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THE EFFECT OF A WELL-DEFINED ADULT WELLNESS PROGRAM ON LIFESTYLE AND SELF CONCEPT

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ABSTRACT

THE EFFECT OF A WELL-DEFINED ADULT WELLNESS PROGRAM ON LIFESTYLE AND SELF CONCEPT

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The purpose of this study was to investigate the changes that take place in lifestyle and self concept of adults, following the implementation of a well-defined wellness program. To help accomplish this purpose, two instruments were used to measure the changes that took place. The Lifestyle Assessment Questionnaire was used to measure lifestyle changes in exercise, nutrition, stress management, and the spiritual dimension. The Tennessee Self Concept Scale was used to measure changes in self concept. These instruments were used prior to the program and at the conclusion of the eight-week wellness program. A post-posttest of the Lifestyle Assessment Questionnaire was also given to the experimental group six months following the completion of the program.

A total of ninety male and female adults were involved in this program. One-half of the group (45) were randomly assigned as the control group. Of the original ninety subjects, complete data was collected on eighty subjects. Based on the results of the data it was found that significant lifestyle changes in exercise and nutrition took place in the subjects involved in this wellness program. No significant changes, however, took place in the lifestyle components stress management and the spiritual dimension. Data collected six months following the completion of the program showed a regression in the mean score of the exercise component. Although this regression in mean exercise scores was statistically

significant at the .05 level, the mean score for exercise six months following the completion of the program was still higher than the pre-program exercise means. The lifestyle component nutrition did not show any regression of mean score following a six-month time period.

Implications of these findings and suggestions for future research are also addressed.

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CHAPTER I

INTRODUCTION

Government statistics predict that after the year 2000, if present trends remain constant, the national annual expenditure for health care in the United States will pass the one trillion dollar mark.[1]

If this great expenditure of money had resulted in a corresponding rise in the health of the American people, this expenditure might be justified. The results, however, have not shown any great improvement. Life expectancy tables show that the life expectancy in 1900 for a 35 year-old male was 63. In 1970 the life expectancy only increased to 67 and in 1980 to 68.[2] Increased quality of life in terms of health for the typical American is also suspect. Infectious diseases have been curtailed or eliminated but diseases associated with obesity, diet, stress, and lack of exercise have taken their place.

In the past we only thought of health when we had a health problem. We went to the doctor and expected that doctor to "heal" us. John Naisbitt in his book Megatrends states very concisely the view many people have regarding health care.

> We allowed ourselves to act as passive bystanders handing over to the medical establishment not only the responsibilities it could handle, healing traumatic wounds and grave illnesses, but also the responsibility that in reality belonged only to ourselves, the

> responsibility for our health and well-being. We revered doctors as our societies' high priests and denigrated our own instincts. And in response, the medical establishment sought to live up to our misplaced expectations. Placing all their trust in the modern voodoo of drugs and surgery, they practiced their priesthood and we believed.[3]

During the last nine to ten years there has been an interest in what people can do for themselves in terms of health care. Many people are attempting to take more responsibility for their health but the problem of knowing how to proceed in this area of self-help is compounded by much misinformation. In the area of nutrition, a new book comes out about once a week. Fad diet books are notorious best sellers. In the area of exercise, books promise increased health benefits if a person follows their exercise program for five minutes a day. Stress management seminars are available in all parts of the country with great claims about their results.

A logical place for these concerned people to obtain the health information for which they are searching is from physicians. The physician's image of a provider of health services has been tarnished (Naisbitt, p. 137[4]); but most people still do have a high level of confidence in physicians. The problem, however, of gaining this health information from physicians is two-fold. First, although most physicians have a good understanding of how the body functions and how to treat illnesses and disease, most physicians have had no training, although some have been involved in self-directed learning projects, in the area of prevention. In the past, medical schools have not included courses in the area of nutrition, stress management, or physiology of exercise. There seems to be an increase in this type of training in some medical schools but the majority seem to be changing very slowly. Also, physicians seem to be much more excited about

trying to diagnose an illness or disease and elicit a cure than about trying to educate people on how to prevent the illness or disease. The results of an operation or treatment of an illness are much easier to evaluate than an attempt to evaluate the effectiveness of a prevention program.

The second reason most physicians would not be a good source of obtaining the type of information for which people are searching is that it would be too expensive. If a patient is sick and the doctor tells the patient what the problem is, what the patient is to do, and prescribes a medication, the patient expects to pay the doctor a relatively high fee for this service. If the advice and medication help, the patient feels it was worth the expense. On the other hand, doctors would be hard-pressed to charge the same fee per unit of time spent with a patient for advice about lifestyle and how that influences a person's health. An interesting model in regard to health care is that of the ancient Chinese. The Chinese physician would receive pay from a patient as long as the patient was healthy. Whenever the patient became ill, the payment to the physician would stop. A comparable model would give a tremendous incentive for physicians to practice preventive medicine. This model, however, does not appear to be an option at this time.

At the present time there is a real interest among many people to take more responsibility for their own health. Wellness programs are very popular and are attracting large numbers of people. The promoters of these wellness programs claim that if people will participate in their programs changes in lifestyle and self concept will result that will improve their quality and quantity of life.

STATEMENT OF THE PROBLEM

Although the promoters of wellness programs claim their programs will change a person's lifestyle and self concept there has been no empirical evidence to prove these claims. Several writers (Fixx, 1977[5]; Morgan, 1978[6]; Kostrubala, 1976[7]) have written about the psychological changes that occur as a result of exercise and several doctoral dissertations have researched the relationship between exercise and self concept. However, the basic claims of wellness programs concerning lifestyle and self concept changes have not been substantiated by research.

The claims of the promoters of wellness programs regarding lifestyle changes and improved self concept seem to be rational claims but the questions remain:

1. What effect does a well-defined wellness program have on the lifestyle of an individual?

2. If a well-defined wellness program does have an effect on the lifestyle of an individual, is this effect temporary?

3. What effect does a well-defined wellness program have on the self concept of an individual?

PURPOSE OF THE STUDY

The physiological effects of exercise have been researched and are well-documented. The psychological effects of exercise are starting to be addressed but little research has been conducted which substantiates the claims that wellness programs change an individual's lifestyle and self concept.

The primary purpose of this study is to investigate the changes that take place in lifestyle and self concept following the implementation of a well-defined wellness program.

RESEARCH HYPOTHESES

The following research hypotheses reflect the expected results of this study.

1. It is expected that those subjects involved in a well-defined wellness program will have more positive lifestyle changes that a similar group of controls not involved in such a program.

2. It is expected that those subjects involved in a well-defined wellness program will maintain their positive lifestyle changes for at least a six-month period.

3. It is expected that those subjects involved in a well-defined wellness program will have a more positive increase in self concept than a similar group of controls that has not been involved in such a program.

STATISTICAL HYPOTHESES

The following hypotheses, in null form, were tested at the .05 level of significance.

H: no difference will exist in the lifestyle of adults who participate in a well-defined adult wellness program and those who do not, in the following areas:

- 1.1 exercise
- 1.2 stress management
- 1.3 nutrition
- 1.4 spiritual dimension

H: no difference in lifestyle will exist between the results of the experimental group immediately after completing a well-defined adult wellness program and six months following the program, in the following areas:

- 2.1 exercise
- 2.2 stress management
- 2.3 nutrition
- 2.4 spiritual dimension

H: no difference will exist in self concept of adults who participate in a well-defined adult wellness program and those who do not participate.

DELIMITATIONS

The study population was confined to people in the Grand Rapids, Michigan area, who were high school graduates and were between the ages of 21 and 65. The study occurred over a period of eight weeks from February 1985 to April 1985. Participation was voluntary and was limited to those adults who had no medical restrictions that would preclude moderate exercise.

LIMITATIONS

1. The built-in bias of a volunteer group. This group may, therefore, differ from a random sample of people in the Grand Rapids, Michigan area.

2. Various levels of previous exposure to exercise and positive lifestyle concepts.

3. Reliability of self assessment: the ability of individuals to accurately assess their self concept and lifestyle.

DEFINITION OF TERMS

WELLNESS: a positive approach to living where the individual becomes aware of and makes choices toward a more successful existence.

LIFESTYLE: a particular style of living which each of us chooses, even though we do not often think about it. Lifestyle has different components, four of which will be addressed in this study: exercise, nutrition, stress management, and the spiritual dimension.

NUTRITION: the ability to choose foods that are consistent with the dietary goals as reported by the Senate Select Committee on Nutrition and Human Needs.

STRESS MANAGEMENT: the ability to be able to recognize stress in one's life and to be able to manage this stress.

SPIRITUAL DIMENSION: to seek meaning and purpose in human existence.

SELF CONCEPT: the total picture that one has of himself/herself and of the value which one places on himself/herself as a person, as measured by the Tennessee Self Concept Scale.

PROCEDURE

Two testing instruments were used to test the hypotheses that have been proposed. The Lifestyle Assessment Questionnaire (LAQ), developed by Dr. Bill Hettler and associates at the University of Wisconsin-Stevens Point, was used to assess lifestyle changes. This instrument is in its third edition and has been used by over 200,000 persons. The other instrument that was used was the Tennessee Self Concept Scale (TSCS) which has been used since 1965 to test for self concept.

The experimental and control group, 45 in each group, were given these two instruments at the start of the study and again after the experimental group had completed the eight-week program. The LAQ was also given to the experimental group six months after completion of the eight-week wellness program.

Due to the fact that all programs that are called wellness programs do not include exactly the same components, this study has attempted to construct a program that includes the major components that all wellness programs include. This has resulted in this study being very specific when it refers to what has been called a well-defined adult wellness program. This study would have become too fragmented and cumbersome if it had attempted to include every component that every wellness program has. From talking to wellness program directors, no wellness programs were found that did not include exercise, nutrition, and stress management, and most include the spiritual dimension.

The experimental group was involved in an exercise session three times a week for eight weeks, each session lasting approximately forty-five minutes. Each person was given an exercise prescription based upon the results of a

sub-maximal stress test. Walking, jogging, or swimming were the forms of exercise used. Lectures concerning exercise, nutrition, stress, and the spiritual dimension were conducted for the experimental group. These sessions met one hour a week for eight weeks.

OVERVIEW OF THE STUDY

This study consists of five chapters, a selected bibliography, and appendices.

Chapter I has included the introduction, statement of the problem, purpose of the study, research hypotheses, statistical hypotheses, delimitations, limitations, definition of terms, and procedure.

Chapter II contains a review of the literature related to the topic.

Chapter III describes and explains the methods and procedures of the study. This chapter includes the population, sample, instruments used, and the collection and treatment of the data.

Chapter IV is an analysis of data collected from the use of the instruments.

Chapter V presents the summary, findings, and recommendations of the study.

CHAPTER II

REVIEW OF THE LITERATURE

An examination of the literature did not uncover any studies which specifically covered the topic chosen by this investigator. Studies, however, which addressed specific components of this investigator's study were found and have been reported.

To effectively assess the existing literature as it pertains to this study this chapter is divided as follows:

1. Lifestyle: the effect on health
    a. Exercise
    b. Nutrition
    c. Stress
    d. The Spiritual Dimension
2. Self concept and its relationship to the following:
    a. Exercise
    b. Nutrition
    c. Stress
    d. The Spiritual Dimension

The review of the literature is intended to provide evidence to support each of the individual components as they relate to the two major divisions: lifestyle and self concept.

LIFESTYLE

The Center for Disease Control in Atlanta, Georgia, is a clearinghouse for information regarding diseases. This center has reported that the majority of premature deaths, disabilities, and low quality lives suffered by the majority of our population are not the result of infectious diseases but rather the result of chronic diseases.[8] These diseases are the result of choice, or self-inflicted diseases, and could be called lifestyle diseases. Lifestyle is responsible for up to 54% of deaths caused by heart disease, 37% of deaths caused by all types of cancer, 50% of deaths due to strokes, and 60% of all suicides.

