

BEHAVIORAL CHANGES RESULTING FROM
PARTICIPATION IN THE OSU STUDENT
WELLNESS PILOT PROJECT

By

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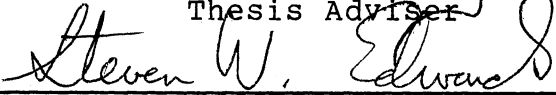
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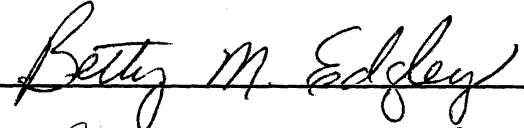


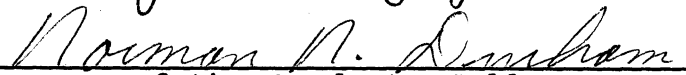
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CHAPTER I

INTRODUCTION

Throughout the evolution of man, the human race has demanded high levels of intensity to permit survival. The first homo sapiens acted as hunters and gatherers and, as a result, were continually on the move. The staples of their diet were vegetation and animal flesh resulting in high levels of carbohydrates and protein with a limited amount of fat (59). Starvation was imminent if man did not seek out nourishment. Survival was a constant struggle; nothing was convenient. As man's battle for existence became simplified by the advancement of civilization, his pursuit for life became more attainable. After the invention of the wheel, he no longer had to carry his loads. Once he domesticated animals, he no longer had to push his loads. And once he discovered automation, there was little that he had to do for himself.

Once survival was no longer the main pre-occupation of his time, man became more interested in his state of well-being. The concept of good health surfaced over 4,000 years ago when the Yellow Emperor of China, Huang Ti, promoted the idea with discussions involving prevention, wholism, risk appraisal and prospective medicine (55). The

Egyptians stressed a more healthful lifestyle through personal hygiene (15). The first formally recorded health codes were written by the Hebrews. The Greek civilization stressed the importance of physical fitness in obtaining a sound mind and body (15) while the Romans' motto was "a healthy mind in a healthy body" (17).

The human race has made great strides from the days of the cave-dweller, but just how much progress have we seen in reference to our health? Around the turn of the century, the average doctor had no better than a fifty-fifty chance of healing a patient (17). Today, medical science has progressed to the point where miracles are commonplace. Examples might include the heart and lungs of one man being transplanted into the body of another to prolong life. Vaccines, antibiotics, modern diagnostic tools, advanced surgical techniques, and other procedures save millions of lives every year. But health is no longer thought of as simply the absence of disease. Rather it has branched out to touch many aspects of our daily lives that were never really considered in combination with each other. This new concept of health is referred to as wellness (2). Wellness can be defined as "an optimal level of functioning" (45). Wellness is actually an abstract concept. It can mean many things to many people, but it is usually thought of as having five distinct dimensions: (1) nutritional awareness, (2) physical fitness, (3) stress awareness and management,

(4) environmental sensitivity, and (5) self-responsibility (2) (39). Each of these areas is important; they are equally necessary to fulfill a wellness lifestyle.

Nutritional adequacy is essential to life-long well-being.

Increasing the consumption rate of fresh fruits, vegetables and whole grains and decreasing the amounts of refined sugars and animal fat can lead to a higher level of being (56). Physical fitness is an area that almost everyone has been familiar with at some point in their lifetime. Developing adequacies in this area can decrease depression, increase self-esteem, decrease tension and anxiety among many physiological benefits (1) (33) (37) (39) (50) (56). Physical fitness is spoken of in terms of aerobic capacity, musculoskeletal strength, flexibility and body composition (23).

Stress management has not always been associated with a person's health, but since people tend to deal with stress in unhealthy manners, i.e. apathy, lethargy, overeating, substance abuse, it is one of the most important aspects of wellness (23). The amount of stress that a person feels is difficult to measure so self-assessments must be heavily relied upon to determine the degree of stress a person is experiencing (56). The most important aspect of stress is the manner in which the person handles the pressure, whether he channels it into positive areas or, does nothing to manage it (23).

Environmental sensitivity involves the aspect of the total environment which the person can control such as their work space or their home (23). Self-responsibility concerns accepting the fact that individuals are responsible for themselves, they must pursue the things in life that are worth having such as good health; the good things in life will not simply appear because they are desired, they must be earned (12) (23).

Dr. Halbert Dunn coined the expression "weller than well" by explaining to people that they could feel, act and be better than simply not being ill (23). The previously mentioned areas of wellness help people to use their own powers to achieve their potentials (37). These dimensions are controlled solely by the individual; not by their physicians, or their family, or their employer but rather only by them (39). Our lifestyle is something that we do have control over, so to make a change in it, one must be motivated to do so. Attempting any major deviation from our normal routine can be very stressful.

The behavioral alterations will be more effective and have longer lasting results if the changes are made in a designated sequence: (1) adequate information should be sought in the area that the change is desired in; (2) the proper perspective must be maintained, the change should not occur immediately; (3) a plan of action must be laid out prior to the change; (4) the timing should be right, do not

attempt a major change during a stressful period (26). The greater the motivation to alter a behavior, the greater will be the degree of achievement (61). The person must want to move along the wellness continuum to increase his satisfaction of living, not just to avoid or delay disease and death (56).

Wellness affects everyone: families, individuals, corporations and schools. The Center for Disease Control has estimated that over one-half of the United States' mortality is due to unhealthy lifestyles (35). Coronary heart disease, which is directly affected by lifestyle, now tops the charts as the leading cause of death in the U.S. and other affluent, high-tech industrialized cultures (32). Cancer, which is also a leading cause of death in this country, has been associated with prosperous societies that share a sedentary lifestyle with a diet that is high in fat (32). Illness is expensive. The average annual expenditure for health care in the U.S. is two hundred fifteen dollars per resident and a total hospital service cost of forty-five billion dollars per year and two and one-half billion dollars of that is directly related to cardiovascular disease (53). It is estimated that eleven percent of the Gross National Product is spent on health care (23). Most of these expenses are unnecessary since a majority of the illnesses are preventable by developing healthier styles of living.

