worrying about tomorrow's possible hardships. As Gray (34) aptly put it, "It's not enough to ask people to postpone immediate gratification for the offer of possible reward in an inconceivable future."

Forms of motivation that focus on immediate and tangible rewards are necessary before people in this region will become involved in health promotional activities. Such motivation must be structured to fit within the people's customs and be expressed in their vernacular. Health education programs must be developed specifically for the community in which they are to be used and continually evaluated at regular intervals over many years. Identifying the effective motivational techniques which encourage the population's participation in health promotion programs is vital.

This health promotion experiment made an effort to test the feasibility of one motivational technique, contracting. In this study, 53 people initially agreed to participate; however, 33 percent of the group dropped out due to a lack of interest. There were no apparent characteristic differences in regards to sex distribution, educational background, form of medical payment used, clinic/non-clinic participants, or self-perceived social/economical

status between the participant and non-participant groups. With the data available, there was no way to explain why some individuals stayed with the program and others did not. However, the large percentages of dropouts indicate a general lack of interest in this type of program. Obviously, the methods used did not generate universal enthusiasm.

The evidence clearly indicates there was no differences between the experimental and control groups. The contracting with support procedures utilized was not sufficient to motivate the participants behavior or to modify attitude changes.

A variety of possible explanations come to mind to account for this condition. The fact that the experimental group perceived itself to be of low socio-economic status may have been a factor. It is possible this group felt more threatened and uncomfortable with the process than the control group. Admitting to being in a low socio-economic status likely influences an individual's evaluation of his own worth and may limit his feeling he is capable of controlling his own destiny. Since the control group perceived itself as being from a higher socio-economic level, this may indicate they were more comfortable with the concept of self-improvement. It is also possible they were more cognizant of the need for health improvements.

The fact that appraisal ages in both the experimental

and control groups increased must be explored. There are a number of possible interpretations that can be made.

1. The education and the contracting procedures used were not powerful enough techniques to initiate positive changes in health behavior, and may even be a counter-productive force.
2. The general increase in appraisal ages may have been due to the subjects general increase in awareness of their actual health behaviors. Therefore, on the follow-up appraisal, all subjects were prepared to provide a more accurate assessment of their health status. Constant contact with the Health Education Aide may have made the participants in the experimental group more aware of their present health status and behaviors. Thus, on the posttest survey they were more accurate in their health assessments than they were on the pretest.
3. The overall increase in appraisal ages in each group may be due to participant familiarity with the program. If the participants were more comfortable with the proceedings of the program, they may have been more truthful in their answers concerning specific behavior.

Another possible reason the program fell short of dramatic success may be attributed to the attitude of the

medical staff of the Union County Medical Clinic. The staff apparently perceived the program as unnecessary and impractical. Their prejudicial attitude undoubtedly worked against the program. This lack of cooperation was likely perceived by the patients. It also hindered contact with many of the patients. Patient contacts were limited to two or three people a day at the clinic. No formal entrance or exit procedure was allowed. Patients were not routinely informed of the program. Instead, a hit or miss approach was implemented. Each patient in the clinic was contacted whenever and wherever he/she could be reached and such contacts were often interrupted or rushed in order not to interfere with the clinic procedures. Lack of commitment to the program by the clinic staff severely limited patient contact support and continuity.

In retrospect, the Health Education Aide trained and employed for this project was probably not adequately prepared to do the job as effectively as desired. Three months of solid field experience prior to any form of evaluation might have produced more conclusive results. The full effectiveness of a Health Education Aide, however, may always be in question. It takes years of study and practice to produce a competent health educator. Above all, it requires dedication and a profound interest in the field, qualifications which are not likely found in any Aide. It became evident that the Aide's role in this process required

more intelligence, drive, and dedication than had been anticipated. Such talent and training must be given due financial support in any future projects.

In addition, identifying motivational processes which maximize the Health Education Aide's productivity are needed. It is necessary to incorporate into the job description an incentive which will encourage continued participation. For example, paying the Health Education Aide for each patient contact, rather than a weekly salary might be more effective. Thus, the Aide will have reason to strive to overcome many of the inherent problems involved in dealing with people. Finally, the question of status of the Aide must be addressed. How the position is regarded by peers and community is important. If a Health Education Aide is viewed as an amateur with limited ability, then the confidence of the participants' in the program is shaken. Without proper respect, few effective results can be expected.

There are positive advantages to a Health Education Aide which should be balanced against the disadvantages. An Aide is relatively inexpensive and can be utilized on a part-time basis. If the person is employed within the community in which he/she lives, his/her knowledge of the area and the customs of the people will be a strong asset. A properly trained Aide can perform simple outreach activities. Such service would leave the professional health educator

free to tackle more technical activities.

Another area of possible improvement could be the instruments used in this project. Waiting for computer programmed results of the Health Risk Appraisal Questionnaire not only wasted time, but seemed to detract from the participant's initial interest in the questions. Waiting for the answers necessitated a second contact with the subject, which often proved difficult. Today, identifying negative health behaviors is not difficult and the consequences are often quite evident. Time in the first meeting with the subjects might have been better spent in identifying areas of needed improvement, motivation, education, and counseling, thus avoiding any delays.

The Health Risk Appraisal Questionnaire survey is highly dependent on self-reported behavior and memory of past health conditions. This weakens the instrument's reliability. It was not uncommon to find a program participant filling out the form inconsistently. For example, a number of subjects recorded that their mother was dead on the first survey and checked that she was alive on the second follow-up survey. Other subjects reported different heights at follow-up and impossible changes in parental ages. Similar Health Risk Appraisal Questionnaire contradictory answers were reported by Sacks et al. (81).

This necessitated a great deal of double checking. The Health Risk Appraisal Questionnaire also proved to be

difficult to use with illiterates, who are not uncommon in rural areas. Finally, it would be advisable to explore appraisals which accentuate the positive habits rather than dwelling on the negative. Reinforcing positive health habits will likely encourage an overall improvement in health behavior.

The fact that there were no attitude differences between the experimental and the control groups may be interpreted in several ways. Limited programs and using para-professionals may not be fully effective in influencing the public's long term health attitudes. Also, they may not be able to measure attitude change because a participant may enter the program with health concepts that are already positive, thus no change can be recorded. The Semantic Differential tool used in this experiment was regarded suspiciously by many of the participants. Many of the subjects were cautious in completing the survey. Their answers may have been suspect because they wanted only to answer in a positive manner. This attitude continued even after repeated clarification. It was apparent that the form was too long and many individuals checked any number just to expedite the process. Finally, the instrument itself may not be sensitive enough to measure attitude changes over a short period of time.

The program's structure necessitated conducting personal follow-up interviews with each participant. This

proved to be a difficult task. Appointments for home visits were frequently broken or ignored. It was only through continual persistence that any of the results were forthcoming.

In the course of this research project an effort was made to identify a population outside the clinic. Eleven different churches were visited. These churches were regarded as logical starting points as they were one of the few organizations to which many community members belonged. The program's objectives and procedures were presented to the authorities of each church. Not one church group indicated interest. It was the opinion of several of the ministers that it was difficult enough to get the members involved in traditional church related activities let alone anything else. Another difficulty was the ingrained suspicion the people of Union County have for outsiders. It would take years before community acceptance was truly possible.

This health promotion program was one of the first ever carried out in the Union County Medical Clinic. The clinic had only been in operation a couple of years. Both of these factors tended to foster an atmosphere of caution. It was felt by the physician that it was essential to move slowly. The clinic's acceptance by the community was a first priority. Inexperience of what could be expected of patients and community reactions undoubtedly affected the program results.

It will take time and repeated educational efforts before the inherent suspicions of new programs are overcome and their value appreciated. Health programs conducted and evaluated in hostile environments over a short period can only measure short term results. There is no guarantee that the program effects will be maintained or what the future outcomes may be. Each health intervention effort will add to the next to eventually lead to more acceptance of such programs and more profitable data.

The goals of health education are to: "interest each individual in his own health and the means to improve it" (5), encourage proper utilization of health services, provide information and encourage positive lifestyle behaviors. The objective of this health promotion project was to meet the goals of health education as directly as possible. It was an idealistic adventure. However, the experience derived from developing, implementing, and evaluating the program were regarded as worthwhile by the researcher.