The center points out the important role lifestyle plays in the prevention of disease. The center claims that the next great improvement in the nation's health will come from lifestyle changes and not from the research lab.

Supportive evidence for this importance of lifestyle is reported in a study conducted by the Human Population Laboratory of the California State Department of Health Services which studied the population (about 7,000 subjects) of Alameda County housing units.[9] This study which was conducted by Belloc and Breslow found a positive association between seven health practices and good physical health. The favorable health practices that were identified in this study were: 1) never smoked, 2) average weight status, 3) low alcohol consumption, 4) regular physical activity, 5) seven to eight hours of sleep per night, 6) eating breakfast almost every day, and 7) not snacking between meals. In this study each factor was shown to independently affect health status.

Nine years later (1974), using longitudinal data from the Alameda County group, a study was conducted that showed that those who engaged in more of the positive health practices listed in the previous study had lower death rates.[10]

A second nine-year study[11] found that not eating breakfast and snacking between meals did not have a significant effect on physical health status. This study, however, did find that the first five favorable health practices, identified by Belloc and Breslow, were associated with better health status. A third follow-up study[12] based on nine-year mortality data confirmed that the first five favorable health practices were associated with lower mortality rates.

The significance of the original Alameda County Study and subsequent studies is that attention was drawn to the importance of a person's lifestyle practices and their impact on health.

A national survey conducted by Pacific Mutual Life Insurance Company called "Health Maintenance"[13] attempted to assess the importance adults attached to lifestyle. This study used three separate samples: a national cross section of 1,517 adults; a cross section of 176 corporations which they obtained from the Fortune listing of 1,250 companies; and a cross section of 35 labor unions from a list of the largest labor unions. If was found that more than 90% of the adults 18 years and older who responded believed that if they changed their lifestyles, their health would improve more than anything traditional medicine could do for them. Fifty-one percent said that they were more concerned about prevention practices today than they were five years ago. Almost half (42%) believed more emphasis should be given to preventive medicine and less to curative medicine.

In contrast to the American lifestyle is the lifestyle of the Abkhansion peasants who live in the rural farming communities of Russia.[14] They are among the healthiest and longest living people on earth. The apparent key to their health is their lifestyle which is simple and close to nature. These people are very physically active throughout their entire lives, their diet is simple yet more nutritious than the "average" American diet, and they have a more relaxed way of living.

In response to the favorable relationship between lifestyle and health the people who promote wellness programs claim that their programs are addressing issues of lifestyle changes. If these claims are valid the impact on health by wellness programs could be tremendous.

A search of the literature, however, has not resulted in finding any studies that have been conducted to determine if wellness programs do result in lifestyle and self concept changes. The study that came the closest to implementing and evaluating a wellness program was conducted by the Institute for Aerobic Research, located in Dallas, Texas. The results of this study were published in the February (1984) issue of the American Journal of Public Health.[15] This program involved 117 teachers in the Dallas, Texas, school district. The results of the study indicated that the health knowledge of the teachers increased as did their physical fitness and self concept scores. The study, however, did not determine if there was a change in lifestyle that took place.

Although no research was found that specifically addressed the effect of a wellness program on lifestyle, studies were located which addressed individual

components of a wellness program on health. Pertinent literature as it is related to these components will follow.

Exercise

In the last 50 years our society has become more and more mechanized and an individual's requirement for physical exertion has diminished greatly. Leisure time for most people has increased greatly during the last 10 to 15 years. Many people are exercising more and the exercise "business" is a multibillion-dollar industry.[16] Kaplan and associates found that people feel that regular exercise makes them feel better and results in their becoming more healthy.[17] Scientific evidence, however, to support the benefits of regular exercise has only become available over the last 50 years.

A landmark study which explored the relationship of activity to good health was undertaken in 1949 by Morris and associates.[18] This study revealed that of the 31,000 men conductors and drivers of the London transit system studied, the conductors had less coronary heart disease than the drivers. Also, the coronary heart disease that the conductors did manifest was not as severe and occurred at a later age than the heart disease of the drivers.

The study went on the explain that the reasons for this difference might be any of the following:

a. There may have been a difference in the constitution and early experiences of conductors and drivers.

b. Mental strain may be more severe for the drivers than the conductors.

c. The greater physical activity of the conductors (double-decker vehicles) is a cause of the lower incidence and mortality in the conductors.

Morris, however, goes on to state that

> This last proposition . . . that physical effort in the conductors' work may be a protective factor, safeguarding them in middle age from some of the worst manifestations of coronary heart disease suffered by less active workers . . . attracts us most because it offers special opportunity for study.[19]

The results of a study of postal workers in Britain during the same time period (1949-50) also suggested that the total incidence of coronary heart disease was lower in the postmen than in those employees that were less active. "Again, therefore, as with the transport workers, the early mortality of the physically active group is substantially less than that of the physically inactive."[20]

The San Francisco longshoreman study by Paffenbarger and associates[21] also studied the relationship between activity on the job and coronary heart disease (CHD). After a preliminary examination in 1951 the San Francisco longshoremen were followed for 22 years to evaluate their work activity and the death rate from CHD. The study revealed that the cargohandlers who loaded and unloaded the ships had much lower risk of sudden death from CHD than did the foremen and clerks who were more sedentary in their jobs.

Similar results were found between farmers and inactive townsmen,[22] railroad track workers and sedentary clerks.[23]

Because the American people are not as physically active on the job as they were in the past, research that studies the relationship of leisure-time activity to health have been investigated.

A long range, ten-year health study of Harvard alumni by Paffenbarger and associates was reported in the Journal of the American Medical Association[24] which studied 16,936 Harvard alumni who entered college from 1916 to 1950. From the results of the study it appears that exercise benefits are independent of other life-style components, such as smoking, obesity, high blood pressure, and family health history, when it comes to CHD. Alumni who exercised so that at least 2,000 kcal/week were expended had much less CHD than did sedentary alumni. Even ex-varsity athletes who became sedentary were at high risk while those students who were inactive during their college days and became physically active after college were at low risk. This study showed that an inverse relationship exists between exercise and cardiovascular and respiratory mortality.

In a 14-year follow-up of 1,909 men and 2,311 women from Framingham who were initially free of CHD, Kannel and Sorlie found that a high level of physical activity in men was a factor in overall death rate and in particular CHD mortality.[25] The same results were not different in the women studied but the study did cite that the Framingham population was generally sedentary and it was difficult to form distinct high and low energy output groups. Although physical inactivity was not the most powerful characteristic affecting CHD the investigators recommended that persons should plan their day to include more

vigorous exercise habits. These observations were supported by Dawber who analyzed the data in a different way.[26]

Magnus and associates studied leisure-time activities in four residential areas of central Holland from 1970-1974.[27] The leisure-time activities included walking, cycling, gardening. Interviews were conducted with 473 persons who experienced a heart attack. Interviews were also conducted with 975 persons who had no history of cardiovascular disease and who were randomly selected from the population of Zeist. The physical activity of these subjects was classified as habitual, more that 8 months per year; seasonal, 4 to 8 months per year; or occasional, less than 4 months per year. Hours of activity a week of participation were also tabulated. The investigators found a negative association between CHD events and habitual physical activity. In this study the intensity of activity did not seem to be a factor. Death within 4 weeks of a heart attack was highest in those subjects who only occasionally participated in the activities cited, walking, cycling, and gardening. The findings of this study suggest that leisure-time exercise should be year-round to protect a person from cardiovascular disease. This study also suggests that the effect of these leisure-time exercises may be lost if this activity is interrupted for several months or a year.

The last study which will be reported and which seems to give support for exercise as an important component of health was a study reported by Salonen and associates on a longitudinal study of physical exercise and the risk of fatal and nonfatal cardiovascular disease and stroke among 7,666 men and women ages 30-39 in two counties of eastern Finland.[28] A 7-year follow-up in 1978 found that if a person was very inactive at work there was an increased risk of acute myocardial infarction, cerebral stroke, and death due to any disease. Risks were

further reduced if the subjects were high in physical activity both at work and at leisure.

Nutrition

The role nutrition plays in the health of an individual has been a source of controversy for years. During the past few years, however, there has been much empirical research which strongly indicates that nutrition plays an extremely important role in health.

The role nutrition plays in coronary heart disease has received much study.

The Seven Countries Study by Keys[29] is a study which appears to show a relationship between diet and CHD. The data collected paid great attention to adequate sample size, the use of standardized measurements, analysis of blood lipids and of food eaten. This study found a large difference between populations of countries relative to the consumption of saturated and monosaturated fat. In Japan where there is an extremely low total fat intake the incidence of death from CHD was very low. On the other hand Eastern Finland where fat intake is very high (highest in countries studied), the number of deaths from CHD was the highest. The rest of the countries seemed to be on a continuum in relationship to total fat intake.

The Ni-Hon-Sun Study[30] shows what happens when Japanese, who had a low fat intake and low CHD rate in Japan, migrate to Hawaii and California. As the Japanese who migrated to Hawaii and California became more "westernized" in relation to diet, their incidence of CHD went up. An important aspect of this

study is that genetic factors associated with CHD seem to be controlled. Comparative data from other studies in Framingham, Honolulu, and Puerto Rico also point out a similar relationship.[31]

Blood cholesterol levels seem to be strongly associated with the incidence of CHD in all parts of the world. A study called the Pooling Project[32] provides epidemiological evidence from the United States and other populations that have a high CHD incidence that high personal levels of cholesterol relate to CHD. In all eight United States studies involved in the pooling project it was reported that there is a greater risk for CHD as the level of cholesterol goes up. The Seven Countries Study mentioned earlier also shows a continuous relationship between cholesterol level and CHD risk.

A specific study concerning diet and cholesterol was conducted by Sonja L. Connor and William E. Connor.[33] A double blind study was designed to determine if eggs (which are high in cholesterol) would raise the cholesterol level of normal volunteers. An egg product which contained two egg yolks or an identical placebo product (free of cholesterol) was given to the volunteers. These products were randomly fed to the volunteers for 4 weeks each. The subjects were asked to continue their normal diets in addition to the egg and placebo products. The investigators reported that, "The results clearly showed that only the egg products produced an elevated plasma cholesterol concentration compared with baseline values and also compared with the placebo product."[34] The investigators claim that a high intake of cholesterol leads to deposits of cholesterol in the tissues into which it is transported (blood vessels also) and this results in arteriosclerosis.

Nutrition and cancer is an area where much controversy exists. The role of diet and its relationship to cancer does seem to be supported by research which compares cancer incidence among populations living in the same country. In the North-Central states (Michigan, Wisconsin, and Minnesota) there is a cluster of stomach cancer cases. Many of the people living in this region are direct descendants of Scandinavian, German, or Russian ancestry. These people have a common eating pattern which includes highly spiced and smoked foods.[35] The diets of Seventh Day Adventists and Mormons contain less fats, meats , tea, coffee, and alcohol than the rest of the population; and their cancer rate is about one-third to one-half less than the rest of the American population.[35]

Studies which compare the incidence of cancer with other countries also tend to show a relationship between cancer and diet. Japanese with low rates of breast cancer, in comparison to Americans, consume less dietary fat and cholesterol from meat and dairy products.[36] Cancer of the colon also seems to be associated with diet. Countries with low-colon cancer rates consume less dietary fat and cholesterol.[37] Stomach cancer rates are among the highest in the world in Japan. Those individuals in Japan with the highest risk of developing stomach cancer are those that use highly salted foods.

Although there are investigators[38] who claim the relationship of nutrition to cancer is shaky at best, the National Research Council published a report in 1982, Diet, Nutrition, and Cancer, that concluded that most common cancers potentially are preventable and cancer relates more to diet than to genetic influences.[39] This report advised Americans to eat less fats, avoid excess alcohol consumption, and include more whole-grain cereal products, certain vegetables and fruits in their daily diets.

During the past year (1984) the American Cancer Society has also offered explicit advice about diet and cancer. These recommendations are in accord with those from the NRC/NAS but they also stress the importance of avoiding obesity.