Once a person decides to develop a wellness lifestyle, he usually seek out information to assist him on the road to wellness. This can lead to confusion and frustration if they encounter what Stephen Germeroth refers to as "the Wellness Triple Trap" (23). This "trap" consists of information overload which occurs from gathering so much information that some of it is conflicting, resulting in the person not taking any action for fear of making a mistake (23). Information deprivation occurs in those people with little or no information about wellness living so that the person does nothing to change his lifestyle due to his ignorance (23). Information error is found in those people who believe that they possess the knowledge, but are actually misinformed so that when they do take action; it is the wrong type (23).

There are many organizations in this country that are trying to educate the public on living a wellness lifestyle. The federal government has funded research projects on risk reduction and wellness lifestyles which have been responsible for several laws such as the Health Maintenance Organization Act in 1972 which made preventive/educational services mandatory (56). Many hospitals have also begun programs to educate the people on ways that they may enhance their lives through healthier living (25). Television has aided the promotion of wellness by demonstrating healthful living in many commercials advertising products that

contain more fiber, less sugar, fewer calories, etc. (56). Many local news stations are also doing their part to educate the public by employing special medical correspondents to report on new findings along with sponsoring local health fairs (56).

In addition, many organizations are implementing wellness programs to help educate their associates to the benefits of living a wellness lifestyle. These programs are proving their worth to employers by demonstrating decreases in employee benefit costs, increased attendance rates and increased productivity levels (2). Douglas Semericky, director of the University of Louisville's wellness program believes that organizations with a significant number of employees will need to initiate wellness programs due to their cost effectiveness (36). The New York Telephone Company saved over two and one-half million dollars in absence and treatment costs due to their wellness program (2). The Kenecott Corporation found that one-hundred fifty employees involved in their program showed fifty-two percent better attendance on the job, seventy-five percent cut in weekly indemnity costs and a fifty-five percent drop in health, medical and surgical costs (2).

Wellness programs are formatted to instruct people in the five dimensions of health: (1) nutritional awareness, (2) physical fitness, (3) stress awareness and management, (4) environmental sensitivity, and (5) self-responsibility

(2) (39) so that behavioral modifications will occur in the individual's lifestyle that will promote a healthier existence. A wellness program must first assess participants for any existing or potential health problems through physical examinations, questionnaires, and/or personal interviews (7). This phase allows for the identification of risk factors and educating the participant as to how they can change the non-desirable behaviors and initiate the desirable habits (7). A physical evaluation then follows to assess the person's cardiovascular endurance, flexibility, musculoskeletal strength and various physiological factors such as heart rate and blood pressure (7). With the acquired information, the participant is counseled on detrimental behaviors and methods to change them into positive behaviors. In addition, an exercise program can usually then be prescribed according to the person's ability to perform physical activity and the goals that the individual wants to obtain from the program. The wellness participants must take responsibility for their own health and lifestyle before they can expect a marked change in their lives (33).

Additional research is warranted in this area as specific aspects of wellness programs vary greatly and overall effectiveness in different populations is not clearly understood. It is with this understanding that this investigation will attempt to evaluate the effectiveness of

the Oklahoma State University Student Wellness Pilot Project. If the results of the study verify the hypothesis that there are significant differences in behaviors of OSU students after participating in the OSU Student Wellness Pilot Project, then it can be concluded that by establishing wellness programs, organizations can expect the participants to initiate healthier lifestyles.

Statement of the Problem

The purpose of this study is to investigate the behavioral changes in the areas of exercise habits, body weight, seatbelt usage, safe storage of cleaning agents and guns, driving after drinking alcohol, caloric intake, consumption rate of baked goods, snack chips, candy, and fast foods, and the discovery of potential and/or existing health problems resulting from participation in the OSU Student Wellness Pilot Project. Information gathered from the study will be used to aid in future programming for the Student Wellness Program at OSU.

Hypotheses

The following hypotheses will be tested for statistical significance at the .05 level of probability.

1. There will be no significant changes in wellness behaviors of OSU students after participating in the OSU Student Wellness Pilot Project.

2. There will be no significant changes in exercise habits of OSU students after participating in the OSU Student Wellness Pilot Project.

3. There will be no significant changes in seatbelt usage of OSU students after participating in the OSU Student Wellness Pilot Project.

4. There will be no significant changes in the body weight of OSU students after participating in the OSU Student Wellness Pilot Project.

5. There will be no significant changes in the safe storage of cleaning agents by OSU students after participating in the OSU Student Wellness Pilot Project.

6. There will be no significant changes in the safe storage of guns by OSU students after participating in the OSU Student Wellness Pilot Project.

7. There will be no significant changes in the occurrence of driving after drinking alcohol by OSU students after participating in the OSU Student Wellness Pilot Project.

8. There will be no significant changes in the caloric intake of OSU students after participating in the OSU Student Wellness Pilot Project.

9. There will be no significant changes in the consumption rate of baked goods, snack chips, candy, and fast foods by OSU students after participating in the OSU Student Wellness Pilot Project.

10. There will be no significant changes in the discovery of potential and/or existing health problems of OSU students after participating in the OSU Student Wellness Pilot Project.

Limitations of the Study

This study is limited by the following conditions:

1. The original pool of 804 applicants and the 147 participants for the wellness program were not a random sample of the OSU student population.

2. The participants were previously requested to complete a survey for another study concerning the wellness program.

Delimitations of the Study

Delimitations surrounding the structure of this study are:

1. The subjects were limited to a sample of 147 participants from the OSU student wellness program.

2. All subjects were volunteers from OSU.

3. Lifestyle changes were self-reported by the subjects using a validated questionnaire designed by the investigator.

Assumptions

The following assumptions were made in order to conduct this study:

1. The subjects will answer the questions truthfully.
2. The subjects will possess enough knowledge concerning their health to answer the questions correctly.
3. The response rate will be large enough to make inferences to the rest of the OSU student population.

Definition of Terms

Definitions of terms commonly used in this thesis are divided into two groups. These definitions follow:

Conceptual

Health. A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (17).

Wellness. An integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable (33).

Wellness lifestyle. A way of living that the individual consciously molds for themselves to reach their best possibilities for well-being (2).