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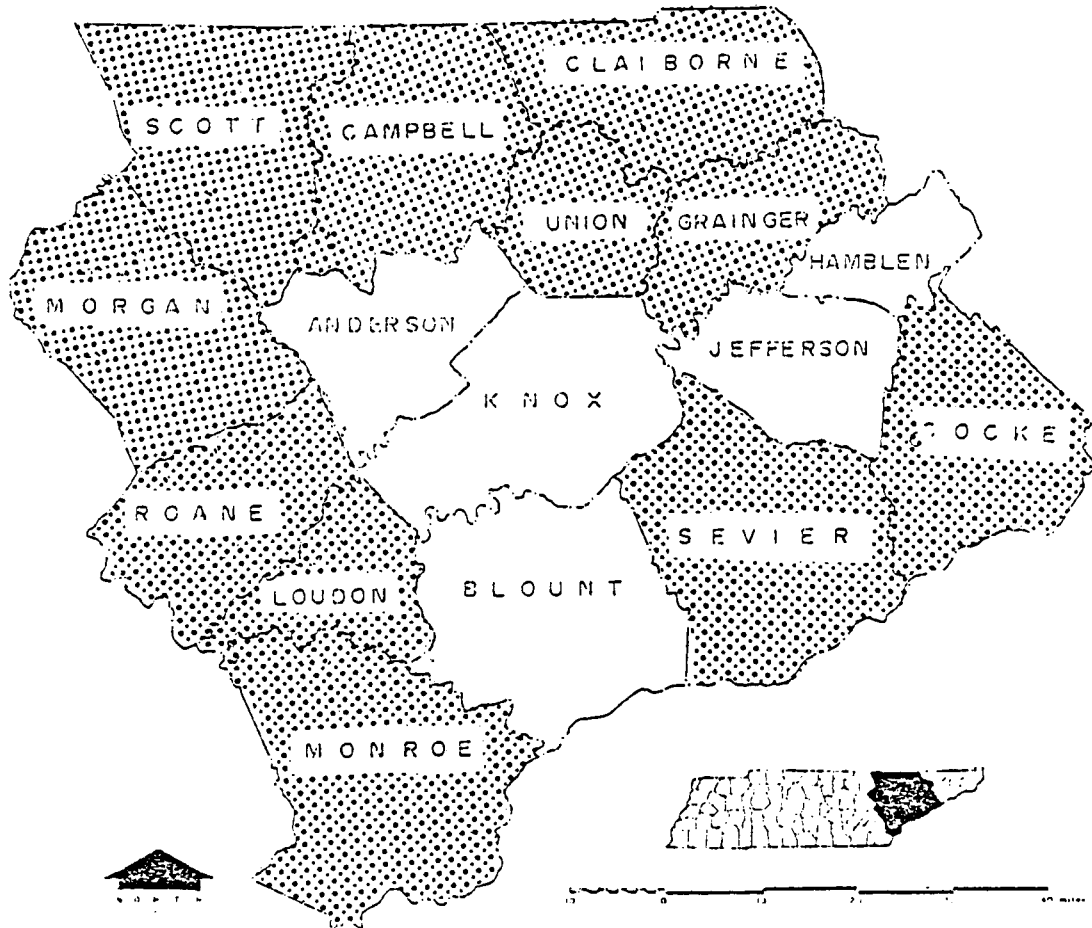
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APPENDICES

APPENDIX A

MEDICALLY UNDERSERVED AREAS IN EAST TENNESSEE

MEDICALLY UNDERSERVED AREAS IN EAST TENNESSEE



Key:

Medically
Underserved



APPENDIX B

SPECIFIC DEATH RATES PER 100,000 POPULATION IN
TENNESSEE AND UNION COUNTY

CAUSE SPECIFIC DEATH RATES PER
100,000 POPULATION
1978

	<u>Tennessee</u>	<u>Union County</u>
Diseases of the Heart	321.0	227.0
Malignant Neoplasms	172.6	159.7
Cerebrovascular Disease	98.3	75.7
Accidents	56.5	100.9
Influenza/Pneumonia	26.6	75.7
Arteriosclerosis	14.1	16.8
Diabetes	12.0	8.4
Infant Mortality	12.4	10.3 (1976)
Homocide	11.7	30.9 (1976)
Suicide	12.6	8.4

APPENDIX C

FLIP CHART EXAMPLES

The University of Tennessee
Knoxville
School of Health, Physical Education and Recreation

Division of Health and Safety
1914 Andy Holt Avenue
Knoxville, Tennessee 37916

(615) 974-5041

The following flip charts are meant to provide five minutes of basic health information to rural community residents. The charts are used in conjunction with the results of an individual's Health Hazard Appraisal and will be used by a trained health aide.

Would you please look at both the front and back of the charts, read them for content, clarity, and appropriateness. Feel free to make any comments you believe are necessary to improve the quality of the charts. Be sure to number your comments according to the chart's number and title, numbers are located on the back of the charts.

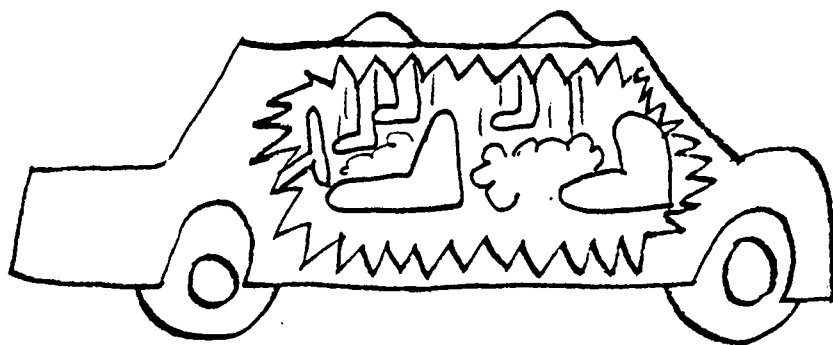
After you have read the charts please place your name on the Jury List provided.

This is part of a dissertation being conducted by a doctoral student in Health Education.

Your consideration and assistance are greatly appreciated.