Stress

During recent years an increasing amount of data from stress-related experiments, clinical, pathological, and epidemiologic research has provided strong evidence in favor of a causal relationship between stress and disease.

In a study by Friedman and associates,[40] accountants were studied to see if periods of high stress such as urgent tax deadlines would be associated with undesirable physiological changes. For this study 40 male accountants, ages 28 to 56, were bled biweekly for serum cholesterol and monthly for blood clotting time. Records were also kept of exercise, diet, weight, workload, and any other circumstances which might be a factor. The researchers found that each subject's serum cholesterol was highest during severe occupational stress and lowest when the stress level was lowest. Blood clotting time was also the highest at the time of greatest times of stress and it was normal during periods of low stress. The researchers claimed that these changes were not the result of any changes in weight, exercise, or diet.

A study by Grundy and Griffin[41] also showed the relationship between stress and serum cholesterol levels. In the study two groups of male freshman medical students were studied. One group of 50 was studied during the winter term and another group of 47 was studied during the spring term. During the two

periods of examinations the mean cholesterol levels were significantly raised: 16.5 percent for the winter exam period; and 11 percent for the spring exam period.

Additional evidence of the relationship between stress and disease is presented in the studies of cardiologists Friedman and Rosenman.[42] Friedman and Rosenman found that men who were excessively competitive, had a continual sense of time urgency, accompanied by the feeling of always having to meet deadlines had a much higher rate of CHD. These researchers applied the label Type A to these individuals. A comprehensive review of studies of Type A individuals by Sparaceno[43] seems to verify the relationship between these stress related traits and coronary heart disease.

The relationship between cancer and stress is controversial and research in this area has been and is presently being carried out.

A study by Riley[44] of the Fred Hutchinson Research Center in Seattle, Washington, involved subjecting experimental mice to a variety of stresses. Riley demonstrated that mammary-tumor incidence in offspring could be increased up to 90 per cent under stress. Riley suggests that moderate chronic or intermittent stress may increase the risk of cancer in mice. He feels that this increase in cancer is a result of a depressed immunological or tumor surveillance system because of the stress imposed. Although it is always difficult to generalize from animal to human research, the implications of Riley's study are significant. Solomon has focused on the concept of the importance of immunological system as a key factor in the onset of cancer and humans.[45] He feels that resistance to cancer appears to be immunological in nature and that stress does seem to depress the immune system.

Holmes and Rahe[46] studied the relationship of stress and health/illness in a more general way. They argued that if stress resulted in illness and disease, then people who experience a great deal of stress should be ill more than people reporting only a little stress. They conducted more than 5,000 interviews over a 20 year period to try and link stressful major life-events with illness. They then gave 43 critical events numerical ranking from 0 to 100. They found that people who scored 150-199 on the scale showed a 37 percent chance of those stressful events leading to illness or disease the following year; those scoring 200-299, a 51 percent chance; and those scoring over 300, a 79 percent chance. Many other researchers have since supported these findings.[47-49]

Spiritual Dimension

The relationship between religious and spiritual beliefs and health has been aligned from the beginning of history. Some type of god or spiritual force has been used to explain lightning, thunder, fire, and disease. Illness, even today, in some cultures is seen as a result of evil spirits; and the medicine man or witch doctor combines medicine, faith, and religion in rituals and healing practices.

This influence of the spiritual dimension on health is not just limited to underdeveloped societies. Religion, in Eastern cultures, often plays a major role in the establishment of social mores. Pilgrims go to the shrine at Lourdes where they believe miraculous cures take place. Other groups of people located in the United States, such as the Jehovah's Witnesses, Christian Scientists, and the followers of Oral Roberts believe that faith is much more effective in healing than traditional medicine.

Many theories of health include the spiritual dimension as an important ingredient. Dunn[50] was the person who coined the term "high level wellness." High level wellness to Dunn is an integrated method of functioning which requires the individual to maintain a continuum of balance within the environment where he is functioning. Dunn claims that the environment in which a person lives dramatically influences a person's health. Many factors exist in the environment including the spiritual dimension. According to Dunn these factors all influence the level of health of an individual.

Hoyman[51] also views health as a dynamic process. His theory is called the Ecologic Model of Health. The dimensions that comprise this model include the mental, spiritual, social, and physical. Hoyman feels that these components are affected by a variety of external and internal variables. The level of health a person has is determined by the interplay of these variables.

Sorochan[52] refers to the concept of "orthobiosis" which means "the right style of living." He feels that this term encompasses all the components that influence well-being. He speaks of a feeling of a spiritual awareness of a purpose in life. Sorochan then defines in greater depth those attributes that characterize an individual's health. These attributes include an emotional, social, spiritual, cultural, and physical dimension to health.

Lafferty[53] approaches health with a plan a person could use to influence his or her health in a positive manner. The positive health choices he mentions include the areas of the physical, intellectual, emotional, social, and spiritual. Under the heading of the spiritual component, suggestions such as setting aside some time each day for meditation, thought, and/or prayer, become involved in a

value-oriented, spiritual, or religious discussion, and attend a spiritual or religious meeting, were listed.

Tillich[54] speaks of a spiritual nature of health. He feels that the healing power of faith is the force that helps man create a more fully integrated and meaningful life. Spiritual faith to Tillich means that we are searching for some deeper meaning to life than mere existence or survival. He feels that healthy people seek to transform and transcend themselves through spiritual aspiration and faith. Tillich hopes that this will bridge the gulf between just existing and the ideal. In order to stay healthy he claims that a person needs something for which and by which to live.

Dr. Herbert Benson, a cardiologist, who is head of behavioral medicine at Boston's Beth Israel Hospital, believes that the spiritual dimension is an important component to attaining and maintaining health. His 1975 best seller, The Relaxation Response[55], reviewed his research on the health benefits of meditation. In his latest book, Beyond the Relaxation Response[56], he explores the power of faith combined with meditation. Dr. Benson makes it very clear that there is no particular faith that is more advantageous. He has traveled to many parts of the world and observed many different "faith factors" which have been associated with a healing capacity. Dr. Benson claims that modern medicine can only deal with 25 per cent of what physicians encounter and the other 75 per cent relates to self-limited illness interactions between the mind and body. His view is that meditation combined with a person's faith can play a major role in alleviating the other 75 per cent.

Dr. Norman Vincent Peale is a noted theologian who stresses the importance of the spiritual dimension in health. In his book, The Power of

Positive Thinking[57], the power of the spiritual dimension in a person's health is a recurring theme. In his chapter on "How to Use Faith in Healing," Dr. Peale states

> There is a growing emphasis in present-day religious practice which is designed to help people find healing from the sicknesses of mind, heart, soul, and body. This is a return to the original practice of Christianity. Only in recent times have we tended to overlook the fact that for centuries religion carried on healing activities. The very word "pastor" derives from a word meaning "the cure of souls." In modern times, however, man made the false assumption that it is impossible to harmonize the teaching of the Bible with what is called "science" and so the healing emphasis of religion was abandoned almost entirely to materialistic science. Today, however, the close association of religion and health is increasingly recognized (p. 146).[58]

On the very next page Dr. Peale states "A sensible and effective pattern for health and happiness is to utilize the skills and methods of medical science to the fullest possible extent and at the same time apply the wisdom, the experience, and the techniques of spiritual sciences" (p. 147)[59]

SELF CONCEPT

The relationship of self concept and wellness could not be found in a search of the literature. There are studies, however, that have been conducted which address some of the different components of this study. This review of the literature will report on exercise, nutrition, stress, and the spiritual dimension as they relate to self concept.

Exercise

The concept of the relationship between mind and body is not a new phenomenon. Plato speaks of the relationship in The Republic.[60] Morgan[61] wrote that recognized authorities in the field of psychiatry support the mind/body relationship. Greist,[62] in his work with depressed patients, claims that the more deconditioned these depressed patients are, the less normal their psychological test scores tend to be. As these deconditioned people improve their physical fitness level, their psychological scores tend to change in a positive manner.

The literature that specifically studies the relationship between self concept and exercise is contradictory. Crocitto studied the relationship of jogging to self concept and meaningful existence.[63] The sample consisted of 125 members of the professional staff of the Arlington Public Schools during the 1980-81 school year. Of the 125 members studies, 67 were joggers and 58 were non-joggers. The members of both groups were given the Tennessee Self Concept Scale (TSCS) and Purpose in Life Test (PIL). The findings of this study showed no difference between joggers and non-joggers in self concept and meaningful existence.

Smith[64] studied 20 people who exercise regularly and 20 people who did not exercise regularly. These subjects were matched for age, height, weight, and educational background. These subjects were then divided into four groups: group A was 10 regularly exercising females; group B was 10 non-exercising females; group C was 10 regularly exercising males; and group D was 10 non-exercising males. All subjects received the Tennessee Self Concept Scale (TSCS) and the Silhouette Photographic Selection Process (SPSP). The results for self concept

showed no differences between people who exercise regularly and people who do not exercise regularly.

These studies seem to indicate that there is no relationship between exercise and self concept. There are, however, studies which indicate that there is a relationship between exercise and self concept.

Rhodes[65] studied seventeen joggers from the Planned Vigor group of the Duke University Preventive Approach to Cardiology Program (DUPAC) and 40 non-joggers who volunteered from the Center for the Study of Aging and Human Development Program. The jogging group met three times a week for 10 weeks. The workout lasted for 45 minutes and the subjects exercised at 70-80 per cent of their predicted maximum heart rate. The results as they relate to self concept showed that the jogging group achieved an increase in self concept.

Collingwood[66] studied 50 male rehabilitation clients from a large rehabilitation facility. These men were between the age of 18 and 26 and were matched in terms of behavioral and emotional difficulties and the need for an exercise program. The Bills Index of Adjustment and Values (IAV) was given to both groups (pre-post) to measure self concept. The results for self concept as measured by this instrument showed that the exercise group demonstrated a greater positive change than did the control group.

Hilyer and Mitchell[67] studied college students in regard to self concept and exercise. An added dimension of counseling was also included in this study, which involved 120 subjects from a pool of 262 students who registered for a basic physical education class. This sample included 77 males and 43 females. All 120 students were randomly assigned to one of three groups: control; running only; and running with counseling. Both running groups met three times a week for one

hour. The running and counseling group met one extra hour a week to talk about exercise and any problems they might have regarding exercise. All students were pretested with the Tennessee Self Concept Scale (TSCS). Those students with scores above the mean were designated as the high self concept group. The duration of the study was 10 weeks. To test for changes in self concept the TSCS was again administered. The results revealed that the greatest change in self concept took place among students who were in the running groups and had exhibited low self concept. The low self concept counseling subjects had the greatest changes in overall self concept. This study did not show an improvement in the self concept of those in the high self concept running group.

Nutrition

The literature that addresses the relationship between nutrition and self concept seems to be limited to studies concerning obesity and self concept. Most of these studies have explored this relationship with adolescents. A few studies were located which studied the relationship between obesity and self concept in adult females; but no studies were found which addressed this relationship in adult males.

Wadden and associates[68] studied the relationship between obesity and self concept of children in grades 3-8. Subjects included 105 obese (20% over ideal weight) and 105 normal weight (±5% ideal weight) children. The Peers-Harris Children's Self Concept Scale was used to evaluate self concept. The results showed the mean scores of the obese groups were lower (55.0 to 58.1) than the normal weight group but the difference was not statistically significant

(p .07). The authors did speculate, however, that differences in self concept between obese and normal weight persons may increase with age.

A study by Savrin[69] seems to address the speculation of the authors in the previous paragraph. In Savrin's study a group of obese children, ranging in age from 9 to 14, was compared to a group of normal weight children. The results of the study found that the obese children tended to have higher self concept scores than the normal weight children for ages 9 to 10. The self concept scores of obese children, however, declined at ages 11 to 12.