Wellness program. An integrated system for educating participants on various aspects of living a wellness lifestyle including: diet and nutrition, exercise, stress management, and risk reductions such as smoking cessation (14).

Functional

Baked Goods. Dessert type items that are prepared by cooking, usually lacking nutritional value, i.e. donuts, cookies, cake.

Candy. Sugary confections.

Fast Foods. Quick meal items purchased from a restaurant, often high in caloric value and fat.

Snack Chips. Deep-fried, salty snack food that comes in several varieties including corn and potato.

Wellness Program Participant. A volunteer subject who has completed the assessment and counseling phases of the OSU Student Wellness Pilot Project.

Description of the Instrument

Student Wellness Pilot Project Questionnaire. The instrument was designed by the chief investigator to measure the behavioral changes, if any, experienced by the wellness program's participants. It includes ten items with multiple choice selections and one open-ended question to allow for any comments concerning the wellness program. The instrument was validated by an expert panel consisting of OSU faculty members and the organizers of the OSU Student Wellness Pilot Project. Necessary alterations in the instrument were made prior to distribution.

CHAPTER II

A SELECTED REVIEW OF THE LITERATURE

A Wellness Lifestyle

Why It Is Necessary?

People are beginning to understand that a wellness lifestyle encompasses the whole being rather than an emphasis on the physical care of the being (12). The sense of satisfaction with life and a higher self-esteem and self-concept go along with the physical characteristics of a wellness lifestyle as well as reduced anxiety levels (1) (34) (37) (39) (50). An effort must be devoted to adopting a means of living that is conducive to wellness.

Germeroth's philosophy as to why the overall health status of the average American is so poor is, the "carelessly dismissed importance of the interrelatedness of the body, mind and spirit; and we have placed our efforts and trust in technological solutions" (23). The success of a wellness program depends upon the participant's acceptance of the concept that they are responsible for themselves (23).

Preventive health/medicine is a major step towards achieving wellness but people need to do more than simply

avoid illness (33). Lafferty suggests that people desiring a wellness lifestyle not wait for scientific technology to develop a pill that would eliminate an apathetic attitude. They should instead go out and pursue the desired goals through positive health choices involving physical, intellectual, spiritual, emotional, and social aspects of their lives (33).

People must be motivated to want to adopt a more healthful lifestyle (18). In an eighty-eight page health survey conducted by the Pacific Mutual Life Insurance Company, over half of seventeen hundred citizens questioned were more concerned about illness today than they were five years ago. Sixty-seven percent of those surveyed felt that they would be healthier if they made some changes in their eating habits, while sixty-two percent admitted to being overweight (18). A positive increase of over a third (thirty-seven percent) of the people polled were regularly engaging in some type of exercise program, but an unfortunate thirty-seven percent were still using tobacco products on a regular basis even though they acknowledged the dangers (18). The Pacific Mutual Company suggested that the implementation of wellness programs may reduce health-care costs and increase peoples' longevity, since the survey showed a strong desire of many of the participants to change to a more healthful lifestyle (18).

Ernest D. Michael, Jr. studied the possibility of stress adaptation through exercise. He found that by affecting the adrenal glands, exercise assists the body in its effort at combating stress (37). Evidence supports Michael's theory that "repeated exercise conditions the stress adaptation mechanism" through increased adrenal activity which serves to increase the steroid reserve necessary to counter stress (37).

Willis believes that "the degree of well-being that you enjoy always remains at the level of your motivation" (61). The everyday events in our lives can be helpful towards attaining a wellness lifestyle; deep breathing, promoting good circulation, eating a high-quality diet and a positive attitude can all increase our wellness inventory (61).

Role playing with a friend may be a beneficial way to gain insight as to whether a person leans toward a healthful lifestyle (12). Feedback is given to each other once the scenerio has been completed. This gives both people an opportunity to compare their thoughts on wellness with others and opens new doors of thinking (12).

Richardson and Felts attempt to differentiate between the commonly interchanged terms of (1) health education, (2) wellness and wellness intervention, and (3) health promotion (48). A health education definition should be restricted to methods which may be applied to assist individuals in improving their health status, enlightening them as to how

and why changes should be made. Wellness and wellness intervention come about as a result of health education; it is the process of the individual taking action through counseling to obtain the desired lifestyle. Health promotion is a combination of both education and intervention. Health promotion includes the "assessment of risk, risk reduction, evaluation of programs, and environmental and social support" according to Felts and Richardson (48).

The health condition of America's youth is cause for alarm. Young people continue to disregard the evidence of a connection between "positive health behavior and longevity" (16). More adolescents are using tobacco, marijuana and other illegal substances now than ever before. One in every five high school students is becoming intoxicated at least once per month and three million fourteen to nineteen year olds are having problems with alcohol (16) (30). In addition, the National Institutes of Health found that twenty percent of American youths suffer from obesity due to lack of activity rather than over-nutrition (16). Premature deaths cost American industry twenty-five billion dollars annually with one-hundred thirty-two million lost workdays. An examination as to why, and preventive measures to be taken needs to be conducted (16).

How to Achieve A Wellness Lifestyle

Wellness can begin at home with the family but it requires a personal commitment from each family member to help in the development and implementation of wellness activities (24). Gilmore divided family wellness plans into three areas: (1) assessment, (2) intervention, and (3) reinforcement. The assessment stage is to reveal potential and existing problem areas so that proper measures can be taken to help alleviate them. This stage also alerts the participants to wellness areas in which they are already involved, and tells of any ways to enhance the program as well as evaluating the progress through changes in the individuals (24). Intervention serves to promote the changes notified by the assessment stage. This can occur through education and health promotion (24). The final stage, reinforcement, acts to "recognize and reward involvement in the wellness process" (24). This reinforcement can either be internal, i.e. noticing bodily changes and establishing a better self-image, or external, i.e. words of encouragement, and decreased insurance premiums (24).

Gilmore outlined six steps for moving a family toward the right end of the wellness continuum: (1) establish a regular time for daily family discussions, (2) clarify the meaning of wellness for each member, (3) review the methods for assessment, intervention, and reinforcement, (4)

establish family resources for wellness, (5) determine each member's ability and commitment to wellness and (6) involve the family in outside activities that will enhance wellness" (24). If these steps are applied, perhaps a family's quest for wellness will become habit.