Sincerely,

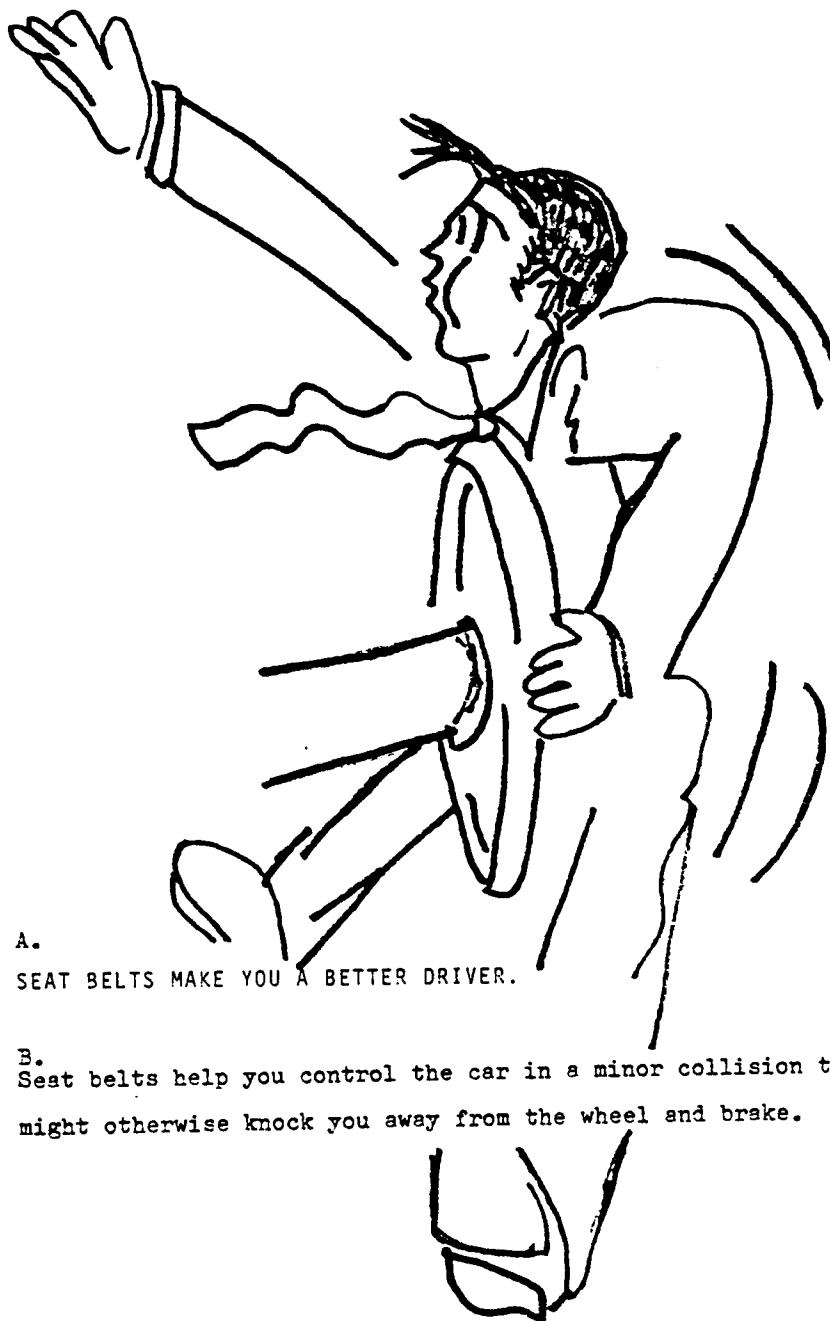
Frederick B. Henning



A. SEAT BELTS LESSEN INJURY FROM INSIDE

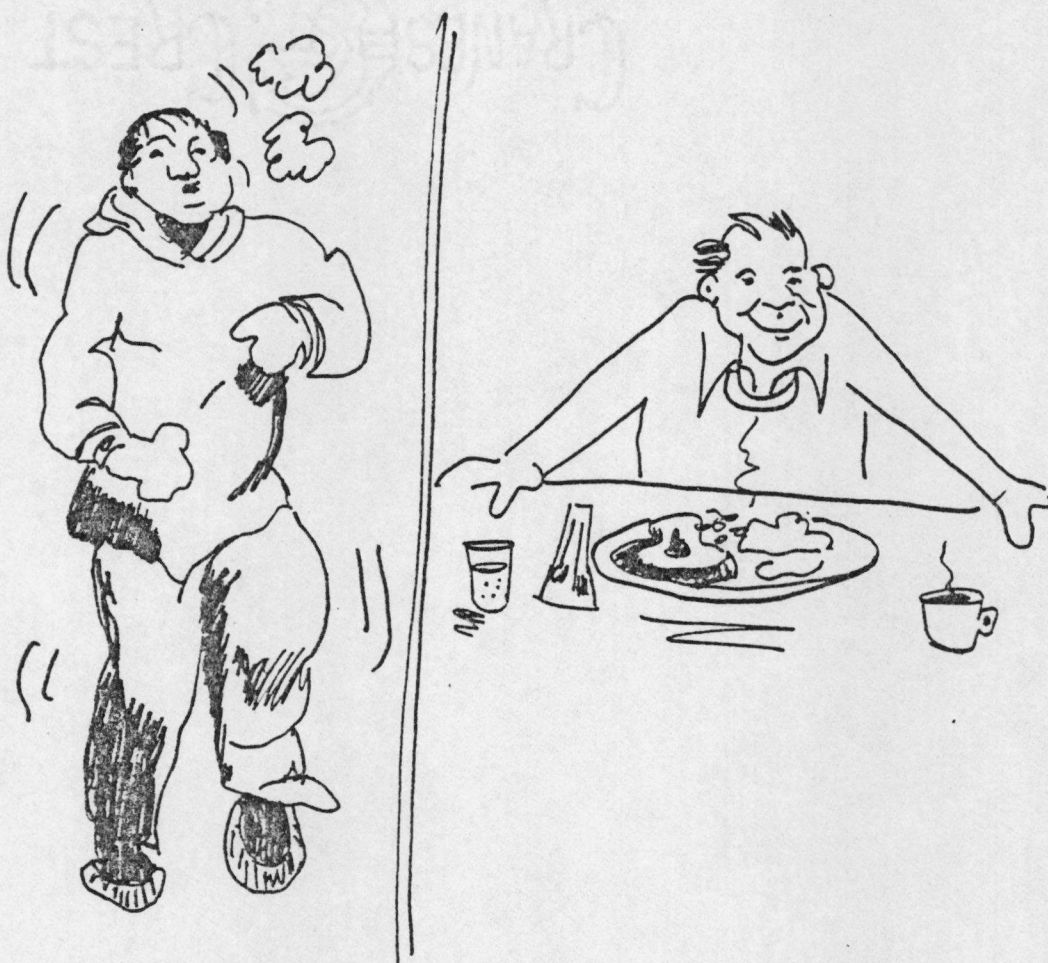
B.

Reduces chances of being hurt from being thrown around
inside the car.



A.
SEAT BELTS MAKE YOU A BETTER DRIVER.

B.
Seat belts help you control the car in a minor collision that
might otherwise knock you away from the wheel and brake.



A.
EXERCISING WILL HELP YOU TO LOOSE WEIGHT. YOU MUST CONTROL
THE AMOUNT OF FOOD YOU EAT.

B.

Moderate exercise is extremely desirable in your normal routine. It is beneficial because it maintains and improves muscle tone and strength. Exercising burns up calories and is a good way to help control your weight, as well as improve your heart and lungs ability to do their work. It makes the heart beat stronger and faster. It makes you breathe faster and helps get more oxygen to all parts of the body.



A.
ITS IMPORTANT TO GET ENOUGH SLEEP, EAT A GOOD DIET, AND
EXERCISE EVERYDAY TO KEEP YOURSELF FIT!

B.

You should try to get out everyday and do some physical exercise- 45-60 minutes every other day. Even though you may work physically hard everyday you may need a different form of exercise for different parts of your body. Its important to do different kinds of exercise and to change the intensity of the exercises you perform.



A.

THERE ARE MANY CAUSES OF ALCOHOLISM SOME OF WHICH ARE:

MARITAL PROBLEMS

SCHOOL OR JOB TROUBLES

DESIRE FOR PLEASURE

FEELING OF INSECURITY (NOT WANTED - SCARED)

TO WIPE OUT PAIN

B.

An alcoholic is someone whose drinking patterns interfere with a successful life. The alcoholic does not see how drinking is affecting his life nor is he able to control how much he drinks.



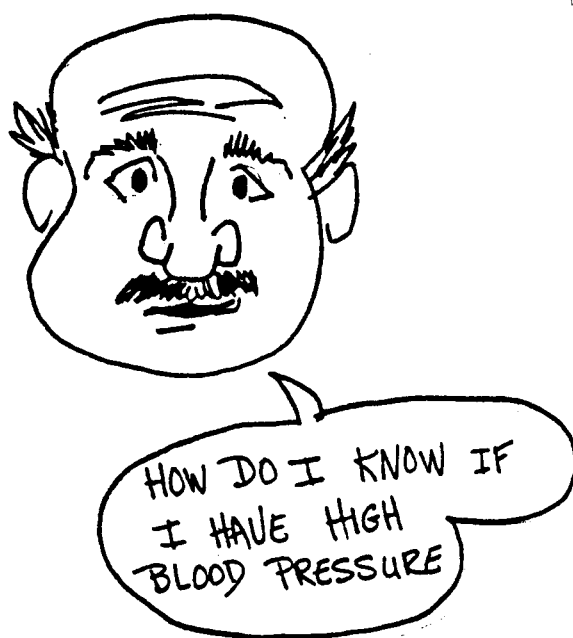
A.
ALCOHOLICS NEED HELP TO STOP DRINKING

B.
One of the most successful approaches to treatment of alcoholism has been Alcoholics Anonymous - A.A. It is an organization which helps people stay sober. Groups of alcoholics meet together and try to help each other overcome their drinking problems. There are special groups for teenagers and families in Knoxville. Medical help is also available.



A.
HIGH BLOOD PRESSURE AFFECTS MILLIONS OF PEOPLE AND IS A
MAJOR CAUSE OF HEART DISEASE AND STROKE.

B.
High blood pressure affects one in six Americans. High
blood pressure often begins early in life and becomes more
severe with age.
Adults should have their blood pressure measured every five
years and every two or three years if over the age of forty.



A.

MANY PEOPLE DO NOT HAVE ANY SYMPTOMS OF HIGH BLOOD PRESSURE

B.

Some warning signs may be:

Headaches may be an annoying symptom of hypertension. Although they are more severe at some times than at others, they are not a reliable guide to the height of the blood pressure at the moment. In fact, the characteristic hypertension headache, in the back of the head and upper part of the neck, usually is most severe in the early morning - when blood pressure is relatively low.

Many patients with hypertension have a more distressing and stubborn kind of headache. This kind results from nervous tension and anxiety and not from hypertension.

Dizziness is another symptom that some people with hypertension (and many people without hypertension) have.

Shortness of breath is a symptom that may result from the additional work imposed upon the heart by high blood pressure.

Remember that the symptoms you attribute to hypertension may have nothing at all to do with your blood pressure. They may be due to many other causes. Don't try to diagnose or treat symptoms yourself.



A.

TAKE YOUR BLOOD PRESSURE MEDICINE WHEN YOU SHOULD

B.

Taking blood pressure medicine is a way to control your high blood pressure. Take it as ordered by your doctor even when blood pressure is down.

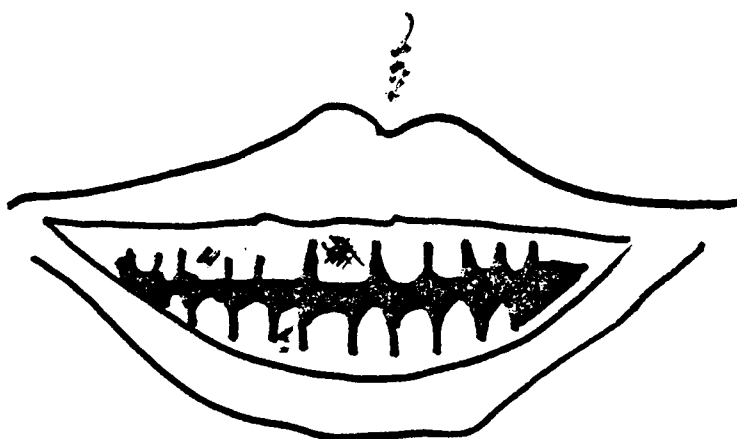
If you think medicine is causing a problem call the doctor and let him know, he can switch the medicine and help improve the situation.



A.
TO GET INTO BETTER SHAPE YOU MUST WANT TO.

B.

To start to get into shape is something that you must want to do. It is also important to pick activities you enjoy and can do often. Exercise is good for both men and women. If your arms or legs are too heavy, exercise will help them slim down, if they are too thin exercise develops them.



A.
SMOKING MAY DAMAGE YOUR MOUTH

B.