Stoner and Fiorello[70] examined the role that weight reduction appears to have on the self concept of overweight adolescent females. The subjects were 12 female girls, ages 15 to 18, who were 20 or more pounds over ideal weight. The subjects were randomly assigned to a control and experimental group. The Tennessee Self Concept Scale was the instrument used to measure self concept. The experimental group met 60 minutes one day a week for 16 weeks. Personal grooming skills, social skills, and information on how to lose weight were emphasized at these sessions. The experimental group was not placed on a rigid diet but information about which foods to avoid and how to change eating habits was given. The results of the program show that the experimental group did lose weight (mean loss of 12.5 pounds) and the control group did not. The results of the Tennessee Self Concept Scale showed a difference on the sub-scores for physical self and personal self between the control and experimental groups. No difference, however, was found for overall self concept. In discussing the results of the study the authors explained that when the program ended, all subjects in the experimental group were still overweight, even though weight loss had

occurred. They felt that this factor might account for the fact that the total self concept of the experimental group was not different from the control group.

Rankin[71] studied the relationship between self concept and the reduction of body fat in obese females. Rankin examined the effectiveness of three different weight reduction programs on enhancing self concept. This study consisted of 83 obese females between the ages of 20 and 40 were involved in this study. These 83 women were randomly assigned to four groups (one group was a control). The Tennessee Self Concept Scale was the instrument used to assess self concept. The results showed that two of the three treatment groups showed an increase in total self concept. The other treatment group showed an increase in some sub-scores but not all.

Helfman[72] also studied the effect of different weight reduction treatments on the self concept of overweight women. The study involved 30 overweight and 30 normal weight women ages 25 to 45. When the self concept of the two groups was measured before the different treatments were initiated the self concept of the normal women was higher. The results after the program was completed did not show any difference between the three treatment groups in relationship to self concept.

Stress

The literature that addresses the relationship between stress and self concept is not clear and concise.

A study by Sullivan[73] studied the effects of stress on the self concept of secondary school counselors in Massachusetts. Of the 1,075 counselors listed in

the 1982 Massachusetts School Counselors Association Directory, 560 counselors (52%) responded. The results of this study found that personality factors, Type A and Type B personality, seem to be more important in coping with stress than a person's self concept.

McEntee[74] studied 82 senior student nurses enrolled in acute-care clinical courses. These students were grouped according to level of life stresses and randomly assigned to four groups. The experimental groups (2) received the sequential self-contained, audio-cassette Rankin-McEntee Stress Management Training Program (SMTP). One tape per week for six weeks was given to the experimental groups. Although the results of the study did not show any differences between the experimental and control groups in regard to self concept after the six-week experiment, analysis of the data did reveal that those students with multiple role demands uniformly had low self concept scores.

Hobfall and Walfisch[75] studied the relationship of self concept and social support to psychological distress among patients suspected of having cancer. Sixty-eight Israeli women (who were later found to have benign tumors) were interviewed immediately before undergoing biopsy surgery and three months after the surgery. The results of this study found that self concept is of value in coping with the stress of undergoing surgery. Women with stronger self concepts were found to experience much less discomfort in the areas of state anxiety and state depression.

Pearlin and associates[76] were involved in a longitudinal study to attempt to determine how life events, chronic life strains, self concept, coping, and social supports are related to form a process of stress. Interviews with 2,300 adults between the ages of 18 and 65 were conducted in 1972-73. This sample was

representative of the U.S. census-defined urbanized area of Chicago. The second interview was conducted four years later in 1976-77. Of the original 2,300 adults interviewed, data was collected on 1,106. The authors took involuntary job disruptions and showed how they adversely affected role strains. It was found that these role strains have a tendency to lower self concept. The authors show statistically that the erosion of self concept leaves a person especially vulnerable to experiencing symptoms of stress. The loss of self concept is seen as being of pivotal importance in the process of stress.

Spiritual

A search of the literature did not uncover any empirical data concerning self concept and the spiritual dimension. A visit to bookstores did result in the location of a few books of a religious nature that did address the role of religion in the formation of the "self." These books, however, relied on isolated personal observations and furthermore did not address the specific topic of self concept.

CHAPTER III

DESIGN OF THE STUDY

This study was designed to assess the changes that result in lifestyle and self concept in adult men and women following the implementation of a well-defined wellness program.

HYPOTHESES

The study was undertaken with the expectation that the following hypotheses would be substantiated.

1. It is expected that those subjects involved in a well-defined wellness program will have more positive lifestyle changes than a similar group of controls.

2. It is expected that those subjects involved in a well-defined wellness program will maintain their positive lifestyle changes for at least a six-month period.

3. It is expected that those subjects involved in a well-defined wellness program will have a positive increase in self concept whereas a similar group of controls will not.

INSTRUMENTS

Lifestyle Assessment Questionnaire (LAQ)

The Lifestyle Assessment Questionnaire was designed by Dr. Bill Hettler and associates from the University of Wisconsin-Stevens Point. This Lifestyle Assessment Questionnaire has been used by more than 200,000 people from business and industry, schools and colleges, hospitals and clinics, YMCAs and community health agencies throughout the United States and Canada. It was formulated in 1976 and is now in its third edition.

The Lifestyle Assessment Questionnaire is organized into four sections: 1) Wellness Inventory, 2) Topics for Personal Growth, 3) Risk of Death, and 4) Alert Section: Medical/Behavioral/Emotional.

This study incorporated the wellness inventory section to assess the components of wellness that comprised the study. The reliability coefficients for the individual components are as follows:

Exercise	.77
Nutrition	.74
Stress Management	.79
Spiritual	.77

Instructions to the wellness inventory section inform the subjects that "this section will help determine the current level of wellness that you are experiencing." The five possible responses are:

A. Almost always this is true (90% or more of the time)

B. Very frequently this is true (approximately 75% of the time)

C. Frequently this is true (approximately 50% of the time)

D. Occasionally this is true (approximately 25% of the time)

E. Almost never is this true (less than 10% of the time)

The components of wellness selected from the Wellness Inventory section of the LAQ take about 15 to 20 minutes to complete.

Tennessee Self Concept Scale (TSCS)

The TSCS (developed by William H. Fitts in 1965) consists of 100 self-descriptive statements to which the individual responds and which portray his own picture of himself. This instrument can be used with subjects 12 years and older who have at least a sixth grade reading level. The TSCS is applicable to subjects representing the entire range of psychological adjustments—from well-adjusted to psychotic.

The TSCS is available in two forms, a Counseling Form and a Clinical and Research Form. The 100 items are the same for each form. The only difference between the forms is the profile system and the scoring. The Counseling Form has fewer variables and scores and requires less sophistication in psychometrics and psychopathology by the person analyzing the data. (The Counseling Form is the form used in this study).

The 100 self-descriptive statements were derived from other self-concept measures and from self-descriptions of patients and non-patients. These items were then classified on the basis of what they themselves were saying; and a two-dimensional, 3 X 5 scheme evolved. The one-dimension (horizontal rows) reports three sub-scores which represent an internal frame of reference. These three measures are Identity (how the person sees himself), Self-Satisfaction (how the person accepts himself), and Behavior (how the person acts). The second dimension (vertical rows) report five sub-scores representing five aspects of self considered as a more external reference frame. These measures are Physical Self (how the person views his body), Moral-Ethical Self (how the person views his moral worth), Personal Self (how the person views his personal worth), Family Self (how the person feels in terms of adequacy, worth, and value as a family member), and Social Self (how the person sees his adequacy and worth in his social interactions with other people in general).

The reliability coefficients for the three internal reference sub-scores and the five external reference sub-scores range from .80 to .91. The reliability coefficient for the Total Positive Scale is .92.

Instructions to the TSCS inform the subjects to respond to a five-point endorsement scale which runs from "Completely False" to "Completely True." The TSCS can be completed in 10 to 20 minutes and is self-administered.

SOURCE OF THE DATA

People from the Grand Rapids, Michigan, area served as subjects in the study. Brochures and fliers were distributed to individuals, businesses, and were

posted in shopping malls. These brochures and fliers (see appendix A) outlined the wellness program offered and explained that the participants would be part of a statistical study.

Of the 105 people who expressed interest, ninety persons were able to meet all the stipulations outlined in the brochure and were accepted into the program.

Subjects included 46 adult men and 44 women between the ages of 23 and 64. Although the individuals' lifestyles varied, almost all led sedentary lives and were relatively unfit as measured by a sub-maximal, multistage exercise test on a stationary bicycle administered before the start of the exercise sessions.

The 90 subjects were randomly assigned to one of two groups. The experimental group of 24 males and 21 females participated in an eight-week wellness program that began in February (1984). The other group of 22 males and 23 females served as the control group during this eight-week time period.

All subjects from both groups came to an organization meeting held one week prior to the start of the wellness program. At this meeting the program was explained and the two testing instruments, the Lifestyle Assessment Questionnaire and the Tennessee Self Concept Scale, were administered.

The experimental group was then involved in the eight-week wellness program. This program consisted of exercise sessions and lectures.

The exercise session options included walking/running, swimming, and aerobic dance. The subjects could choose from one or any combination of the exercise options offered. They were encouraged to exercise a minimum of three times a week. The level of intensity that would be appropriate for each individual was determined by the results of the exercise test taken. The subjects were asked

to sign an attendance sheet at each exercise session they attended. Approximately 90 per cent of the subjects participated in at least three exercise sessions a week. About 8 per cent averaged two sessions a week and only one person averaged one time a week.

Lecture sessions, which focused on exercise, nutrition, stress, and the spiritual dimension were held each week for the eight weeks. The same lecture was given Monday and Tuesday evenings from 7:00 p.m. to 8:00 p.m. to encourage attendance at these sessions. Subjects were again asked to sign an attendance sheet at each lecture session. Attendance at the lecture sessions was as follows: 75 per cent attended every lecture session, 15 per cent missed one lecture session, 5 per cent missed two, and 5 per cent missed more than two.

At the conclusion of the eight-week session, all subjects from both groups were again assembled at the same time and the posttest for the two evaluation instruments was given.

The group that served as the control group for the first eight-week session then participated in a similar eight-week training program. This inducement to the control group, to be able to become involved in a second eight-week wellness program, served as an incentive to consent to be one of the control group for the first eight-week session.

The fact that the cost to the subjects was much less than comparable wellness programs offered in the Grand Rapids area ($65 compared to $180-190) helped recruit subjects for this study.

Six months following the completion of the session in which the experimental group had participated, the Lifestyle Assessment Questionnaire was mailed to all those subjects who were part of the experimental group. The post-

posttest results were analyzed to attempt to determine if changes in lifestyle which occurred during the eight-week wellness program were temporary or were at least present following a six-month period.

STUDY GROUPS

Selecting a design appropriate to the needs of the study resulted in the selection of the pretest-posttest control-group with random assignment design.

Group	Pretest	Treatment	Posttest	Post-posttest
One	yes	Participation in wellness program	yes	yes
Two	yes	no treatment	yes	no

This design allowed for control of the eight threats to internal validity identified by Campbell and Stanley.[77] These internal validity factors are history, maturation, testing, instrumentation, regression selection, mortality, and interaction effect.

Groups one and two were pretested on the Lifestyle Assessment Questionnaire and the Tennessee Self Concept Scale.

Group one was involved in an eight-week wellness program, while group two served as controls.

Groups one and two were posttested on the Lifestyle Assessment Questionnaire and the Tennessee Self Concept Scale.

Group one received a post-posttest on the Lifestyle Assessment Questionnaire six months following the treatment session.

SUMMARY

This chapter includes information concerning the hypotheses, the instruments used, and the source of the data.

The hypotheses were explained as expected outcomes of the well-defined wellness program in which the subjects were involved.

The two instruments which were used, The Lifestyle Assessment Questionnaire and the Tennessee Self Concept Scale, were explained to show the appropriateness of their use in this study.

The source of data section gave information regarding the demographics of the subjects and information concerning the program in which the subjects were involved.

CHAPTER IV

ANALYSIS OF THE DATA

The results of this study were based on data collected from 80 adult men and women who lived in the Grand Rapids, Michigan, area. To present the data collected, this chapter will be divided into three parts. Part one presents summary data on the subjects involved in this study. Part two contains statistical data concerning the effect of a well-defined wellness program on four components of lifestyle. Part three contains statistical data concerning the effect of a well-defined wellness program on self concept.