Richard Petosa looked to wellness as "a movement in search of a qualified profession" (45). He explained this attitude of wellness is brought about because of the confusion between wellness programs which began in the mid-1970's, and the health educator who has been around for many years (44). The wellness aspect deals with disease prevention through the modification of poor behaviors and by enhancing healthy lifestyles to increase the satisfaction of living. Whereas, the health educator tries to enlighten people to the prevention of premature death and does not concentrate on behavioral modifications (45). Wellness programs allow for more creativity and imagination.

Berne and Shanteis believe that everyone approaches their health with one of three attitudes: (1) the traditional approach, (2) the preventive approach, and (3) the wellness approach (5). The traditional thinkers only worry once the symptoms of disease exist and then they rely on the physician to heal them. The preventive thinkers look to the disease to determine risk factors and then employ their energies to reduce those risks. The wellness thinker does not concentrate on any aspect of disease but

rather on increasing his level of health (5). Once a person determines his or her philosophy on health, that person will be in a better position to improve his or her health.

Risk appraisal is an important aspect of any wellness program. It defines the specific risks for an individual and outlines intervening measures that can be taken to help diminish the possible risks for that person (55). Using this method as a part of a wellness assessment can illustrate to the participant how they rate on the wellness continuum. This is done by pointing out existing or potentially dangerous areas of lifestyle and educating people as to how they can modify their existence to deal with the risk factors (5).

Enhancing a wellness lifestyle through behavioral changes by all of society is controlled by certain existing factors such as heredity, environment, experience and community resources, according to John Bonaguro (7). But the philosophy of wellness is based upon four assumptions: (1) a few risk factors contribute to a majority of the diseases affecting the population today, (2) changing one wellness behavior can potentially improve the person's total health, (3) non-traditional medical resources must be considered as a valuable aspect of the health profession and (4) the quality of life enjoyed by the wellness participant will be greatly enhanced (7). Any wellness package must be

a systematic process which directly involves the individual's personal philosophies toward what wellness should be to them (7).

One possible answer as to why disease affects so many people today when medical technology is continually making breakthroughs, may be attributed to the fact that the public accepts the concept of disease (52). Many people ignore advice concerning their health even though they realize it is for their own benefit. They continue poor health habits against recommendations from professionals. They hold the reasoning that if they become ill, the medical community will be there to rescue them thus contributing to the skyrocketing cost of health care (52). Every individual needs to develop self-responsibility and not expect the health care system to always intervene (52).

Stanley Gross defined holistic health as:

An approach to the well-being of people that includes the prevention of illness, alternative ways of treating illness, and the means by which good health and the full enjoyment of life can be achieved (25).

What this lengthy definition implies is that people must think of health as dealing with the whole self. The holistic health movement is very much a part of every wellness program that is oriented towards obtaining a full, well-rounded life, by removing the obstacles in the way of healthy living (25).

Designing a Wellness Program

Higher learning institutions can be very helpful in the designing, implementation and evaluation of wellness programs. Universities can provide data collection methods necessary for the planning stage as well as obtaining grants for research into long-term benefits resulting from participation in the wellness programs. They are usually also able to provide adequate facilities and personnel necessary for evaluative purposes (54). It is important for the institutions to expand beyond their walls and provide services to the community. Schools are beginning to carry their wellness programs out into the community more and more frequently (43). The faculty and students also benefit through hands-on experience and the ability to identify potential job opportunities for graduates (54). With a collaboration of efforts between the university and the community, a larger number of people may be reached with the wellness message.

Benefits From A Wellness Program

The University of Wisconsin at Stevens Point was one of the first institutions to advocate healthy living to faculty and students in addition to the community (36). Much of the university's population participates in some form of exercise during the course of a day, be it anything from

weight training to utilizing the cross-country ski trails adjacent to the campus (36). Employees are strongly encouraged to not smoke on university property and fruit juices and bran muffins have replaced coffee and donuts at faculty meetings. Various wellness promotional campaigns are used such as Fun, Information, and Testing Stop (FIT Stop) where a portable display is erected to provide information and testing equipment, i.e. a hand dynamometer, along with the national norms to allow people to compare their results with national standards (36). Unfortunately the university has not tracked their data so there are no records as to the effect that the program has had on the population, but all participants strongly support it.

Lower absenteeism rates, higher levels of productivity and increased morale are all being attributed to wellness programs established by universities (36) (40). Southern Methodist University's wellness program enrolled two-hundred and twenty participants in its first year and saved over twenty-seven thousand dollars in health-care costs (40). The program at the University of Louisville was so well received that two-hundred people had to be turned away and put on waiting lists (36). Programs are being proven to be so advantageous that it is estimated that twenty percent of all universities and colleges now have established some type of wellness program (36).

Gendel expresses a concern that a lack of physical activity in young females may be a major contributor to "chronic and severe emotional and physical conditions" (22). Although attitudes concerning females and physically demanding activities are improving daily, more adolescent girls than boys perform below the national standards on physical fitness tests thus increasing the likelihood of living a sedentary lifestyle as they become older (22). To further explore the subject, Gendel performed a study with sixty-seven randomly selected college-age women. Medical histories, including menstrual and sexual activity were gathered and a physical examination was conducted. Each woman answered a questionnaire relating to her physical activity level from early childhood to the present in addition to a chronic health complaint inventory (22). The results showed that the group had been, and currently was mildly active. The major complaints were concerning menstrual difficulties, colds, allergies, fatigue and headaches (22). The higher the activity level the subjects reported, the fewer the health complaints they made (22).

Physiological changes in subjects after participation in a four-month exercise program were studied in addition to changes in personality as measured by Cattell's Sixteen Personality Factor Questionnaire. The investigators offered two explanations: (1) physical exertion causes biochemical changes within the body involving increased circulation to

the brain and therefore increasing the glucose vital for brain functioning and (2) the sense of control and accomplishment that results from exercising can also be carried over to the performance of daily tasks (28).

Bills has gone on to suggest that physical activity may be linked to an enhanced level of mental health through the improvement of a person's self-esteem and confidence (6). Exercise increases the oxygen transport capacity of the blood, leading to a quicker recovery rate from mental fatigue (6).