Tobacco causes gum diseases and oral cancer. Also a smoker is unable to smell and taste as well as a nonsmoker. He will require twelve to fourteen times as much salt as the nonsmoker, which contributes to high blood pressure and kidney disease.



A.
EACH YEAR OVER 300,000 AMERICANS DIE FROM DISEASES RELATED
TO SMOKING.

B.
Smoking is the most common form of drug abuse in the United
States.



A.
SO YOU WANT TO LOSE WEIGHT.

B.
You are not alone. There are thousands of men and women who are trying to lose weight every year. Being overweight is one of the most widespread health problems in the United States today.



A.

THERE ARE MANY FACTORS WHICH EFFECT YOUR EATING HABITS.

SOME OF WHICH ARE:

HOME CONDITIONS

EMOTIONS

LACK OF MONEY

AGE

B.

In some homes eating between meals or eating lots of sweets, candy, soft drinks, breads, gravies and fatty meats is common. This type of diet quickly causes you to gain weight. Some families buy foods which have lots of sugars and starches in them. Some foods of this type are okay, but too much causes you to get fat.

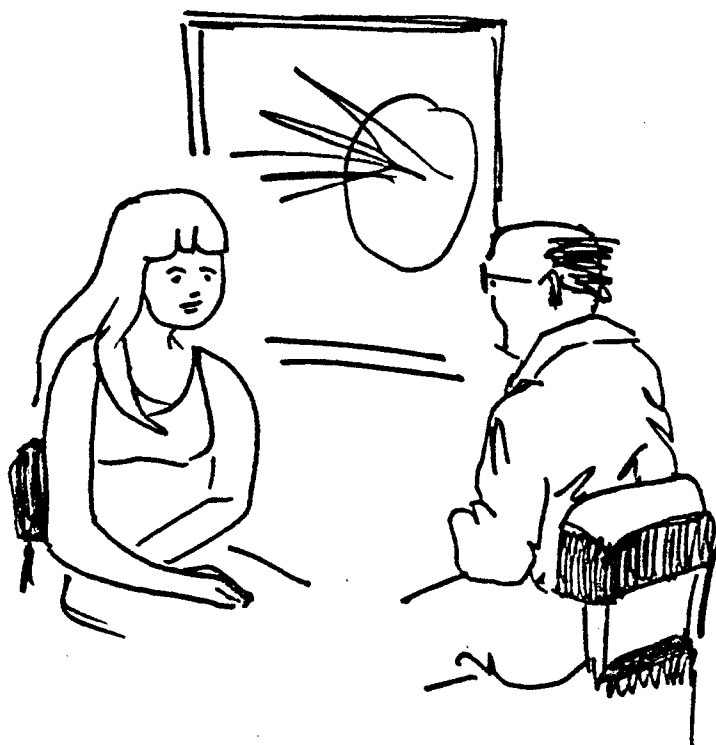
Some people find eating a pleasant break, or start to eat alot when they are worried.

Dietary needs change as you get older. Usually you are not as active as you use to be, but you are eating the same amount of foods as when you were young. This leads to added weight.



A.
WHATEVER THE CAUSE FOR OVERWEIGHT, IT USUALLY ALL BOILS
DOWN TO EATING TOO MUCH AND DOING TOO LITTLE.

B.
We either use the food as a fuel to keep our bodies functioning
or we store the food. The more we store the fatter we are.



A.
WOMEN WHO FIND LUMPS, NIPPLE DISCHARGE OR CHANGES IN THEIR
BREAST SHOULD SEE A DOCTOR RIGHT AWAY.

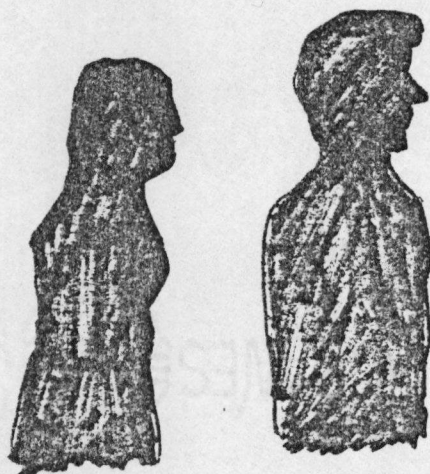
B.
Most of these conditions in a woman's breast are not cancer-
ous, but only a doctor can tell.



A.
THE BEST TIME TO PRACTICE BREAST SELF EXAMINATION IS AFTER
YOUR MENSTRUAL PERIOD. AFTER MENOPAUSE YOU SHOULD EXAMINE
YOUR BREAST AT THE SAME TIME EACH MONTH. BEWARE OF ANY
CHANGES IN SIZE AND SHAPE, DISCHARGE OR PUCKERING OF THE
SKIN.

B.

Remember over 80% of the lumps found in the breast are not cancerous. If a breast cancer does develop your chances for recovery and cure are greater when the disease is detected early.

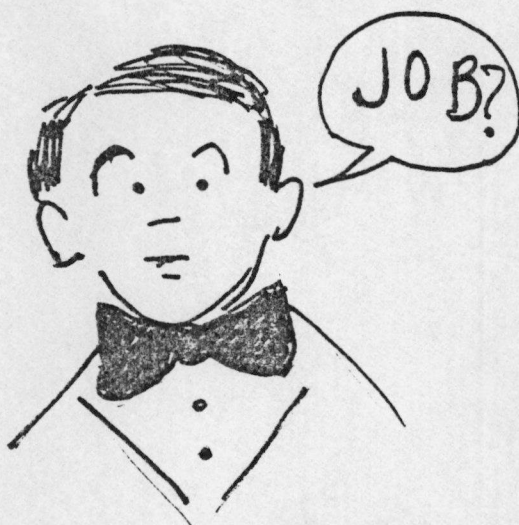


A.

DIABETES IS YOUR BODY'S INABILITY TO PRODUCE ENOUGH INSULIN.

B.

Insulin helps your body use the food you eat for energy. Many people have this disease without even knowing it. Testing for diabetes is important for everyone especially for relatives of known diabetics and for women taking birth control pills. Diabetes is also common among older people especially overweight individuals.



A.
SHOULD A DIABETIC WORK?

B.

Yes, by all means. Persons with diabetes are found in almost every business and profession in government, entertainment and sports as well.

A job helps a diabetic burn sugar and regularize his day. Once the patient and physician work out a program according to the job, the patient should be able to do almost any work for which he is qualified.



A.
DISEASE IS EASIER TO CURE IF TREATED EARLY.

B.
Cervical cancer is among those diseases that can be easily
and totally cured when found in its early stages.



A.
YOU CAN HAVE CERVICAL CANCER WITHOUT KNOWING IT.

B.
Many women believe they would know they had cervical cancer and insist "Oh, I would know I had it because I didn't feel good or I had pain there." THIS IS NOT TRUE! Cervical cancer just doesn't give you any signs in its early stages. In fact, some women have it for years before they have any signs or pain that tells them something is wrong.

APPENDIX D

LIST OF JURY MEMBERS SOLICITED

JURY LIST FOR EDUCATIONAL MATERIAL REVIEW

1. Ms. Gail Clift, R.N.
Patient Education Coordinator
St. Mary's Medical Center
Knoxville, TN
2. Ms. Christine Collins, M.P.H.
Union County Medical Clinic
Maynardville, TN 37807
3. Ms. Delene Collins, R.D., M.S.
Public Health Nutritionist I
East Tennessee Regional Health Office
1522 Cherokee Trail
Knoxville, TN 37920
4. Jesse L. Dunn
Program Director
American Cancer Society
411 West 5th Avenue
Knoxville, TN
5. Ms. Gladys Hardin, P.H.N.I.
Union County Health Department
Maynardville, TN 37807
6. Frank J. Haufe, M.D.
University of Tennessee Student Health Service
Knoxville, TN 37916
7. Mr. Bill Jolly
Director of Hospital Education
St. Mary's Medical Center
Knoxville, TN
8. Mr. J.J. Johnson
University of Tennessee Media Center
Knoxville, TN 37916
9. Ms. Betty Kidwell, R.N., P.H.N.
Union County Public Health Department
Maynardville, TN 37807
10. Ms. Kim Kuziola, R.D.
Therapeutic Dietician
St. Mary's Medical Center
Knoxville, TN

11. Ms. Lynn Naylor
Public Information Director
American Heart Association
East Tennessee Chapter
812 North Central
Knoxville, TN
12. Ms. Joyce Parnell
Hospital-wide Education Instructor/Coordinator
St. Mary's Medical Center
Knoxville, TN
13. Mr. James T. Reynolds
Director
American Cancer Society
411 West 5th Avenue
Knoxville, TN
14. Robert L. Rubright, M.D.
University of Tennessee Student Health Service
Knoxville, TN 37916
15. Ms. Vivian Smith, R.N.
Staff R.N.
University of Tennessee Student Health Service
Knoxville, TN 37916
16. Ms. Teri Steward, R.D.
Therapeutic Dietician
St. Mary's Medical Center
Knoxville, TN
17. Ms. Winnie Thomas, R.N.
Staff R.N.
University of Tennessee Student Health Service
Knoxville, TN 37916
18. Adelbert Thompson, Ph.D.
Associate Professor
Division of Health and Safety
University of Tennessee
Knoxville, TN 37916

APPENDIX E

KNOWLEDGE TEST

QUIZ -- EXERCISING

1. Which of the following exercising programs would give the best workout in the shortest period of time?
 - a. jogging.
 - b. rope skipping.
 - c. weight lifting.
 - d. running.
2. The non-exerciser:
 - a. never engages in exercise.
 - b. engages in balanced activities.
 - c. makes little effort to keep his body fit.
 - d. can expect to live longer than the average individual.
3. Physical fitness must be measured and evaluated in terms of:
 - a. how well an individual performs in organized sports.
 - b. its value to each individual.
 - c. how long an individual is able to live.
 - d. the amount of muscle an individual can put on the body.
4. A major cause of obesity is:
 - a. inactivity.
 - b. poor posture.
 - c. inability to produce muscle tissue.
 - d. extreme high blood pressure.
5. Preparation for leisure time involves:
 - a. knowing how to enjoy a professional football game.
 - b. being able to do pushups.
 - c. having a softball team available whenever someone feels like playing softball.
 - d. none of the above.