CHARACTERISTICS OF THE STUDY SAMPLE

The primary purpose of this study was to evaluate the effect of a well-defined adult wellness program on four components of lifestyle and on self concept. To accomplish this purpose subjects were recruited to participate in this study. To best control for initial equivalence between groups, the subjects were randomly assigned to either an experimental or control group.

Table 1 contains a breakdown of the groups. This study involved data from 80 adults; 41 men and 39 women. Initially 90 adults, 46 men and 44 women, entered this study. Most of the attrition was due to data collection limitations.

Table 1

Groups and Number of Subjects

Group	N
Experimental	Males = 21
	Females = 19
	40
Control	Males = 20
	Females = 20
	N = 40
	TOTAL = 80

Table 2

Groups and Number of Subjects
(for Post-Posttest Subjects)

Group	N
Experimental	Males = 17
	Females = 15
	N = 32

STATISTICAL DATA ON LIFESTYLE

Test of Significance

Analysis of covariance was used to test hypothesis number 1. This hypothesis, stated in null form, addressed the effect of a well-defined wellness program on lifestyle.

H: No difference will exist in the lifestyle of adults who participate in a well-defined adult wellness program and those who do not, in the following areas:

1.1 exercise

1.2 stress management

1.3 nutrition

1.4 spiritual dimension

Analysis of variance for repeated measures was used to test hypothesis number 2. This hypothesis, stated in null form, addressed the effect of a six-month time period on the results of the posttest taken immediately following the treatment period.

H: no difference in lifestyle will exist between the results of the experimental group immediately after completing a well-defined adult wellness program and six months following the program, in the following areas:

2.1 exercise

2.2 stress management

2.3 nutrition

2.4 spiritual dimension

Table 3 contains a breakdown of the data concerning the lifestyle component exercise. This table shows that the pre-post means of the control group dropped somewhat (37.650 pre — 35.525 post). The pre-post means of the experimental group, however, did change (31.300 pre — 49.225 post, $p<.001$).

Table 3

Analysis of Covariance
Exercise

	Mean	S.D.	F*	p
Pretest Experimental	31.300	6.035		
Pretest Control	37.650	10.521		
Posttest Experimental	49.225	5.659	40.528	.001
Posttest Control	35.525	8.003		

* The above F score represents the comparison of the two groups on the posttest.

Table 4 shows the data concerning the lifestyle component stress management. The pre-post means of the control group did not change (84.025 pre — 83.150 post). Even though the pre-post means of the experimental group changes (86.650 pre — 91.300 post) the change was not different ($p < .470$) at the level used in this study ($p < .05$).

Table 4

Analysis of Covariance
Stress Management

	Mean	S.D.	F*	p
Pretest Experimental	86.650	10.986		
Pretest Control	84.025	11.676		
Posttest Experimental	91.300	10.420	46.924	.470
Posttest Control	83.150	13.880		

* The above F score represents the comparison of the two groups on the posttest.

Table 5 presents the data concerning the lifestyle component nutrition. The pre-post means of the control group stayed about the same (47.700 pre — 46.400 post) but the pre-post of the experimental group did change (47.150 — 53.800, $p < .001$).

Table 5

Analysis of Covariance
Nutrition

	Mean	S.D.	F*	p
Pretest Experimental	47.150	6.811		
Pretest Control	47.700	8.905		
Posttest Experimental	53.800	6.556	12.229	.001
Posttest Control	46.400	9.891		

* The above F score represents the comparison of the two groups on the posttest.

Table 6 presents the data for the lifestyle component spiritual dimension. The means of the pre-post for both groups are very similar (61.800 pre — 60.850 post control and 60.700 pre — 61.875 post experimental). There was no difference between the posttest means of the two groups ($p < .223$).

Table 6

Analysis of covariance
Spiritual Dimension

	Mean	S.D.	F*	p
Pretest Experimental	60.700	7.238		
Pretest Control	61.800	7.230		
Posttest Experimental	61.875	7.436	1.509	.223
Posttest Control	60.850	10.416		

* The above F score represents the comparison of the two groups on the posttest.

STATISTICAL DATA ON LIFESTYLE
(Collected six months following completion of wellness program)

Test of Significance

Repeated measure analysis was used to test hypothesis number 2. This hypothesis, stated in null form, compared the data obtained immediately following

the completion of the wellness program with data obtained six months following the wellness program.

H: no difference in lifestyle will exist between the results of the experimental group immediately after completing a well-defined adult wellness program and six months following the program, in the following areas:

2.1 exercise

2.2 stress management

2.3 nutrition

2.4 spiritual dimension

Table 7 presents the data concerning the lifestyle component exercise. The post-posttest mean of the experimental group changed from the mean of the posttest of the experimental group (50.2188 posttest — 45.0938 post-posttest, p <.001).

Table 7

Repeated Measure Analysis
Exercise

	Mean	S.D.	T	p
Posttest Experimental	50.2188	5.416	6.47	.001
Post-posttest Experimental	45.0938	5.195		

Table 8 shows the data concerning the lifestyle component stress management. The posttest and post-posttest means of the experimental group did not change (91.3838 posttest — 88.5625 post-posttest, $p<.121$).

Table 8

Repeated Measure Analysis
Stress Management

	Mean	S.D.	T	p
Posttest Experimental	91.3438	10.697	1.60	.121
Post-posttest Experimental	88.5625	10.009		

Table 9 contains a breakdown of the data concerning the lifestyle component nutrition. This table shows that the posttest and the post-posttest means did not change (54.2188 posttest — 54.2813 post-posttest, $p<.902$).

Table 9

Repeated Measure Analysis
Nutrition

	Mean	S.D.	T	p
Posttest Experimental	54.2188	6.786	-.12	.902
Post-posttest Experimental	54.2813	6.527		

Table 10 presents the data for the lifestyle component spiritual dimension. The means of the posttest and post-posttest did change (62.1875 posttest — 60.5000 post-posttest, $p.<.049$).

Table 10

Repeated Measure Analysis
Spiritual Dimension

	Mean	S.D.	T	p
Posttest Experimental	62.1875	7.280	2.05	.049
Post-posttest Experimental	60.5000	7.767		

STATISTICAL DATA ON SELF CONCEPT

Test of Significance

Analysis of covariance was used to test hypothesis number 3. The hypothesis, stated in null form, addressed the effect of a well-defined wellness program on self concept.

H: no difference will exist in self concept of adults who participate in a well-defined adult wellness program and those who do not participate.

The Tennessee Self Concept Scale was the instrument used in this study to evaluate self concept. The Total Positive Score (considered by the author of the test to be the single most important score) was the score used to determine self concept. Due to the fact that the five sub-scores (physical self, moral-ethical self, personal self, family self, and social self) might give additional information concerning specific factors of self concept, they were also included in this section.

Table 11 contains a breakdown of the data concerning the Total Positive Scores of the Tennessee Self Concept Scale. The mean scores for the control group on the pretest and the posttest were very similar. The pre-post mean scores for the experimental group, however, were different (352.000 pre — 367.075 post, $p<.001$).

Table 11

Analysis of covariance
Total Positive Scores

	Mean	S.D.	F*	p
Pretest Experimental	352.000	25.487		
Pretest Control	346.500	26.803		
Posttest Experimental	367.075	32.108	13.160	.001
Posttest Control	344.975	33.360		

* The above F score represents the comparison of the two groups on the posttest.

Table 12 shows the relationship between the experimental and control groups concerning the Physical Self of the Tennessee Self Concept Scale. This table shows that the pre-post means of the control group dropped (64.575 pre — 63.800 post); but there was a change in the pre-post means of the experimental group (66.925 pre —72.250 post, $p<.001$).

Table 12

Analysis of covariance
Physical Self

	Mean	S.D.	F*	p
Pretest Experimental	66.925	6.715		
Pretest Control	64.575	6.850		
Posttest Experimental	72.250	5.982	30.123	.001
Posttest Control	63.800	9.370		

* The above F score represents the comparison of the two groups on the posttest.

Table 13 presents the data for the Moral-Ethical Self of the Tennessee Self Concept Scale. The pre-post means of both groups changed very little and the difference between the posttest means of the two groups ($p<.100$) was not significant at the $p<.05$ level used in this study.

Table 13

Analysis of covariance
Moral-Ethical Self

	Mean	S.D.	F*	p
Pretest Experimental	75.050	7.400		
Pretest Control	74.625	6.690		
Posttest Experimental	76.175	7.150	2.774	.100
Posttest Control	74.075	9.300		

* The above F score represents the comparison of the two groups on the posttest.

Table 14 presents the data for the Personal Self of the Tennessee Self Concept Scale. The pre-post means of the control group did not change (65.825 pre -- 65.625 post); but the pre-post means of the experimental group did change (pre 67.825 -- 69.650, $p < .018$).

Table 14

Analysis of covariance
Personal Self

	Mean	S.D.	F*	p
Pretest Experimental	67.285	6.664		
Pretest Control	65.825	7.578		
Posttest Experimental	69.650	6.435	5.793	.018
Posttest Control	65.625	7.520		

* The above F score represents the comparison of the two groups on the posttest.

Table 15 presents the data for the Family Self of the Tennessee Self Concept Scale. As found in the other tables which addressed data concerning the Tennessee Self Concept Scale the pre-post means of the control group did not change (73.425 pre -- 73.475 post). The pre-post means of the experimental group, however, did change (72.225 pre -- 74.950 post, $p < .014$).

Table 15

Analysis of covariance
Family Self

	Mean	S.D.	F*	p
Pretest Experimental	72.255	5.811		
Pretest Control	73.425	6.105		
Posttest Experimental	74.950	6.664	6.292	.014
Posttest Control	73.475	7.521		

* The above F score represents the comparison of the two groups on the posttest.

Table 16 presents the data for the Social Self of the Tennessee Self Concept Scale. The pre-post means of the control group were very similar (67.325 pre — 67.625 post). The pre-post means of the experimental group, however, did change (69.675 pre — 72.000, $p<.016$).

Table 16

Analysis of covariance
Social Self

	Mean	S.D.	F*	p
Pretest Experimental	69.675	8.288		
Pretest Control	67.325	7.590		
Posttest Experimental	72.000	7.616	6.009	.016
Posttest Control	67.625	7.692		

* The above F score represents the comparison of the two groups on the posttest.

SUMMARY

The results of the Tennessee Self Concept Scale data that was presented will be briefly summarized. Table 2 presented data for the single most important score computed on this test. This is the data on which total self concept will be determined. The data presented in Table 2 did show a difference ($p<.001$) between the control group and the experimental group on the posttest means. Tables 3 through 7 reported five sub-scores of self concept. The only sub-score that did not change at the level used in the study ($p<.05$) in regard to the posttest means between the control and experimental groups, was the Moral-Ethical Self. The other four sub-scores, Physical Self, Family Self, Personal Self, and Social Self, did change at the level of significance used in this study.

CHAPTER V

SUMMARY, FINDINGS, AND RECOMMENDATIONS

In the last five years the number of wellness programs has increased dramatically. One reason that wellness programs have proliferated is due to the concern people have for their health. The media has helped fuel this concern by reporting the importance of preventing illness rather than relying on being cured of disease after becoming afflicted. A person's lifestyle has been increasingly implicated in many diseases that afflict people today. Directors of wellness programs claim to address this issue of lifestyle and they also claim that people who participate in their programs have a tendency to feel better about themselves. Although these claims appear to be logical, no empirical data exist which support these claims.

The primary purpose of this study was to investigate the changes that take place in lifestyle and self concept following the implementation of a well-defined wellness program. As stated in Chapter I, three questions were considered pertinent:

1. What effect does a well-defined wellness program have on the lifestyle of an individual?

2. If a well-defined wellness program does have an effect on the lifestyle of an individual, is this effect temporary?

3. What effect does a well-defined wellness program have on the self concept of an individual?

To assess the changes in lifestyle and self concept that might take place following the implementation of a well-defined wellness program, two instruments were used. The Lifestyle Assessment Questionnaire was used to assess lifestyle; and the Tennessee Self Concept Scale was used to assess self concept.