In a study comparing the ability of subjects to deal with psychosocial stressors, two groups, one highly physically trained, and a control group, were exposed to emotionally stressing situations (52). The aerobically trained group demonstrated increased levels of norepinephrine and prolactin early in the treatment, a better heart rate recovery following the treatment in addition to lower anxiety levels after the test was completed (52).

Shaughnessy and Childers go on to point out that physical exercise can benefit the body in more ways than the widely acknowledged cardiovascular endurance and increased pulmonary functional capacities (51). It may also lead to the "alleviation of mild-to-moderate depression, reduced symptoms of anxiety and stress, and improved moods" (51). It has also been shown that physical activity leads to an

improved self-concept, greater levels of confidence and a sense of greater control over one's life (51).

Wellness Program Studies

There has been the development of many different wellness programs since the acceptance of the philosophy that a person can be "weller than well" (23). Edwards introduced a program known as OPT/EVALUATE in the early 1980's that stressed the importance of the collaboration of a variety of professionals (23). For a program to be successful and widely accepted, expertise in several areas must be demonstrated. Business skills like finance and accounting, marketing, public relations and statistics are as important as knowledge in the area of wellness (20). OPT/EVALUATE serves as an acronym for organize, promote, teach and evaluate. Organization refers to the preparation of the program such as a needs assessment, feasibility study, establishing a location, staffing, gathering equipment and supplies, and registration (20). Promoting implies advertising the program, gathering support, and educating the community as to what the program's goals are (20). Teaching is obviously transferring the information from the instructor to the participants. This is the stage where goals are either achieved or lost. After the first three stages have been completed, the program must be

evaluated through participant and staff feedback to assess the success, or lack of it, of the program (20).

Reach Out for Health, is a comprehensive wellness program initiated by Southern New England Telephone (SNET) to motivate and educate employees of ways to reduce their risk profiles and enhance their lifestyles (31). The program employs a three stage design: (1) awareness building, (2) increased knowledge concerning health, and (3) methods for behavioral modifications (31). The first stage involves a health screening including a life-style questionnaire and a physiological assessment. A health profile is prepared for each participant as a result of the findings and an exercise and nutritional plan is recommended. The second stage employs counseling the subject on the health evaluation and recommendations. The final phase includes educational and fitness classes to assist the person in making permanent lifestyle changes (31).

The SNET company has a unique perspective in that anytime a group of ten or more employees requests a new class or lecture on any topic, an instructor is brought in at the company's expense (31). The company also encourages attendance at lunch time health talks as well as health fairs and issues a monthly wellness newsletter. Incentives, t-shirts, coffee mugs, pens, etc., are used to help motivate participants in achieving their goals. The program has shown excellent results with a fifty percent participation

rate over a three year period, an average weight loss of ten pounds after the completion of a three month weight management class, a thirty-four percent success rate for subjects after attending a smoking cessation class, and a lower self-reported level of stress and anxiety after participation in a stress management course (31). The challenge for SNET lies in maintaining the high-level participation and success rate now that the novelty of the program has run out (31).

The Hartford Hospital in Hartford, Connecticut, developed the Health and Lifestyles Program to help employees achieve a wellness-oriented lifestyle with long-range plans of expanding the program to include the community as well (49). The program focuses in on four wellness areas: (1) physical fitness, (2) nutrition, (3) stress management, and (4) high-risk behavior reduction. A task force made up of health professionals was established to develop programming according to the needs of the participants. Classes are conducted in the four aforementioned areas as well as promoting health fairs, establishing theme months, (i.e. Shape-Up Month), and the development of an on-site fitness center (49). Evaluations of the program have been favorable. Productivity has increased while absenteeism has decreased and the staff reports higher morale (49). The Hartford Hospital plans to

continue the program with occasional modifications to account for changes in attitudes.

The community of Athens, Georgia, developed a wellness program model that was established by a partnership formed of university and public health specialists (57). The committee first conducted a wellness conference for three hundred various professional people within the community to determine their level of interest. A needs assessment was the next step for the organization followed by a local campaign to raise community support for the program (57).

The model that was established consisted of six features. They included an understanding that the organization and the community would work together; the program would focus only on one aspect of wellness per campaign; an advisory board would be established to preside over the program; one on one communication would be utilized to alert the community to wellness behaviors; other community businesses would sponsor/co-sponsor wellness events; and all funding for the program would come only from within the community to retain community control (57).

The implementation for the complete program took twenty months and began with one hundred and thirty-four members and each member had to agree to serve on at least one wellness campaign. Various campaigns included Soberfest, a program to promote responsible use of alcohol. Wellness festivals, and running and biking events (57). The

community evaluates each program through questionnaires and the feedback has been very positive for the wellness program.

As John Fidler said "Americans are choosing the way in which they die through bad habits, diet and sedentary lifestyles" (21). Non-wellness lifestyles have taken over as major killers in the United States replacing infectious disease, yet only two percent of the health care dollar is used for preventive measures (21).

Imperial Point Medical Center in Fort Lauderdale, Florida, hoped to help reverse this trend through the establishment of the Well-Care Program. The program is designed with four stages. The first phase is an orientation session where participants are introduced to the program and learn about living a wellness lifestyle. They also fill out a health questionnaire assessing their current living habits and appraising health risks. The next stage entails the subject undergoing a physiological assessment. In the third phase, the participant is counseled on the results of questionnaire, risk profile, and the physical evaluation. Stage four includes educating the individual as to how they can make behavioral modifications to enhance their wellness level (21).

The basic principle behind the Well-Care Program is self-responsibility by the program's participants. The medical center reinforces healthful living through the

availability of good nutritional choices in the cafeteria; by encouraging employees to use the stairs instead of elevators; to take fitness breaks as opposed to coffee breaks; and the sale of tobacco products is prohibited on the medical center's property. The program is considered to be so successful that it is being used as a community resource for the development of other wellness programs (21).