6. In most cases weight is steadily reduced if:
 - a. you follow any diet program.
 - b. you drink nine glasses of water a day.
 - c. you exercise daily.
 - d. without increasing food intake, you exercise.
7. Exercise can improve:
 - a. muscle strength.
 - b. heart function.
 - c. reflexes.
 - d. all the above.

QUIZ -- SMOKING

1. Cancer of the lung is most often caused by:
 - a. a virus.
 - b. radiation.
 - c. tobacco--largely by cigarette smoking.
 - d. irritation--largely by pollution such as smog.
2. A benefit of quitting smoking might be:
 - a. shortness of breath.
 - b. less nervous.
 - c. feel more active.
 - d. cough more.
3. Which condition is not related to excess cigarette smoking?
 - a. lung cancer.
 - b. heart disease.
 - c. arthritis.
 - d. bronchitis.
4. The best advice to a person who is smoking one or two packs of cigarettes per day is to:
 - a. gradually reduce the number of cigarettes smoked per day.
 - b. switch to a pipe.
 - c. get a chest x-ray twice a year.
 - d. stop smoking.
5. Smoking is:
 - a. a social grace.
 - b. a drug dependence.
 - c. enjoyable to all.
 - d. not merely as damaging as some individuals believe.

6. Studies have shown that exposure to a "smoking environment" causes which of the following affects?
- a. increased heart rate.
 - b. increased blood pressure.
 - c. headache.
 - d. all of the above.
7. If you are a smoker, what is your increased chance of dying from lung cancer?
- a. 2 to 1.
 - b. 10 to 1.
 - c. 20 to 1.
 - d. 50 to 1.

QUIZ -- LOSING WEIGHT

1. The first step in deciding to reduce your diet is:
 - a. motivation (wanting to).
 - b. admitting that one's obesity is caused by over-eating.
 - c. stopping all use of tobacco and alcohol.
 - d. none of the above.
2. Most causes of overweight in people:
 - a. are due to unavoidable hereditary patterns.
 - b. can be readily corrected by following a good "crash" diet.
 - c. require the use of scientifically proved message devices.
 - d. are influenced by the way the person lives.
3. Any reducing diet should reduce the intake of:
 - a. vitamins.
 - b. water.
 - c. proteins.
 - d. calories.
4. A well-balanced diet should contain:
 - a. vegetables, fruits, and dairy products.
 - b. breads and cereals and fruits.
 - c. meat, eggs, breads, and cereals.
 - d. all of the above.
5. Factors that might contribute to overweight would not include:
 - a. home environment.
 - b. occupation.
 - c. emotional factors.
 - d. a negative caloric balance.

6. The value of seeing a physician regarding losing weight is that:
 - a. he will ensure your losing weight.
 - b. he can advise you on how much to lose.
 - c. his counsel will cut the time required for the weight loss in half.
 - d. he will prescribe pharmaceutical aids in all cases.
7. In any reducing program, a guideline to include in the plan should be to:
 - a. cut out the foods most cherished.
 - b. find a good calorie chart and follow it religiously.
 - c. lose at least 10 pounds the first week.
 - d. consult your physician.
8. Overweight is undesirable because:
 - a. it may unduly increase a person's life expectancy.
 - b. there are clear indications that it tends to lead to low blood pressure.
 - c. each pound of fat makes your heart work harder.
 - d. it makes a person overly attractive.

QUIZ -- SELF-BREAST EXAM

1. The leading cause of cancer mortality among females is cancer of the:
 - a. uterus.
 - b. stomach.
 - c. breast.
 - d. ovary.
2. What is the single most important step you can take to ensure detection of cancer before the symptoms appear:
 - a. knowing the seven danger signals of cancer.
 - b. periodic health examination even if you are presumably well.
 - c. removing any mole on the body.
 - d. not cooking food in cast iron cookware.
3. Every woman should examine her breast for cancer every:
 - a. day.
 - b. week.
 - c. month.
 - d. 6 months.
4. If there is a discharge from the breast it should be reported to the doctor:
 - a. only if it is a clear discharge.
 - b. only if it is a bloody discharge.
 - c. only if it is frequent.
 - d. any discharge should be reported.
5. When doing a self-breast exam:
 - a. rub each breast to feel for lumps.
 - b. cup the hand over the breast and then press down.
 - c. feel each breast with the tips of the fingers.
 - d. keep fingers flat and gently feel each breast in a circular motion.

6. A self-breast exam is done:
- a. lying down on the bed or sitting up with your hand behind your head.
 - b. during bath or shower.
 - c. in front of a mirror.
 - d. all of the above.

QUIZ -- CERVICAL CANCER

1. Cancer of the cervix:
 - a. can be cured in most cases.
 - b. can not be cured in most cases.
 - c. is avoidable.
 - d. can not be detected.
2. Cervical cancer is caused by:
 - a. cells that grow into lumps.
 - b. cells that stop growing.
 - c. cells that contain poisons.
 - d. cells which grow old and die.
3. After having a baby, a woman should have a checkup by the doctor in how many weeks:
 - a. 6.
 - b. 7.
 - c. 8.
 - d. 9.
4. A Pap Test should be done every:
 - a. year.
 - b. 6 months.
 - c. 2 years.
 - d. 3 years.
5. A Pap Test is an examination of body:
 - a. cells
 - b. fluids.
 - c. organs.
 - d. functions.
6. Cancer of the cervix or of the uterus can be detected by:
 - a. Mantoux test.
 - b. patch test.
 - c. Pap test.
 - d. chest x-ray.

7. Cervical cancer's early warning signs are:
- a. lots of aches and pains.
 - b. no early warning signs.
 - c. tired and restless feeling.
 - d. itching and spots.

QUIZ -- DIABETES

1. All of the following are true of diabetes except:
 - a. it is a disturbance in the body's use of sugar.
 - b. it is becoming less common.
 - c. it is a life-threatening condition.
 - d. the tendency may be hereditary.
2. Three signs of diabetes are _____
 - a. frequent thirst, frequent urination, tiredness (fatigue).
 - b. high energy level, feeling good, able to work hard.
 - c. drinks very little water, loses weight, feels good.
 - d. no sugar in urine, energetic, feels poorly (bad).
3. Diabetes can lead to _____
 - a. heart disease.
 - b. blindness.
 - c. infections.
 - d. all of the above.
4. Key steps to controlling diabetes _____
 - a. avoid becoming overweight.
 - b. drink lots of fruit juices.
 - c. see a doctor every three years.
 - d. take diet pills.
5. People who have relatives with diabetes should _____
 - a. not worry about diabetes because it doesn't effect the elderly.
 - b. have a medical exam frequently.
 - c. avoid people with diabetes.
 - d. try not to worry about it.

QUIZ -- ALCOHOL

1. Alcohol causes the brain function to:
 - a. slow down.
 - b. speed up.
 - c. speed up, then slow down.
 - d. no effect.
2. One general rule for the non-alcoholic to help you stay sober is to have:
 - a. one drink every hour.
 - b. two drinks every hour.
 - c. two drinks every half hour.
 - d. one drink every half hour.
3. Symptoms frequently part of alcoholism include:
 - a. secret drinking.
 - b. preoccupation with alcohol.
 - c. gulping the first few drinks.
 - d. all of the above.
4. The effects of alcohol on the body:
 - a. are different from one beverage to another.
 - b. show that you cannot become addicted to beer.
 - c. show that all alcoholic beverages have basically the same effects on the body.
 - d. do not change any system of the body.
5. Alcohol intoxication:
 - a. affects the storage of information in the brain.
 - b. decreases learning ability.
 - c. decreases the ability to recall past events.
 - d. all of the above.
6. The major cause of alcoholism is:
 - a. marital problems.
 - b. school or job problems.
 - c. loneliness.
 - d. no one cause.