The wellness program used in this study was considered to be a well-defined wellness program. The term, well-defined, was used because all programs that are called wellness programs do not include the same components. This study attempted to construct a wellness program that included the major components that all wellness programs include. From researching existing wellness programs, all programs included the components exercise, nutrition, and stress management. Most programs also included the spiritual dimension. Therefore, the well-defined wellness program implemented in this study included exercise, nutrition, stress management, and the spiritual dimension.

The well-defined wellness program that was implemented in this study consisted of eight weeks of exercise and lectures. The exercise options consisted of walking/running, swimming, and aerobic dance. The subjects could choose one of the exercise options or use any combination of options but they were encouraged to exercise a minimum of three times a week. Lecture sessions

concerning exercise, nutrition, stress management, and the spiritual dimension were held one hour each week for eight weeks. Subjects who were enrolled in this program were adult men and women between the ages of 21 and 65, who resided in the Grand Rapids, Michigan, area. Most of the subjects were relatively unfit as measured by the fitness test administered at the start of the program.

The research design selected for this study was the pretest-posttest control-group with random assignment. This design allowed for control for the eight threats to internal validity (history, maturation, testing, instrumentation, regression selection, mortality, and the interaction effects). This study involved 90 subjects with 45 being randomly assigned to the experimental group and 45 being assigned to the control group. Both groups received the two testing instruments (Lifestyle Assessment Questionnaire, and the Tennessee Self Concept Scale) one week prior to the implementation of the program. At the completion of the eight-week program both groups again completed the testing instruments. Six months following the completion of the program the experimental group again took the Lifestyle Assessment Questionnaire. Due mainly to test attrition, data from forty experimental and forty controls was available for analysis.

Based on the data collected and analyzed, the following statements for the subjects involved in this study can be made.

1. Participation in a well-defined wellness program changed the two lifestyle components, exercise and nutrition. Two lifestyle components, stress management and the spiritual dimension, were not

changed by participation in a well-defined wellness program.

2. Of the two lifestyle components (exercise and nutrition) that changed during the well-defined wellness program, the nutrition component did not change following a six-month time period.

3. Participation in a well-defined wellness program does positively affect a person's self concept.

A word of caution must be used in generalizing the results of the data collected and reported in this study. The limitations of the study, as stated in Chapter I, should be kept in mind. These limitations are:

1. The built-in bias of a volunteer group. This group may, therefore, differ from a random sample of people in the Grand Rapids, Michigan, area.

2. Various levels of previous exposure to exercise and positive lifestyle concept.

3. Reliability of self-assessment: the ability of individuals to accurately assess their own self concept and lifestyle.

INTERPRETATION AND CONCLUSIONS

A discussion of the instruments used in this study and the results of the data collected from these instruments will be undertaken.

Lifestyle Assessment Questionnaire

The Lifestyle Assessment Questionnaire is organized into four sections: 1) Wellness Inventory; 2) Topics for Personal Growth; 3) Risk of Death; and 4) Alert Section: Medical/Behavioral/Emotional. This study used the Wellness Inventory section to assess the four components of lifestyle addressed. To obtain a score for each component the sum of the scores for each section were tabulated. The possible responses and points given are: A—Almost always this is true (90% of the time) = 5 points; B—Very frequently this is true (approximately 75% of the time) = 4 points; C—Frequently this is true (approximately 50% of the time) = 3 points; D—Occasionally this is true (approximately 25% of the time) = 2 points; E—Almost never is this true (less that 10% of the time) = 1 point.

The pretest data for the experimental group and the control group were very similar except for the exercise component. The mean score on the pretest for this component for the experimental group was approximately 6 points lower than for the control group (31.300 for the experimental group to 37.650 for the control group).

The posttest data for the experimental group was different from the control group for the exercise and nutrition components. Therefore, Hypotheses 1.1 and 1.3, which addressed the exercise and nutrition components respectively,

were rejected. The posttest data for Hypotheses 1.2 (stress management) and 1.4 (spiritual) were not different and were accepted.

The changes that resulted in the exercise and nutrition components might be explained by the fact that changes in both of these components are easy to recognize. When a person, especially an unfit person, exercises regularly over an eight-week period of time, the physiological changes that occur are very easily recognized. The person's capacity to do more physical exercise increases during this time and this is easily recognizable. Muscle tone improves and this is also usually recognizable. A weight loss might occur and this is a factor which is easily documented. Changes involving nutrition are also very easily observable. When information is supplied which seems to help a person lead a more healthy life and the changes proposed are not too radical, many people, especially those people sufficiently interested in their health to become a participant in a wellness program, will change their lifestyle in regard to nutrition.

Although the component of stress management did not seem to change between the control group and the experimental group, there did seem to be a trend. The mean score for the experimental group increased by over four points (86.650 pretest to 91.300 posttest) and the mean score for the control group decreased by more than three points (86.650 pretest to 83.150 posttest). One reason why the stress management component did not change might be due to the small emphasis placed on this component in this study. Two one-hour lectures were devoted to this component. Intervention techniques were explained but little time was spent in practicing these techniques. Another reason for no change might be due to the relatively short time of the wellness program (stress management was introduced during the fifth and sixth week). Eight weeks might

not be enough time to elicit changes in an area where the results are not as easily recognizable and concrete as exercise and nutrition. It also appears that the spiritual dimension component was not sufficiently stressed in the program. Only one hour was specifically devoted to this component. As with stress management, changes in this component probably take a longer time frame to elicit change.

The post-posttest data of the experimental group was different from the posttest data from the lifestyle component exercise. Therefore, Hypothesis 2.1, which stated that no difference in lifestyle will exist between the results of the experimental group immediately after completing a well-defined adult wellness program and six months following the program in the area of exercise, was rejected.

Although the change in the exercise component following a six-month time period was different, the mean of the post-posttest data for exercise was still different when compared to the exercise pretest (31.300 pretest — 45.0928 post-posttest, $p < .001$). This data seems to suggest that, although the persons involved in the program did regress somewhat from the mean scores they attained immediately following the program (49.255 — 45.0938), this regression did not approach the pretest mean (31.300).

The post-posttest data of the experimental group was not different from the posttest data of the nutrition component. Therefore, Hypothesis 2.3, which addressed the lifestyle component nutrition, was accepted. The data from the post-posttest for nutrition seems to indicate that the gains the experimental group made during the program were more than temporary gains. The similarly of the means between the posttest and the post-posttest data (53.800 posttest — 54.2813

post-posttest) does not even seem to indicate a trend toward a regression in the area after a six-months time period.

Due to the fact that the lifestyle components, stress management and spiritual dimension did not change in Hypothesis number 1, it is irrelevant that Hypotheses 2.2 and 2.4 were accepted.

Tennessee Self Concept Scale

The Tennessee Self Concept Scale consists of 100 self-descriptive statements which provide a multi-dimensional description of the self. A grouping of these statements resulted in a two-dimensional, 3 x 5 scheme. The one dimension (horizontal rows) reports represent an internal frame of reference. These three measures are Identity (how the person sees himself), Self-Satisfaction (how the person accepts himself), and Behavior (how the person acts). The second dimension (vertical rows) report five sub-scores representing five aspects of self considered as a more external reference frame. These measures are Physical Self (how the person views his body), Moral-Ethical Self (how the person views his moral worth), Personal Self (how the person views his personal worth), Family Self (how the person feels in terms of adequacy, worth, and value as a family member), and Social Self (how the person sees his adequacy and worth in his social interactions with other people in general).

The Total Positive Score (P), considered by the author of the Tennessee Self Concept Scale to be the single most important score, can be obtained by adding up the scores of the five vertical rows. The Total Positive Score (P) was used in this study to determine self concept. The five sub-scores which represent

Physical Self, Moral-Ethical Self, Personal Self, Family Self, and Social Self were analyzed to attempt to determine which specific aspects of the self were affected in this study.

The pretest data for the control and experimental groups for the Total Positive Score (P) were not different (experimental 352.000 to 346.500 control). The posttest for the control and experimental groups, however, was significantly different (experimental 367.075 to 344.975 control, $p<.001$). This statistically significant difference ($p<.001$) resulted in the rejection of Hypothesis 3 which states that: no difference will exist in self concept of adults who participate in a well-defined adult wellness program and those who do not participate.

Analysis of the five sub-scores revealed that the only sub-score which did not change between the control and experimental groups was the Moral-Ethical Self (posttest experimental 76.175 to posttest control 74.075, $p<.100$). The other four sub-scores, Physical Self ($p<.001$), Personal Self ($p<.010$), Family Self ($p<.014$), and Social Self ($p<.016$), did change.

The changes that took place in four of the five sub-scores do seem to be logical changes if one analyzes the meaning given to each of these areas by the author of the Tennessee Self Concept Scale. Dr. Fitts describes Physical Self as the individual presenting his view of his body: his health, physical appearance, skills, and sexuality. A program which involved people in physical exercise and emphasized their role in well-being could be expected to result in a change in how a person views himself. Personal Self reflects the individual's sense of personal worth. Many studies have shown that exercise helps a person psychologically (Griest and Koslubala for example, as mentioned in Chapter II). The exercise portion of the wellness program might be part of the explanation for the

significant positive change in the Personal Self. Family Self reflects a person's feeling of adequacy, worth, and value as a family member. It is possible that as a person feels better about his or her Physical Self, which might have been brought about by a heightened awareness of his or her own body and increased physical vitality, the Family Self could be positively affected. Social Self reflects the person's sense of adequacy and worth in relation to his interactions with other people. The fact that the program in which these people were involved was a group venture might help to explain the positive change in this area. The exercise sessions were structured so that social interaction took place. People were encouraged to get to know all the people in the group. The walking/running, and aerobic exercise sessions did include much social interaction among the participants.

The sub-score which did not change, Moral-Ethical Self, presents an interesting phenomenon. The Moral-Ethical Self reflects the moral worth of a person, the relationship to God, the feelings of what type of person one is (good or bad) and the satisfaction a person has with his or her religion or lack of religion. An interesting relationship might exist between this sub-area of self concept data and the spiritual dimension data from the Lifestyle section of this study. Both areas seem to deal with the same general subject. The fact that both areas did not change might show a weakness in this wellness program in regard to this area. The time devoted to this area, as stated previously, was minimal; and in order for this area to be changed, greater emphasis might have to be given throughout the wellness program.

A general review of the data on self concept identified a phenomenon which was difficult to rationally explain. The Total Positive Scores for the

control group actually went down over the eight-week period (pretest 346.500--posttest 344.975). Although the shift was not statistically different, it was thought that if any change took place it would be in a positive manner. The reason for this expected positive shift had to do with the time of year. The program originated in February (mid-winter) and concluded the first of April. After the drudgeries of winter it might be expected that springtime might elicit an increase in the Total Positive Score.

Investigation as to how the negative trend might be explained uncovered the fact that springtime is not a time of the year that is regarded by psychologists as a high point psychologically for many people. In fact, statistics on suicide[77] reveal that April and May are the months when most suicides occur. Further support to the argument that spring is not such a glorious time of the year is given by T.S. Eliot. In his poem "The Wasteland"[78] Eliot calls April the "cruelest month."

REFLECTIONS

At this point of the dissertation this investigator would like to reflect on some issues that go beyond the design of this study.

One factor which surprised this investigator and other persons involved in working with adults was the attendance of the subjects at the lecture and exercise sessions. This investigator feels that the positive results of the study were due in large part to the fact that the subjects stayed involved in all facets of the program from start to finish. Some reasons that might have contributed to this high attendance rate follow:

1. The subjects were introduced to each other and they were encouraged to get to know each other better. Exercise sessions were structured so that communication between subjects was convenient.