In a study conducted by Schwartz, Davidson, and Goleman, anxiety was divided into two independent categories: somatic anxiety dealing with behavioral stress and cognitive anxiety dealing with psychological stress (50). It was theorized that physical exercise would reduce both types of anxiety, but would primarily effect the somatic variety. Forty-four subjects engaged in approximately three and one half hours of exercise weekly while thirty-three subjects employed passive meditation at least once a day for at least a one month time period. The two groups were not matched on either age or sex. A cognitive-somatic anxiety inventory questionnaire that was valadated for reliability and validity by an expert panel (50) was administered to the exercise group after an aerobics class and given to meditation group in a classroom at a university to be completed at home. The findings indicated that the two groups did not differ in the total amount of anxiety felt, but rather on the type of anxiety.

The exercise group suffered more from cognitive stress and less from somatic stress and the meditation group was just the opposite (50).

In another study conducted on a university campus utilizing eight hundred and ninety-three student subjects, distinct stressful situations were identified by using a one page survey asking the participants to identify the areas causing them the most stress in both academic and personal areas (1). Tests and grades rated at the top for academic stressors while intimate relationships along with parental conflicts and expectations topped the list for personal stressors (1).

Papenfuss and Beier investigated the long-term effectiveness of a wellness program established for high school students (41). An experimental group was selected from the tenth grade class of a community high school while the control group was chosen from the tenth grade class of another community's high school. A pre-test was given to both groups that included the Attitudinal Inventory of Wellness and the Wellness Behavior Inventory. The treatment group underwent a four-week wellness education program while the control group continued with their normal routine. Upon completion of the educational program, both groups were post-tested and were post-posttested one and one-half years later to assess long-term effects. Findings showed that scores from the pre-test to posttest of the experimental group were significantly greater than the

control group, and scores from pretest to post-posttest were also significantly greater for the experimental group. It was also discovered that one hundred percent of the experimental group had made at least one healthy change within the last year and a half (41). Papenfuss and Beier's study demonstrated that the wellness education program implemented did enhance the participant's wellness living.

A survey was conducted in the New Orleans metropolitan area to distinguish priorities desired for a wellness program (58). One hundred twenty-eight subjects between the ages of twenty-one and forty participated with salaries being evenly distributed (58). The instrument was a validated, self-designed questionnaire using a Likert scale. Results showed that a location in close proximity to peoples' homes or places of employment was very important to enable more frequent visits. A clean environment was rated as most important in the appearance category and views of natural settings were strongly desired with lots of windows. The services-desired category was divided into clinical and non-clinical programs. Stress management was most desired in the clinical area and exercise training courses were ranked number one in non-clinical programs. It was most desired by the subjects that their employers pick up the cost of the wellness programs but most would be willing to pay fees of less than one-hundred dollars per month. Convenience and a non-clinical setting emerged as

outstanding features that people desired from a wellness program (58).

Bartley and Belgrave investigated the correlation between college students' participation in physical activity and psychological well-being as defined in three ways: (1) stress levels, (2) self-esteem, and (3) assertive behavior (4). Seventy subjects were selected, forty-two were enrolled in an aerobic dance class and twenty-eight were in a health theory course. The instrument was a two-part questionnaire which assessed health and physical activity levels and psychological levels of the participants. Pre and post-test results were measured and it was found that stress was significantly related to regular exercise as well as self-esteem and assertive behavior (4). Bartley and Belgrave's study reinforces previous findings that stress, self-esteem and assertive behavior are directly related to physical activity (1) (34) (37) (39) (50) (56).

Modifying Behaviors

Perry examined the ways in which behaviors can be modified (44). An individual's environment is a vital contributor as to whether or not they participate in a wellness lifestyle. A person who is surrounded by a health-conscious society is more likely to join in whereas one who is part of an environment that enjoys tobacco products,

alcohol, a sedentary lifestyle, etc. will be expected to follow the example being set (44). It is more difficult to break the accepted standards of a society, be they good or bad, than to follow them. Another key point which must be considered in behavioral changes is that of personality characteristics of the individual, such as, willingness to take risks, their locus-of-control for health, their open-mindedness towards new ideas, and the value they place on their health (44). Before intervention can occur, all of the above aspects must be considered when designing a plan for change. The potential of the individual must be fully understood to reinforce the possibility that the changes will be long-term (44).

Young people need to be extensively informed of the value of good health including "nutritional well-being, exercise as a way of life, and caring for oneself as a very special trust" as emphasized by Terry Parsons of Bowling Green State University (44). Attaining high levels of wellness and disease prevention are becoming the objectives of the schools and colleges around the country. Parsons outlined a four-step process to educating people on wellness: (1) educate the people on risk factors and preventative measures, (2) assist people in the identification of their state of wellness, (3) provide intervening measures to enhance a wellness lifestyle, and

(4) help the participants evaluate their progress or lack of it and help establish a maintenance program (44).

People should not expect major changes to occur simply because a wellness program has been implemented. Large changes in a persons health will not occur without a major effort on the individual's part, nor will their health expenditures be greatly reduced in a short period of time (44). The participant in a wellness program should have realistic goals and aspirations and be willing to put forth the effort and dedication necessary for the program to be a success.

In reviewing the literature regarding the need for wellness programs, their design, the benefits they offer, and their effectiveness in causing behavioral changes, it is the purpose of this work to conduct a study to measure the behavioral changes in OSU students, if any, resulting from their participation in the OSU Student Wellness Pilot Project using descriptive research methods.

CHAPTER III

METHODS AND PROCEDURES

This study investigated the behavioral changes, in OSU students, after their participation in the OSU Student Wellness Pilot Project in the areas of exercise habits, body weight, seatbelt usage, safe storage practices of cleaning agents and guns, the occurrence of driving after drinking alcohol, caloric intake, the consumption rate of baked goods, snack chips, candy, and fast foods, and the discovery of potential and/or existing health problems. The methods and procedures were submitted to and approved by the Oklahoma State University Institutional Review Board.

A total of one-hundred forty-seven subjects participated in the wellness program but only seventy-four of these students responded to the questionnaire which was distributed approximately eight weeks after they had completed the program. All correspondence was conducted through the postal service.