QUIZ -- HIGH BLOOD PRESSURE

1. High blood pressure is dangerous because it makes your:
 - a. nervous system over active.
 - b. heart work harder.
 - c. your blood thinner.
 - d. body feel tired.
2. High blood pressure:
 - a. can be controlled.
 - b. can be cured.
 - c. can not be controlled.
 - d. nothing can be done about it.
3. The responsibility for reducing high blood pressure is:
 - a. the doctor's.
 - b. your's.
 - c. not your's.
 - d. little can be done.
4. Identify three things you can do to reduce your blood pressure:
 - a. eat plenty of pork, eggs, and milk.
 - b. keep calm, sleep a lot, and don't work.
 - c. exercise, eat a well balanced diet, and keep your weight down.
 - d. work hard, overeat, forget your medicine.
5. It is believed that heart diseases can be reduced by:
 - a. avoiding excessive emotional upset.
 - b. exercise and proper diet.
 - c. regular physical examinations.
 - d. all of the above.
6. High blood pressure warning signs are:
 - a. early and easily recognized.
 - b. often do not exist.
 - c. easily overlooked.
 - d. reliable.

7. Smoking:

- a. increases your blood pressure.
- b. has little effect on blood pressure.
- c. causes blood vessels to open up.
- d. slow down the heart rate.

APPENDIX F

CONTRACT

CONTRACT

I _____ am going to (this is what
(your name)
I want to do) _____

Short Term Goal (target)

This is what I will do this week to help myself reach my
goal. _____

Self Reward

This is how I will encourage myself this week to reach my
target. _____

Target Dates

These are the days I plan to work on my target:

Start _____ a.m. _____ p.m. _____

End _____ a.m. _____ p.m. _____

Support Person

This person knows what I am trying to do and has promised
to give me help and encouragement.

(name)

(address)

I promise to try to meet my goals and improve my health.

(signature)

APPENDIX G

REMINDER CARD EXAMPLES

UNION COUNTY COMMUNITY HEALTH CLINIC
OLD HIGHWAY 33 -- P.O. BOX 1033
MAYNARDVILLE, TN 37807

Example #1

Hi-

You can lose weight by exercising everyday and eating garden foods, when hungry. Good luck,

Kathy

Example #2

Hi-

Stay with you goal to cut down on smoking. Remember you were going to smoke one less cigarette a day for the next three weeks. Good luck,

Kathy

Example #3

Hi-

Buckle your seatbelt and be a better driver. Good luck,

Kathy

APPENDIX H

SEMANTIC DIFFERENTIAL

THE SEMANTIC DIFFERENTIAL

Instructions

The purpose of this is to measure the meanings of certain things. Please make your judgments on the basis of what these things mean to you. You are to rate the concept on each of these scales in order.

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your check-mark as follows:

fair X unfair
 1 2 3 4 5 6 7
 OR

fair 1 2 3 4 5 6 X unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

strong X weak
 1 2 3 4 5 6 7
 OR

strong 1 2 3 4 5 X weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active X passive
 1 2 3 4 5 6 7
 OR

active 1 2 3 4 X 6 7 passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the thing you are judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space:

safe _____ 1 2 3 4 5 6 7 _____ dangerous

X

IMPORTANT: 1. Place your check-mark directly above the numbers, not in the middle:

THIS NOT THIS

X X

1 2 3 4 5 6 7

2. Be sure to check every scale for every concept--do not omit any.
3. Never put more than one check-mark on a single scale.

Sometimes you may feel as though you have had the same item before on the test. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the test. Make each item a separate and independent judgment. Work at fairly high speed through this test. Do not worry or puzzle over individual items that we want. On the other hand, please do not be careless, because we want your true impressions.

CONCEPT 1: HEALTH CONTRACTING

good _____ bad
1 2 3 4 5 6 7

needed _____ unneeded
1 2 3 4 5 6 7

helpful _____ unhelpful
1 2 3 4 5 6 7

valuable _____ worthless
1 2 3 4 5 6 7

clear _____ hazy
1 2 3 4 5 6 7

successful _____ unsuccessful
1 2 3 4 5 6 7

negative _____ positive
1 2 3 4 5 6 7

meaningful _____ meaningless
1 2 3 4 5 6 7

unpleasant _____ pleasant
1 2 3 4 5 6 7

wise _____ foolish
1 2 3 4 5 6 7

CONCEPT 2: HEALTH INFORMATION

unsuccessful — 1 2 3 4 5 6 7 — successful

interesting — 1 2 3 4 5 6 7 — boring

foolish — 1 2 3 4 5 6 7 — wise

meaningful — 1 2 3 4 5 6 7 — meaningless

unpleasant — 1 2 3 4 5 6 7 — pleasant

needed — 1 2 3 4 5 6 7 — unneeded

worthless — 1 2 3 4 5 6 7 — valuable

clear — 1 2 3 4 5 6 7 — hazy

negative — 1 2 3 4 5 6 7 — positive

bad — 1 2 3 4 5 6 7 — good

CONCEPT 3: HEALTH COUNSELING

good _____ bad
1 2 3 4 5 6 7

valuable _____ worthless
1 2 3 4 5 6 7

meaningful _____ meaningless
1 2 3 4 5 6 7

negative _____ positive
1 2 3 4 5 6 7

interesting _____ boring
1 2 3 4 5 6 7

needed _____ unneeded
1 2 3 4 5 6 7

helpful _____ unhelpful
1 2 3 4 5 6 7

worthless _____ valuable
1 2 3 4 5 6 7

pleasant _____ unpleasant
1 2 3 4 5 6 7

wise _____ foolish
1 2 3 4 5 6 7

CONCEPT 4: PERSONAL RESPONSIBILITY FOR YOUR HEALTH CARE

helpful 1 2 3 4 5 6 7 unhelpful

pleasant 1 2 3 4 5 6 7 unpleasant

passive 1 2 3 4 5 6 7 active

unneded 1 2 3 4 5 6 7 needed

unfair 1 2 3 4 5 6 7 fair

good 1 2 3 4 5 6 7 bad

valuable 1 2 3 4 5 6 7 worthless

unsuccessful 1 2 3 4 5 6 7 successful

clear 1 2 3 4 5 6 7 hazy

high 1 2 3 4 5 6 7 low

CONCEPT 5: EARLY DETECTION OF DISEASE

needed	1	2	3	4	5	6	7	unnneeded
helpful	1	2	3	4	5	6	7	unhelpful
safe	1	2	3	4	5	6	7	dangerous
worthless	1	2	3	4	5	6	7	valuable
bad	1	2	3	4	5	6	7	good
pleasurable	1	2	3	4	5	6	7	painful
successful	1	2	3	4	5	6	7	unsuccessful
meaningful	1	2	3	4	5	6	7	meaningless
important	1	2	3	4	5	6	7	unimportant
brave	1	2	3	4	5	6	7	cowardly

CONCEPT 6: PREVENTION OF ILLNESS

worthless _____ valuable
1 2 3 4 5 6 7

good _____ bad
1 2 3 4 5 6 7

unneded _____ needed
1 2 3 4 5 6 7

dangerous _____ safe
1 2 3 4 5 6 7

unhelpful _____ helpful
1 2 3 4 5 6 7

successful _____ unsuccessful
1 2 3 4 5 6 7

high _____ low
1 2 3 4 5 6 7

meaningful _____ meaningless
1 2 3 4 5 6 7

important _____ unimportant
1 2 3 4 5 6 7

wise _____ foolish
1 2 3 4 5 6 7

CONCEPT 7: WILLINGNESS TO CHANGE A POOR HEALTH BEHAVIOR

high _____ low
1 2 3 4 5 6 7

interesting _____ boring
1 2 3 4 5 6 7

valuable _____ worthless
1 2 3 4 5 6 7

healthy _____ sick
1 2 3 4 5 6 7

positive _____ negative
1 2 3 4 5 6 7

meaningless _____ meaningful
1 2 3 4 5 6 7

successful _____ unsuccessful
1 2 3 4 5 6 7

important _____ unimportant
1 2 3 4 5 6 7

weak _____ strong
1 2 3 4 5 6 7

pleasurable _____ painful
1 2 3 4 5 6 7

CONCEPT 8: HEALTH HAZARD APPRAISAL QUESTIONNAIRE

serious	1	2	3	4	5	6	7	humorous
interesting	1	2	3	4	5	6	7	boring
sensitive	1	2	3	4	5	6	7	insensitive
bad	1	2	3	4	5	6	7	good
incomplete	1	2	3	4	5	6	7	complete
false	1	2	3	4	5	6	7	true
meaningful	1	2	3	4	5	6	7	meaningless
important	1	2	3	4	5	6	7	unimportant
pleasurable	1	2	3	4	5	6	7	painful
successful	1	2	3	4	5	6	7	unsuccessful