2. The instructor knew everybody's name and made it a point to communicate with each individual every session.

3. The lectures were structured but input by the subjects was encouraged.

4. Role was taken at each lecture and exercise session and if a person missed a session the instructor would make a point of contacting such persons and letting them know they were missed.

This investigator feels that the above reasons contributed to a building of a camaraderie among the subjects and should be incorporated into any wellness program. This feeling of devotion to the group was exemplified one morning when the city of Grand Rapids was virtually shut down by a snowstorm. Of the 20 subjects who regularly exercised at 7:00 a.m., 14 were present that morning. The subjects who did not show up were those who lived at least eight miles from the exercise facility. This fact, however, did not allow them to escape the good-natured kidding from those who were present at this exercise session.

The feedback from some of the subjects involved in this program has convinced this investigator of the importance of making people aware of what they can do to enhance their well-being. A lawyer who was involved in this

program has lost 30 pounds and has reached his ideal body weight. This lawyer claims that his energy level has increased dramatically and that he feels very much more positively about himself. A professor from Calvin College, where the program was conducted, lost 20 pounds and was pleased by that but he was most impressed by the release of tensions that exercise brought about. He related that he used to become very tense from teaching but when he exercised for 30 to 45 minutes in the morning before his classes he was much more relaxed in class. This professor's daughter, who was a member of one of the investigator's classes, related that her father used to come home from teaching with headaches almost every day. Since her father has been involved in this program, she has noticed that he is more relaxed and does not seem to be bothered by headaches.

Another positive contribution a wellness program like this one has is the uncovering of potentially dangerous health problems. Three people who had wanted to become involved in the program were found to have medical problems of which they were not aware. By uncovering these problems and having these people referred to the proper medical authorities, serious health consequences were most likely avoided.

One major weakness of this program was the fact that no organized plan was established to continue the exercise sessions on a regular basis once the program was completed. The feedback that this investigator received from some of the subjects was that they would have liked to continue meeting as a group to continue their exercise program. The persons involved in the aerobic dance exercise sessions asked if a class could be held in the fall so they could continue to be involved in an exercise program they enjoyed. Of the 25 subjects who participated in aerobic dance during the study, 20 are currently involved in the

aerobic dance class they requested. This investigator feels strongly that provisions should be made so that those people who are involved in a wellness program have an opportunity to continue to experience the group dynamics which seem to help motivate them to continue to be active.

The reader can so doubt sense that this investigator feels that wellness programs have the potential to do a tremendous amount of good for the adults who avail themselves of this service. This investigator feels, however, that the type of program conducted for this study could have a greater impact on the health of individuals if it involved people at a much younger age. This basic program, with a few modifications, could be conducted at the elementary school level.

RECOMMENDATIONS

As a result of this study, the following recommendations for further study are made:

1. Study the effect of a wellness program on lifestyle and self concept when the program continues for a longer time span. A longer program (10-12 weeks) might produce different results, especially in regard to the lifestyle components of stress management and the spiritual dimension.

2. Study the effect of support groups who continue to meet after the formal wellness program is completed.

3. Conduct a longitudinal study on the effects of a wellness program. This study evaluated the lifestyle changes that remained six months following the completion of a wellness program. Follow-up data gathered one and two years later could give a more clear picture of the permanency of changes that took place following a wellness program.

4. Study the effects of a wellness program on senior citizens (62 and older). As our population becomes older, positive changes in the lifestyle and self concept of these senior citizens (if they occur) could be a very positive contribution to society.

5. Study the effect of introducing the lifestyle components of stress management and the spiritual dimension earlier in the wellness program. It would be interesting to determine if more emphasis placed on these components would result in a significant change.

6. Study the effect of introducing this type of wellness program at the elementary level.

APPENDICES

APPENDIX A

Promotional Material

WELLNESS PROGRAM

The Calvin College Adult and Continuing Education Program, in cooperation with Life Wellness (a division of Human Resources Association) will be offering two eight-week health promotion programs in early 1985. One eight-week program will begin the week of February 3 and end March 29. The other eight-week program will begin the week of April 7 and end May 31.

COMPONENTS OF THE PROGRAM

1. A sub-maximal, multi-stage exercise test on a stationary bicycle (performance 2000 exercise computer) to predict fitness level. This test will also be given at the completion of the program to determine any changes in fitness level.

2. Exercise prescription based on exercise test.

3. Blood analysis: The Cardio-screen Profile performed on the asymptomatic person can facilitate the diagnosis of coronary heart disease risk.

4. Body composition: a skinfold caliper is used to determine body composition. This test will be given at the start of the program and also after the completion of program.

5. Health History.

6. Exercise sessions: The participants may choose the exercise program they would like to become involved in from the following:

   - Swimming or walking/jogging on Monday/Wednesday/Friday from 7-8:00 a.m. or 12:30-1:30 p.m.
   - Aerobic dance on Tuesday and Thursday from 12:30-1:30 p.m. (men and women)

   A minimum of three workouts a week should be the goal. Any combination of the above workouts is possible.

7. Lecture/Discussions Sessions: The participants may choose to come either Monday or Tuesday night for informational sessions in the areas of exercise, diet and nutrition, stress management and the spiritual dimension (eight sessions).

(continued)

COST OF PROGRAM

Due to the fact that we plan to evaluate this program and the participants would be involved in this evaluation the cost will be $65.00 instead of $140.00. When this program is offered in the Fall of 1985 the cost will be between $140.00—$150.00.

The only "extra" that will be asked of those participants who agree to be part of this evaluation are the following:

1. Be randomly assigned to either of the eight-week programs (for statistical purposes). If your schedule does not allow you to be randomly assigned to either eight-week program you could specify which session you could participate in and if your name happens to be assigned to the "right" session you will be notified.
2. Take two written instruments (multiple choice) before the program begins and also after the program is completed. The pretest will be given at the organizational meeting that is part of the regular program and will take about one-half hour to complete.
3. Sign a consent from which will allow us to use the data collected in an evaluation of the program. A coding system will be used so that the confidentiality of the data will be assured.

APPLICATION

NAME_____BIRTHDATE_____BUS. PHONE_____

HOME ADDRESS_____HOME PHONE_____

Night you could attend weekly lecture/discussion session:
Monday _____ Tuesday _____ Either _____

Type of activity you would like to participate in.
_____ Walking/jogging (M-W-F, 7-8 or 12:30-1:30)
_____ Swimming (M-W-F, 7-8 or 12:30 -1:30)
_____ Aerobic Dance (Tu-Th, 12:30-1:30)

_____ I would be able to participate in either session.
_____ I would only be able to participate in the first session (Feb. 3 - March 29)
_____ I would only be able to participate in the second session (April 7 - May 31)

Send application to:

Ralph Honderd
Physical Education Department
Calvin College
Grand Rapids, MI 49506

Enrollment is limited! Applications will be processed as they arrive!

APPENDIX B

Reply Letter to Participants

Dear Wellness Participant:

This letter is your confirmation that you have been selected from the applications received to participate in the wellness program offered by the Adult and Continuing Education Program of Calvin College. We are excited about the program and are looking forward to your participation in the program.

Due to the random assignment of participants for statistical purposes of the study to be conducted, you have been assigned to the following session:

_____ First session -- Feb. 4 to March 29

_____ Second session -- April 8 to May 31

If this assignment does not allow you to participate, please call Ralph Honderd at 957-6020 as soon as possible so that somebody from the waiting list may be substituted for you.

All participants, from both sessions, must attend one on the organizational meetings that will be held. In order to give you some options, the following dates are when this organizational meeting will be held:

Monday, Jan. 21 from 7-8 p.m. -- Room C-301 College Center
Tuesday, Jan. 22 from 7-8 p.m. -- Room C-301 College Center
Thursday, Jan. 24 from 7-8 p.m. -- Room C-301 College Center

At these times the program will be explained. If you can not attend one of these meetings please call Ralph Honderd at 957-6020 so special arrangements may be made. Payment for those involved in either session should be made at the organizational meeting that you attend (Jan. 21, 22, or 23).

Sincerely,

Ralph Honderd

RH:bk

APPENDIX C

Post-Posttest Contact Letter
Concerning the Lifestyle Assessment Questionnaire

Dear Wellness Participant:

Six months have passed since you were involved in the wellness program offered by the Adult and Continuing Education Program of Calvin College. Hopefully this letter finds you "well."

The results of the data collected so far have been very exciting to me. I have really enjoyed the program and have learned much. There is one remaining task, however, that remains to be completed and I ask for your cooperation. In fact, this last task is very important so I would ask you to please take time right away to complete the test instrument and return it as soon as possible. I have no way of determining who returns the material so it will be impossible to send individual reminder letters.

Hopefully, I will complete the analysis of the data by early November and would be willing to send you a summary of the study if you would like to have this information.

Thank you in advance for your cooperation.

Sincerely,

Ralph Honderd

RH/dvp

Enclosures

APPENDIX D

Health History and Status Form

Health History and Status Form

Name _____ Sex ( ) M ( ) F
Last First Middle

Address _____
Street

_____ H _____ W _____
City State Zip Phone

Present Age _____ Date of Birth _____
Month Day Year

OCCUPATIONAL INFORMATION

Current Job Title _____

Type of industry or business _____

Approximate number of hours worked per week _____

On a scale of 1 (least) to 10 (most), rate the following: _____ responsibility
_____ job stress

Person to notify in case of an emergency:

Name _____ Relationship _____

Telephone _____

Your private physician providing consent for this program:

Name _____

Address _____
(Street) (City) (State) (Zip)

Telephone _____

Would you like us to send your physician a report of your tests ( ) Yes ( ) No

Please check "YES" or "NO" for EACH question	YES	NO
1. Has your physician told you that you have high blood pressure?	( )	( )
2. Do you ever have pains in your heart or chest?	( )	( )
3. Are you ever bothered by thumping of your heart when not exercising?	( )	( )
4. Does your heart ever beat rapidly when you are not exercising?	( )	( )
5. Do you ever notice extra heartbeats or skipped beats?	( )	( )
6. Has a doctor every said that you have or have had heart trouble or an abnormal electrocardiogram (ECG or EKG)?	( )	( )
7. Have you ever had a heart attack or coronary?	( )	( )
8. Do you suffer from cramps in your legs?	( )	( )
9. Do you ever have difficulty breathing?	( )	( )
10. Do you sometimes have difficulty breathing when sitting still or sleeping?	( )	( )
11. Has a doctor ever told you that your blood cholesterol or triglyceride level was high?	( )	( )
12. Do you frequently feel faint or dizzy?	( )	( )
13. Has you physician told you that you have a bone or joint problem, such as arthritis, that might be aggravated by exercise?	( )	( )
14. Is there a good physical reason not listed here why you could not follow an activity program?	( )	( )
15. Are you over age 65 and not accustomed to vigorous exercise?	( )	( )
16. Are you presently taking medication?	( )	( )
17. Are you diabetic?	( )	( )
18. Are you pregnant?	( )	( )
19. Do you have a chronic recurrent or morning cough?	( )	( )
20. Do you have problems with recurrent fatigue?	( )	( )
21. Do you have migraine or recurrent headaches?	( )	( )
22. Do you ever have swollen or painful knees or ankles?	( )	( )
23. Do you ever have swollen, stiff or painful joints?	( )	( )
24. Do you ever have chronic back pain?	( )	( )
25. Please list any other health problems _____		

_____

Were you ever told by a doctor that you had any of the following conditions. Please check, for each condition, whether you never had it, had it in the past, or have it now.