Selection of Subjects

The one-hundred forty-seven subjects that were selected for participation in the OSU Student Wellness Pilot Project were volunteers randomly selected from an original pool of

eight-hundred four students. The students selected for the program had submitted applications which were distributed around the OSU Campus in various classroom buildings, the Student Union, and in the university newspaper, The Daily O'Collegian. All participants were enrolled at OSU as full-time students at the time the wellness program was being conducted. To be included in this study, the participant had to have completed the Student Wellness Program, signed an informed consent letter, and they must have completed the questionnaire and returned it by the designated deadline in the enclosed self-addressed, stamped envelope.

Testing Procedures

A complete mailing list of the one-hundred forty-seven Student Wellness Pilot Project's participants was obtained from the original applications that the students had submitted. The list was checked against the information that was collected from the subjects upon their evaluations and any corrections were made. Each subject, that had completed the program, was mailed an envelope containing a cover letter that explained the purpose of the study (see Appendix), an informed consent letter to be signed and returned with the questionnaire (see Appendix), and the questionnaire itself (see Appendix) which requested that the student indicate changes in exercise habits, body weight, seatbelt usage, safe storage of cleaning agents and

guns, the occurrence of driving after drinking alcohol, caloric intake, the consumption rate of baked goods, snack chips, candy, and fast foods, and the discovery of any potential and/or existing health problems. A self-addressed, stamped envelope was also included for the return of the forms.

After attaining a response rate of only thirty-seven percent after the designated deadline for return, a follow-up study was conducted in the same manner as the original mail-out. This second attempt resulted in an additional thirteen percent for a total response rate of fifty percent. A third follow-up was not conducted due to the conclusion of the semester and the arrival of summer.

Apparatus and Equipment

The instrument used in this study was a ten-item, self-designed questionnaire with a single open-ended question at the end to allow for comments pertaining to the wellness program and how it might be improved to better serve the students at Oklahoma State University. The instrument was validated by a panel of OSU faculty members in addition to several graduate students that were vital to the operations of the wellness project.

Statistical Treatment

The data from this study, which used descriptive survey research methods, was analyzed using t-tests and chi-

squares. All statistical tests were performed using the .05 level of significance. Statistical analysis was done through the Oklahoma State University Computer Center.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine whether participation in the OSU Student Wellness Pilot Project had an effect on the subjects' wellness behaviors. The wellness behaviors included changes in exercise habits, body weight, safe storage of cleaning agents and guns, the occurrence of driving after drinking alcohol, caloric intake, the consumption rate of baked goods, snack chips, candy, and fast foods, and the discovery of potential and/or existing health problems. A descriptive questionnaire was provided to all of the one-hundred forty-seven subjects that had completed the wellness program. The response rate for the study was fifty percent with seventy-four surveys being returned by the designated deadline. Statistical tests that were run on the collected data consisted of t-tests and chi-squares.

Of the seventy-four students that returned the questionnaire (forty-three females and thirty-one males), all were full-time students at OSU and had completed the four phases of the wellness program: (1) history gathering; (2) blood test; (3) physiological evaluations; and (4) counseling. Further descriptive information is depicted in Table I.

TABLE I
DESCRIPTIVE DATA

	Males	Females
Classification		
Graduate Students	10	9
Seniors	8	7
Juniors	6	11
Sophomores	5	7
Freshmen	2	9
Age		
50 - 59 years old	0	1
40 - 49 years old	0	3
30 - 39 years old	6	8
20 - 29 years old	24	19
18 - 19 years old	1	12

Freshmen and sophomore females are the most widely represented group out of the original sample of 147 students. Freshmen and sophomore males are the least represented group.

Results

Results of Change in Behaviors of OSU Students

The results of the participants changing at least one behavior from the time prior to their participation in the wellness program to the time that this study was conducted are significant at the .05 level of confidence.

Results of a Change in Exercise Habits

The results of the participants' exercise habits prior to taking part in the program as compared to their habits upon completion of the program are illustrated in Table II. There was no change in the exercise routine of subjects at the .05 level of significance.

Results of a Change in Body Weight

The results of the participants change in body weight showed no change of any significance at the .05 level.

Results of a Change in Seatbelt Usage

The results of seatbelt usage by the subjects are demonstrated in Table III. There was an increase in the usage of seatbelts at the .05 level of significance.

TABLE II
EXERCISE HABITS

Activity	Times Per Week			Total
	5 or more	3-4	1-2	
Run/jog				
pre	5	7	15	27
post	4	11	10	25
Bike				
pre	2	2	16	20
post	0	3	17	20
Swim				
pre	0	1	7	8
post	0	3	3	6
Aerobics				
pre	2	10	10	22
post	0	3	3	6
Weight Train				
pre	2	7	6	15
post	2	7	3	12
Walk				
pre	6	11	11	28
post	1	6	11	18
Racquetball				
pre	0	1	10	11
post	0	0	6	6
Other				
pre	1	5	9	15
post	1	4	9	14

pre = previous to the wellness program

post = after completion of the wellness program

TABLE III
SEATBELT USAGE

	Number of Pre	Number of Post
All of the Time	28	39
Most of the Time	22	20
Some of the Time	12	10
Rarely	10	3
Never	2	2

pre = previous to the wellness program
post = after completion of the wellness program

$\chi^2 = 137.04814$ $df = 16$ $p = .0001$

Results of a Change in the Safe

Storage of Cleaning Agents

The results of the subjects storing cleaning agents in a safe manner are given in Table IV. There was a change in cleaner storage at the .05 level of significance.

TABLE IV
SAFE STORAGE OF CLEANING AGENTS

	Yes	No
Safe storage prior to the wellness program	58	16
Safe storage after the wellness program	63	11

$$x^2 = 43.15584 \quad df = 1 \quad p = .0001$$

Results of a Change in the Safe
Storage of Guns

The results of safe gun storage are given in Table V. A change did occur at the .05 level of significance.

Results of a Change in the Occurrence
of Driving After Drinking Alcohol

The results of the participants likelihood of driving after drinking alcoholic beverages are illustrated in Table VI. There was a change at the .05 level of significance.