CONCEPT 9: YEARLY PHYSICAL EXAMINATION

helpful _____ 1 2 3 4 5 6 7 _____ unhelpful

good _____ 1 2 3 4 5 6 7 _____ bad

dangerous _____ 1 2 3 4 5 6 7 _____ safe

worthless _____ 1 2 3 4 5 6 7 _____ valuable

unneded _____ 1 2 3 4 5 6 7 _____ needed

pleasurable _____ 1 2 3 4 5 6 7 _____ painful

successful _____ 1 2 3 4 5 6 7 _____ unsuccessful

foolish _____ 1 2 3 4 5 6 7 _____ wise

fast _____ 1 2 3 4 5 6 7 _____ slow

complex _____ 1 2 3 4 5 6 7 _____ simple

CONCEPT 10: ABILITY TO IMPROVE YOUR HEALTH

timely _____ 1 2 3 4 5 6 7 _____ untimely

unsuccessful _____ 1 2 3 4 5 6 7 _____ successful

valuable _____ 1 2 3 4 5 6 7 _____ worthless

positive _____ 1 2 3 4 5 6 7 _____ negative

helpful _____ 1 2 3 4 5 6 7 _____ unhelpful

strong _____ 1 2 3 4 5 6 7 _____ weak

dangerous _____ 1 2 3 4 5 6 7 _____ safe

fast _____ 1 2 3 4 5 6 7 _____ slow

good _____ 1 2 3 4 5 6 7 _____ bad

needed _____ 1 2 3 4 5 6 7 _____ unneeded

APPENDIX I

PERSONAL DATA CARD

PERSONAL DATA FORM

Name _____

Address _____

Phone _____

Age _____ Sex _____

Educational Background:

High School Diploma yes _____ no _____

Form of Payment:

Medicare _____

Medicaid _____

Direct _____

Insurance _____

APPENDIX J

TELEPHONE FOLLOW-UP SURVEY

TELEPHONE FOLLOW-UP SURVEY

1. Did you notice if _____ was making any effort to _____ during the months of September through January?
2. Do you know if _____ is now _____?
(exercising, working on controlling blood pressure, wearing his/her seatbelt, smoking, etc.).
3. Have you seen any improvements in _____ health behaviors?
What?

Comments:

APPENDIX K

OBSERVED CELL FREQUENCIES FOR: SEX, EDUCATION, FORM OF
PAYMENT UTILIZED, CLINIC, AND SOCIO-ECONOMIC STATUS
OF NON-PARTICIPANTS AND PARTICIPANTS IN THE
UNION COUNTY MEDICAL CLINIC HEALTH
PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81

TABLE K-1

OBSERVED CELL FREQUENCIES FOR SEX OF NON-PARTICIPANTS AND
 PARTICIPANTS IN THE UNION COUNTY MEDICAL CLINIC
 HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
 TENNESSEE, 1980-81 (N=53)

	Male	Female
Participants	9	25
Non-Participants	6	13
Total	15	38

$$p \leq .05, 3.841$$

$$\chi^2 = 0.14$$

TABLE K-2

OBSERVED CELL FREQUENCIES FOR EDUCATION OF NON-PARTICIPANTS
 AND PARTICIPANTS IN THE UNION COUNTY MEDICAL CLINIC
 HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
 TENNESSEE, 1980-81 (N=53)

	High School	Non-High School
Participants	22	12
Non-Participants	10	9
Total	32	21

$$p \leq .05, 3.841$$

$$\chi^2 = 0.77$$

TABLE K-3

OBSERVED CELL FREQUENCIES FOR FORM OF PAYMENT UTILIZED BY
 NON-PARTICIPANTS AND PARTICIPANTS IN THE UNION
 MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
 MAYNARDVILLE, TENNESSEE, 1980-81
 (N=53)

	Insurance	Direct
Participants	16	18
Non-Participants	10	7
Total	26	25

$$p \leq .05, 3.841$$

$$\chi^2 = 0.75$$

TABLE K-4

OBSERVED CELL FREQUENCIES FOR CLINIC NON-PARTICIPANTS AND
 PARTICIPANTS IN THE UNION COUNTY MEDICAL CLINIC
 HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
 TENNESSEE, 1980-81 (N=53)

	Clinic	Non-Clinic
Participants	24	10
Non-Participants	17	2
Total	41	12

$$p \leq .05, 3.841$$

Yates Correction for Continuity

$$\chi^2 = 1.58$$

TABLE K-5

OBSERVED CELL FREQUENCIES FOR SOCIO-ECONOMIC STATUS OF NON-
 PARTICIPANTS AND PARTICIPANTS IN THE UNION COUNTY
 MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
 MAYNARDVILLE, TENNESSEE, 1980-81
 (N=53)

	Low	Medium/High
Participants	9	25
Non-Participants	5	14
Total	14	39

$$p \leq .05, 3.841$$

$$\chi^2 = 0.00$$

APPENDIX L

OBSERVED CELL FREQUENCIES FOR: SEX, EDUCATION, FORM OF
PAYMENT UTILIZED, CLINIC AND NON-CLINIC, AND SOCIO-
ECONOMIC STATUS OF EXPERIMENTAL AND CONTROL
GROUPS IN THE UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81

TABLE L-1

OBSERVED CELL FREQUENCIES FOR SEX OF EXPERIMENTAL AND
CONTROL GROUPS IN THE UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81 (N=34)

	Male	Female
Experimental	4	13
Control	5	12
Total	9	25

$$p \leq .05, 3.841$$

Yates Correction for Continuity

$$\chi^2 = 0.00$$

TABLE L-2

OBSERVED CELL FREQUENCIES FOR EDUCATION OF EXPERIMENTAL
AND CONTROL GROUPS IN THE UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81 (N=34)

	High School	Non-High School
Experimental	11	6
Control	11	6
Total	22	12

$$p \leq .05, 3.481$$

$$\chi^2 = 0.00$$

TABLE L-3

OBSERVED CELL FREQUENCIES FOR FORM OF PAYMENT UTILIZED BY
EXPERIMENTAL AND CONTROL GROUPS IN THE UNION COUNTY
MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81
(N=34)

	Insurance	Direct
Experimental	8	9
Control	8	9
Total	16	18

$$p \leq .05, 3.841$$

$$\chi^2 = 0.00$$

TABLE L-4

OBSERVED CELL FREQUENCIES FOR CLINIC AND NON-CLINIC
EXPERIMENTAL AND CONTROL GROUPS IN THE UNION
COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE,
1980-81 (N=34)

	Clinic	Non-Clinic
Experimental	14	3
Control	10	7
Total	24	10

$$p \leq .05, 3.481$$

$$\chi^2 = 2.26$$

TABLE L-5

OBSERVED CELL FREQUENCIES FOR SOCIO-ECONOMIC STATUS OF
 EXPERIMENTAL AND CONTROL GROUPS IN THE UNION COUNTY
 MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
 MAYNARDVILLE, TENNESSEE, 1980-81
 (N=34)

	Low	Medium/High
Experimental	8	9
Control	1	16
Total	9	25

$p \leq 0.5, 3.841$

Yates Correction for Continuity

$\chi^2 = 5.49$

APPENDIX M

OBSERVED CELL FREQUENCIES FOR PROJECTED CAUSE OF DEATH
FROM: MOTOR VEHICLE ACCIDENTS, HEART DISEASE, BREAST
CANCER, CIRRHOSIS, STROKE, LUNG CANCER, DIABETES,
AND CANCER OF THE CERVIX, UNION COUNTY MEDICAL
CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE,
1980-81

TABLE M-1

EXPERIMENTAL AND CONTROL GROUP OBSERVED CELL FREQUENCIES FOR
PROJECTED CAUSE OF DEATH FROM MOTOR VEHICLE ACCIDENTS,
UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE,
1980-81 (N=32)

	Decrease Risk or No Change	Increase Risk
Control	6	9
Experimental	10	7
Total	16	16

$$p \leq .05, 3.841$$

$$\chi^2 = 1.12$$

TABLE M-2

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM HEART DISEASE,
UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81
(N=34)

	Decrease Risk or No Change	Increase Risk
Control	8	9
Experimental	5	12
Total	13	21

$$p \leq .05, 3.841$$

$$\chi^2 = 1.10$$

TABLE M-3

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM BREAST CANCER,
UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81
(N=25)

	Decrease Risk or No Change	Increase Risk
Control	9	3
Experimental	10	3
Total	19	6

$$p \leq .05, 3.841$$

Yates Correction for Continuity

$$\chi^2 = 0.12$$

TABLE M-4

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM CIRRHOSIS, UNION
COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81 (N=34)

	Decrease Risk or No Change	Increase Risk
Control	13	4
Experimental	11	6
Total	24	10

$$p \leq .05, 3.841$$

$$\chi^2 = 0.56$$

TABLE M-5

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM STROKE, UNION COUNTY
MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81
(N=34)

	Decrease Risk or No Change	Increase Risk
Control	11	6
Experimental	8	9
Total	19	15

$$p \leq .05, 3.841$$

$$\chi^2 = 1.08$$

TABLE M-6

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM LUNG CANCER, UNION
COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM,
MAYNARDVILLE, TENNESSEE, 1980-81 (N=16)

	Decrease Risk or No Change	Increase Risk
Control	10	0
Experimental	3	3
Total	13	3

$$p \leq .05, 3.841$$

$$\chi^2 = 3.20$$

Yates Correction for Continuity

TABLE M-7

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM DIABETES, UNION
COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE,
1980-81 (N=21)

	Decrease Risk or No Change	Increase Risk
Control	7	3
Experimental	7	4
Total	14	7

 $p \leq .05, 3.841$

Yates Correction for Continuity

 $\chi^2 = 0.02$

TABLE M-8

EXPERIMENTAL AND CONTROL GROUPS OBSERVED CELL FREQUENCIES
FOR PROJECTED CAUSE OF DEATH FROM CANCER OF THE
CERVIX, UNION COUNTY MEDICAL CLINIC HEALTH
PROMOTION PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81 (N=24)