	I never had this condition.	A doctor told me I had this condition, but I no longer have it.	My doctor told me I have this condition now.
1. Abnormal chest x-ray	( )	( )	( )
2. Alcoholism or drug dependency	( )	( )	( )
3. Allergy	( )	( )	( )
4. Anemia	( )	( )	( )
5. Arthritis	( )	( )	( )
6. Asthma	( )	( )	( )
7. Broken bones	( )	( )	( )
8. Cancer of the bladder	( )	( )	( )
9. Cancer of the breast	( )	( )	( )
10. Cancer of the colon or rectum	( )	( )	( )
11. Cancer of the lung	( )	( )	( )
12. Cancer of the prostate	( )	( )	( )
13. Cancer of the uterus or cervix	( )	( )	( )
14. Cirrhosis of the liver	( )	( )	( )
15. Emphysema or Bronchitis	( )	( )	( )
16. Epilepsy	( )	( )	( )
17. Gout	( )	( )	( )
18. Injuries to back, arms, legs, or joints	( )	( )	( )
19. Kidney disease	( )	( )	( )
20. Nervous breakdown or other mental disorder	( )	( )	( )
21. Obesity	( )	( )	( )
22. Pancreatitis	( )	( )	( )
23. Phlebitis	( )	( )	( )
24. Pneumonia	( )	( )	( )
25. Polio	( )	( )	( )
26. Rheumatic Heart Disease	( )	( )	( )
27. Stroke	( )	( )	( )
28. Ulcers of the stomach or small intestine	( )	( )	( )
29. Varicose veins	( )	( )	( )
30. Vitamin deficiency	( )	( )	( )

APPENDIX E

Informed Consent Letter

EXPERIMENTAL GROUP

INFORMED CONSENT FORM

In recognition of the need to evaluate my present fitness level for the purpose of prescribing exercise, I hereby consent voluntarily to a multi-stage exercise test on a stationary bicycle to be given by the Calvin College Adult and Continuing Education Wellness Program.

I understand that the exercise program will consist of fitness exercises based upon the results of the recommendations of the directors of the Calvin College Adult and Continuing Education Wellness Program, and while I understand that there will be professional care, selection and supervision, there are certain risks involved. I understand that the recommendations will not exceed the limits as determined by my personal physician and will be mutually satisfactory to both my personal physician and the Directors of the Calvin Adult Health Promotion Program. I realize that these risks exist even though there will be adequate precautionary measures to reduce or eliminate such problem.

I understand that in the unlikely event of injury resulting from research procedures, Michigan State University, its agents and employees will assume that responsibility as required by law. I have been advised that I should look toward my own health insurance program for payment of said medical expenses.

I consent to be a participant in this program but I am guaranteed the right to withdraw without penalty from the program at any time that I desire to. My records will be held in strict confidence, to be used only by the Directors of the Calvin College Adult and Continuing Education Wellness Program.

Finally, I permit registration of my data involving my responses to the Tennessee Self Concept Scale and Lifestyle Assessment Questionnaire, anonymously to be used by Ralph Honderd in his dissertation.

Signed _____

Date _____

CONTROL GROUP

INFORMED CONSENT FORM

I consent to allow my results from taking the Tennessee Self Concept Scale and the Lifestyle Assessment Questionnaire (both pre and post tests) to be used anonymously by Ralph Honderd in his dissertation.

Signed _____

Date _____

APPENDIX F

Study Instruments

LIFESTYLE ASSESSMENT QUESTIONNAIRE

(LAQ)

INSTRUCTIONS: This section will help determine the current level of wellness that you are experiencing. We hope that it will also give you ideas for areas in which you might improve. Please respond to these statements using the following choices marking your responses on the attached answer sheet using a #2 pencil only.

A - Almost always this is true (90% of more of the time)

B - Very frequently this is true (approximately 75% of the time)

C - Frequently this is true (approximately 50% of the time)

D - Occasionally this is true (approximately 25% of the time)

E - Almost never is this true (less that 10% of the time)

- If item does not apply to you do not mark item

PHYSICAL EXERCISE--Measures one's commitment to maintaining physical fitness.

1. I exercise vigorously for at least 20 minutes three or more times per week.
2. I determine my activity level by monitoring my heart rate.
3. I stop exercising before I feel exhausted.
4. I approach exercise in a relaxed manner.
5. I stretch before exercising.
6. I stretch after exercising.
7. I walk or bike whenever possible.
8. When feeling tired, I arrange for sufficient sleep.
9. I participate in a strenuous sport (tennis, running, swimming, handball, basketball, etc.)
10. I use foot gear of good quality, designed for the activity in which I participate.
11. If I am not in shape, I avoid sporadic (once a week or less often) strenuous exercise.
12. After vigorous exercise, I "cool down" (very light exercise such as walking) for at least five minutes before sitting or lying down.

NUTRITION--Measures the degree to which one chooses foods that are consistent with the dietary goals of the United States as published by the Senate Select Committee on Nutrition and Human Needs.

13. When choosing non-vegetable protein, I select lean cuts of meat, poultry and fish.
14. I maintain an appropriate weight for my height and frame.
15. I minimize salt intake.
16. I eat fruits and vegetables fresh and uncooked.
17. I eat breakfast.

18. I intentionally include fiber in my diet or a daily basis.
19. I drink enough fluid to keep by urine light yellow.
20. I plan my diet to insure an adequate amount of vitamins and minerals.
21. I minimize foods in my diet that contain large amounts of refined flour (bleached white flour, typical store bread, cakes, etc.)
22. I minimize my intake of fats and oils including margarine and animal fats.
23. I include items from all four basic food groups in my diet each day (fruits and vegetables; milk group; breads and cereals; meat, fowl, fish or vegetable proteins).
24. To avoid unnecessary calories, I choose water as one of the beverages I drink.
25. I avoid adding sugar to my food and I minimize my intake of pre-sweetened foods such as sugarcoated cereals, syrups, chocolate milk, and most processed and fast foods.

STRESS MANAGEMENT--Measures the capacity to appropriately control one's feelings and related behaviors including the realistic assessment of one's limitations.

26. I am able to be open with those with whom I am close.
27. I can express my feelings of anger.
28. I can express my feelings of sadness.
29. I can express my feelings of happiness.
30. I can express my feelings of fear.
31. I can compliment my self for a job well done.
32. I accept constructive criticism without reacting defensively.
33. I recognize that I can have wide variations of feelings about the same person (such as loving someone even though you are angry with her/him at the moment).
34. I am able to develop close, intimate relationships.
35. I make conscious decisions about my sexual activity based on personal/spiritual values.
36. I stick to the limits I set for myself.
37. I can say "no" without feeling guilty.
38. I would feel comfortable seeking professional help to better understand and cope with my feelings.
39. I set realistic objectives for myself.
40. I can relax my body and mind (without using drugs).
41. I can be alone without feeling lonely.
42. I am able to be spontaneous in expressing my feelings.
43. I accept responsibility for my actions.
44. I am willing to take the risks that come with making change.
45. I manage my feelings to avoid unnecessary suffering.
46. I make decisions with a minimum of stress and worry.
47. I accept the responsibility for creating my own feelings.

SPIRITUAL--Measures one's ongoing involvement in seeking meaning and purpose in human existence. It includes an appreciation for the depth and expanse of life and natural forces that exist in the universe.

48. I feel good about my spiritual life.
49. Prayer, meditation, and/or quiet personal reflection is/are important part(s) of my life.
50. I contemplate my purpose in life.
51. I reflect on the meaning of events in my life.
52. My values guide my daily life.
53. My values and beliefs help me to meet daily challenges.
54. I recognize that my spiritual growth is a lifelong process.
55. I am concerned about humanitarian issues.
56. I enjoy participating in discussions about spiritual values.
57. I feel a sense of compassion to others in need.
58. I seek spiritual knowledge.
59. My spiritual awareness occurs other than at times of crisis.
60. I believe in something greater or that I am part of something greater than myself.
61. I share my spiritual values.

TENNESSEE SELF CONCEPT SCALE

INSTRUCTIONS

On the top line of the separate answer sheet, fill in your name and the other information except for the time information in the last three boxes. You will fill these boxes in later. Write only on the answer sheet. Do not put any marks in this booklet.

The statements in this booklet are to help you describe yourself as you see yourself. Please respond to them as if you were describing yourself to yourself. Do not omit any item! Read each statement carefully; then select one of the five responses listed below. On your answer sheet, put a circle around the response you chose. If you want to change an answer after you have circled it, do not erase it but put an X through the response and then circle the response you want.

When you are ready to start, find the box on your answer sheet marked time started and record the time. When you are finished, record the time finished in the box on your answer sheet marked time finished.

As you start, be sure that your answer sheet and this booklet are lined up evenly so that the item numbers match each other.

Remember, put a circle around the response number you have chosen for each statement.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

You will find these response numbers repeated at the bottom of each page to help you remember them.

1. I have a healthy body.
3. I am an attractive person.
5. I consider myself a sloppy person.
19. I am a decent sort of person.
21. I am an honest person.
23. I am a bad person.
37. I am a cheerful person.
39. I am a calm and easy going person.
41. I am a nobody.
55. I have a family that would always help me in any kind of trouble.
57. I am a member of a happy family.
59. My friends have no confidence in me.
73. I am a friendly person.
75. I am popular with men.
77. I am not interested in what other people do.
91. I do not always tell the truth.
93. I get angry sometimes.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

2. I like to look nice and neat all the time.

4. I am full of aches and pains.

6. I am a sick person.

20. I am a religious person.

22. I am a moral failure.

24. I am a morally weak person.

38. I have a lot of self-control.

40. I am a hateful person.

42. I am losing my mind.

56. I am an important person to my friends and family.

58. I am not loved by my family.

60. I feel that my family doesn't trust me.

74. I am popular with women.

76. I am mad at the whole world.

78. I am hard to be friendly with.

92. Once in a while I think of things too bad to talk about.

94. Sometimes, when I am not feeling well, I am cross.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

7. I am neither too fat or too thin.

9. I like my looks just the way they are.

11. I would like to change some parts of my body.

25. I am satisfied with my moral behavior.

27. I am satisfied with my relationship with God.

29. I ought to go to church more.

43. I am satisfied to be just what I am.

45. I am just as nice as I should be.

47. I despise myself.

61. I am satisfied with my family relationships.

63. I understand my family as well as I should.

65. I should trust my family more.

79. I am as sociable as I want to be.

81. I try to please others, but I don't overdo it.

83. I am no good at all from a social standpoint.

95. I do not like everyone I know.

97. Once in a while, I laugh at a dirty joke.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

8. I am neither too tall nor too short.

10. I don't feel as well as I should.

12. I should have more sex appeal.

26. I am as religious as I want to be.

28. I wish I could be more trustworthy.

30. I shouldn't tell so many lies.

44. I am as smart as I want to be.

46. I am not the person I would like to be.

48. I wish I didn't give up as easily as I do.

62. I treat my parents as well as I should (Use past tense if parents are not living)

64. I am too sensitive to things my family say

66. I should love my family more.

80. I am satisfied with the way I treat other people.

82. I should be more polite to others.

84. I ought to get along better with other people.

96. I gossip a little at times.

98. At times I feel like swearing.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

13. I take good care of myself physically.

15. I try to be careful about my appearance.

17. I often act like I am "all thumbs."

31. I am true to my religion in my everyday life.

33. I try to change when I know I'm doing things that are wrong.

35. I sometimes do very bad things.

49. I can always take care of myself in any situation.

51. I take the blame for things without getting mad.

53. I do things without thinking about them first.

67. I try to play fair with my friends and family.

69. I take a real interest in my family.

71. I give in to my parents. (Use part tense if parents are not living)

85. I try to understand the other fellow's point of view.

87. I get along well with other people.

89. I do not forgive others easily.

99. I would rather win than lose in a game.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

14. I feel good most of the time.

16. I do poorly in sports and games.

18. I am a poor sleeper.

32. I do what is right most of the time.

34. I sometimes use unfair means to get ahead.

36. I have trouble doing the things that are right.

50. I solve my problems quite easily.

52. I change my mind a lot.

54. I try to run away from my problems.

68. I do my share of work at home.

70. I quarrel with my family.

72. I do not act like my family thinks I should.

86. I see good points in all the people I meet.

88. I do not feel as ease with other people.

90. I find it hard to talk with strangers.

100. Once in a while I put off until tomorrow what I ought to do today.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
Responses	1	2	3	4	5

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