	Decrease Risk or No Change	Increase Risk
Control	7	4
Experimental	7	6
Total	14	10

 $p \leq .05, 3.841$

Yates Correction for Continuity

 $\chi^2 = 0.25$

APPENDIX N

t-TEST FOR DIFFERENCES IN ATTITUDE TOWARD: HEALTH CONTRACT-
ING, HEALTH INFORMATION, HEALTH COUNSELING, PERSONAL RE-
SPONSIBILITY FOR YOUR HEALTH CARE, EARLY DETECTION OF
DISEASE, PREVENTION OF ILLNESS, WILLINGNESS TO
CHANGE A POOR HEALTH BEHAVIOR, HEALTH HAZARD
APPRAISAL, YEARLY PHYSICAL EXAMINATION, AND
ABILITY TO IMPROVE YOUR HEALTH, BETWEEN
THE EXPERIMENTAL AND THE CONTROL
GROUPS, UNION COUNTY MEDICAL
CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE,
TENNESSEE, 1980-81

TABLE N-1

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD HEALTH CONTRACTING BETWEEN THE EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.047	1.13	.16	32	
Control	17	.1	.782			

TABLE N-2

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD HEALTH INFORMATION BETWEEN THE EXPERIMENTAL
AND CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC HEALTH PROMOTION
PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	-.023	.633	-1.29	32	
Control	17	-.353	.846			

TABLE N-3

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD HEALTH COUNSELING BETWEEN THE EXPERIMENTAL
AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC HEALTH
PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.112	.645	-1.50	32	
Control	17	-.323	.802			

TABLE N-4

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD PERSONAL RESPONSIBILITY FOR YOUR HEALTH
CARE BETWEEN THE EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL
CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.006	.49	.24	32	
Control	17	.053	.66			

TABLE N-5

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD EARLY DETECTION OF DISEASE BETWEEN THE
EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.153	.343	-.50	32	
Control	17	.076	.511			

TABLE N-6

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD PREVENTION OF ILLNESS BETWEEN THE
EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.1	.419	1.45	32	
Control	17	-.176	.654			

TABLE N-7
t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD WILLINGNESS TO CHANGE A POOR HEALTH BEHAVIOR
BETWEEN THE EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.112	.63	.25	32	
Control	17	.059	.62			

TABLE N-8

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD HEALTH HAZARD APPRAISAL QUESTIONNAIRE
 BETWEEN THE EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL
 CLINIC HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.035	.714	-.57	32	
Control	17	-.129	.95			

TABLE N-9

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD YEARLY PHYSICAL EXAMINATION BETWEEN THE
EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC HEALTH
PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.173	.69	.29	32	
Control	17	.094	.851			

TABLE N-10

t-TEST FOR DIFFERENCE IN ATTITUDE TOWARD ABILITY TO IMPROVE YOUR HEALTH BETWEEN
THE EXPERIMENTAL AND THE CONTROL GROUPS, UNION COUNTY MEDICAL CLINIC
HEALTH PROMOTION PROGRAM, MAYNARDVILLE, TENNESSEE, 1980-81

Group	N	Mean	Standard Deviation	t	df	p.05, 2.042
Experimental	17	.123	.694	-.68	32	
Control	17	-.047	.764			

APPENDIX O

CORRESPONDENCE

Health Hazard Appraisal, Inc.

3925 North College Avenue • Indianapolis, Indiana 46205 • 317-924-4878

April 23, 1980

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Lewis C. Robbins, M.D., M.P.H.
Executive Vice President

Frederick B. Henning,
Division of Health and Safety
1914 Andy Holt Avenue
Knoxville, Tenn 37916

Dear Mr. Henning:

Your letter of April 3, 1980 is greatly appreciated. We are happy for your interest in HHA. Health hazard appraisal is a tool that is used to anticipate disease. The tool that is appropriate for the city man is also appropriate for the rural area. Over at Jackson there are people who are going into the rural area. I have sent a copy of your letter to them so that they might answer it. Anne Moore is probably going to write you. She has had such good experience in HHA that the USPHS is using her to help them with materials for teaching the teachers of prospective medicine.

I'm enclosing some material which may be of help to you. Please get in touch with the Center for Disease Control, Bureau of Health Education, for their kit of information on Health Hazard Appraisal. Should you be looking for a computer firm to do your appraisals for you, I suggest that you phone Dr. Richard Carter at Meharry, for he has a computerized version that is being widely used. You might also look at the firms and institutions in the attached Newsletter.

There is a three day seminar in HHA put on by the State Health Department and others on July 30, 31, August 1 that you may wish to attend. Write to Joe Wallace, State Health Department at Nashville for information on this program. Dr. Allen is in charge of the program. *David*

Kindest regards to you personally,

Sincerely,

Lewis C. Robbins
Lewis C. Robbins, M.D.

The statement on the reverse was prepared by William P. Richardson, M.D., from the literature in health hazard appraisal and Dr. Richardson's own knowledge of the program of Health Hazard Appraisal, Inc. The Board presents this as an excellent summary of our goals and objectives.



STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHWEST TENNESSEE REGIONAL OFFICE
295 SUMMAR AVENUE
JACKSON, TENNESSEE 38301

April 29, 1980

Frederick B. Henning
Division of Health and Safety
1914 Andy Holt Avenue
Knoxville, TN 37916

Dear Mr. Henning:

Dr. Lewis Robbins referred your letter of inquiry regarding Health Hazard Appraisal to my office. After reading your letter and your questions concerning background information about Health Hazard Appraisal, I feel any questions you have about validity and reliability of the questionnaire should be addressed to Dr. Richard Carter of Meharry Medical College, Nashville, Tennessee.

The Health Hazard Appraisal Program here in Jackson did not develop the appraisal questionnaire tool that we are currently using. Our tool/questionnaire is an adaptation prepared for The Society of Prospective Medicine by John W. Travis as coordinated by Dr. Carter.

If you would like specific information as to our program plan and implementation for rural West Tennessee, I will be glad to furnish you this information regarding usability.

Sincerely,

Ann Moore

Ann Moore
Health Hazard Appraisal Counselor

gj

cc: Richard Carter, M.D.



STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH STATE OFFICE BUILDING
BEN ALLEN ROAD
NASHVILLE, TENNESSEE 37218

July 15, 1980

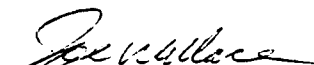
Mr. Rick Henning
University of Tennessee
Health Education
Andy Holt Drive
Health, Safety, Physical Education,
Recreation Building
Knoxville, Tennessee 37916

Dear Mr. Henning:

You are hereby given permission to use the Tennessee State Health Department's Health Risk Appraisal Questionnaires. There will be no charge for the questionnaires due to the nature of your project; however, we would like a copy of the results of your study, if it is possible.

If you need additional questionnaires, you may request them from the same address that you have for us. If we can be of any help to you, please advise.

Sincerely,


Joe Wallace, Director
Health Risk Appraisal

JW/dj 2-5



School of Sciences and Health Professions
Department of Community Health Professions • (804) 440-4409 • Norfolk, VA 23508

August 18, 1980

Mr. Rick Henning
c/o Division of Health & Safety
University of Tennessee
Knoxville, Tenn. 37916

Dear Rick:

Note the copy of the enclosed reference I forwarded
at your request.

Please feel free to make whatever use you can of the
educational materials from my doctoral dissertation.
I hope all is going well with you and your family.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'Andrew J. Brown'.

Dr. Andrew J. Brown
Professor and Chairman

cj

Good luck on your dissertation. Keep us Touch.

VITA

Frederick Bounty Henning was born on August 12, 1948 in Spokane, Washington. He grew up in the small town of Weston, Connecticut. Frederick graduated from Norwalk Community College, Norwalk, Connecticut, in 1970. He then went on to Southern Connecticut State College, New Haven, Connecticut, where he majored in Health and Physical Education. In 1970 he married Theresa Margaret Stefanko.

After receiving his Bachelor of Science degree, Frederick and Theresa served as Peace Corps volunteers from 1972 to 1974. They lived in Rabat, Morocco, where Frederick taught Physical Education in the Ecole Regionale des Instituteurs, an Arabic Teachers Training School.

Following their Peace Corps experience, Frederick attended Oregon State University, Corvallis, Oregon, where he received his Master of Education degree in Health Education.

From 1976 to 1978 Frederick was the Health Education Coordinator and teacher at the Raymond Public Schools, Raymond, New Hampshire. While living in New Hampshire Frederick and Theresa had their first child, Margaret Jo.

In September 1978 Frederick and his family moved to Knoxville, Tennessee, where Frederick began work on his Doctoral degree at The University of Tennessee, Knoxville. From 1978 to 1981, while working on his doctorate, Frederick served as a doctoral teaching assistant with the Division of

Health and Safety. During this period he also acted as the Health Education Coordinator for the Patient Education Program, Union County Medical Clinic, Maynardville, Tennessee. He received his Doctor of Education degree in Health Education in August of 1981.