TABLE V
SAFE STORAGE OF GUNS

	Yes	No
Safe storage prior to the wellness program	65	6
Safe storage after the wellness program	70	1

$\chi^2 = 46.23565$ $df = 1$ $p = .0001$

TABLE VI
DRIVING AFTER DRINKING ALCOHOL

	Never	Occasionally
Drink and drive prior to the wellness program	45	28
Drink and drive after the wellness program	51	22

$\chi^2 = 42.91562$ $df = 1$ $p = .0001$

Results of a Change in the
Caloric Intake

The results of the subjects' caloric intake are given in Table VII. There was a change in the caloric intake at the .05 level of significance.

TABLE VII
CALORIC INTAKE

	Number of calories per day			
	1,500- 2,000	2,100- 2,500	2,600- 3,000	Over 3,000
Caloric intake prior to the wellness program	18	30	18	8
Caloric intake after the wellness program	24	32	15	3

$$\chi^2 = 80.75148 \quad df = *9 \quad p = .0001$$

*The data in the original table was collapsed into fewer cells reported in order to avoid cells having an expected frequency less than five.

Results of a Change in the Consumption
Rate of Baked Goods, Snack Chips,
Candy, and Fast Foods

The results of the participants' consumption rate of baked goods, snack chips, candy, and fast foods are shown in Table VIII. A significant change occurred at the .05 level.

Results of the Discovery of Potential
and/or Existing Health Problems

The results of health problems that were discovered through the wellness program are given in Table IX. A statistical test was not conducted since any finding of this importance is considered significant.

TABLE VIII
 CONSUMPTION OF BAKED GOODS, SNACK CHIPS,
 CANDY, AND FAST FOODS

	Number of times per week			
	0	1-3	4-6	Over 6
Baked goods prior to the wellness program	8	38	20	8
Baked goods after the wellness program	12	36	11	3
$x^2 = 67.13790$ $df = 6$ $p = .0001$				
Snack chips prior to the wellness program	15	40	15	4
Snack chips after the wellness program	20	46	7	1
$x^2 = 77.75393$ $df = *9$ $p = .0001$				
Candy prior to the wellness program	24	40	5	5
Candy after the wellness program	38	32	4	0
$x^2 = 76.36936$ $df = 6$ $p = .0001$				
Fast foods prior to the wellness program	12	44	16	2
Fast foods after the wellness program	17	49	7	1
$x^2 = 92.99326$ $df = *9$ $p = .0001$				

*The data in the original table was collapsed into fewer cells reported in order to avoid cells having an expected frequency less than five.

TABLE IX
DISCOVERY OF POTENTIAL AND/OR
EXISTING HEALTH PROBLEMS

	None	High B.P.	C.V.	High Chol.	Obesity	Other
Known health problems prior to the wellness program	63	3	0	1	6	1
Discovered health problems after the wellness program	46	2	4	19	4	3

High B.P. = high blood pressure
C.V. = cardiovascular disease
High Chol. = high cholesterol

Discussion of Results

The overall effectiveness of a wellness program is dependent upon several factors. The content of the program must be adequate to achieve desired goals. The program's staff must be sufficiently trained in both the evaluation and consultation phases. But most importantly, there must be receptive participants to guarantee the success of the program. When all of these factors come together, wellness programs have been shown to reduce stress levels of the subjects as well as increase self-esteem (4). They have

also been shown to decrease depression as well as improve various physiological measures such as cardiovascular endurance, aerobic capacity, musculoskeletal strength, flexibility and body composition (1) (23) (33) (37) (39) (50) (56). There has also been evidence of the improvement of lifestyle through behavioral modifications such as improved dietary nutrition, adherence to an exercise regimen and smoking cessation (2) (13) (15) (21) (32) (56). Organizations implementing wellness programs are benefiting not only through happier and healthier employees, but also through lower absenteeism, higher levels of productivity, increased moral, and decreased insurance rates (36) (40) (53).

In other studies involving wellness programs and college students, it has been found that overall, the students reacted positively to the idea of such programs. The greatest acceptance occurred when the program was administered through other students, the participants' peers. The changes that were most often seen were not dramatic ones, but rather gradual (1) (4) (22) (36) (54).

It was discovered in this study that no change occurred in the students' exercise routines after completing the wellness program. Their body weight also remained constant. There was, however, a significant change in the other aspects of the program including seatbelt usage, safe storage of cleaning agents and guns, driving after drinking

alcohol, caloric intake, the consumption rate of baked goods, snack chips, candy, and fast foods. The program also discovered a total of thirty-two health problems that the subjects were unaware of prior to their participation in the wellness program.

It is suspected that the reason for the lack of change in exercise habits by the students is due to the fact that the study was conducted at the conclusion of the semester, and thus, many of the structured exercise activities were terminating. There was very little variance in the "other" category between pre and post wellness program activities. Students indicated that their "other" interests included non-structured activities such as dancing and the martial arts.

The lack of change in body weight can be partially explained by the fact that while it was suggested to many of the participants to either lose or maintain their present weight, it was recommended to several students to gain weight. The t-test analysis showed that the group mean weight did not change significantly and the standard deviation did not change.

The significant increase in seatbelt usage may be attributed to not only the wellness program, but also to the large media campaign for the use of seatbelts. The increase in the safe storage of both cleaning agents and guns may be due in part to the counseling session which took place at

the conclusion of the program and also to the literature which was distributed to those interested parties on the proper storage techniques for cleaning agents and guns. The decrease in the occurrence of students driving after program, but also to the media blitz against drunk drivers.

There was a change in the nutritional patterns experienced by the subjects including both caloric intake and the consumption rate of baked goods, snack chips, candy, and fast foods. The average number of calories that subjects consumed per day decreased after participation in the wellness program. This change could be as a result of the decrease in the amount of the foods mentioned previously, which are all high in calories. The decrease in the frequency of the participants consuming baked goods, snack chips, candy, and fast foods may be interpreted by the fact that many of the students were unaware of the contributors of elevated cholesterol levels, such as these foods, prior to the wellness program. Literature was available for those interested in dietary means of reducing cholesterol levels and these foods were advised against.

A statistical test was not conducted on the results of health problems discovered by the wellness program. This is because any participant that was made aware of a potential and/or existing health problem through the program is significant to the wellness program. Thirty-two health problems were uncovered through the evaluative measures of the

program. Twenty-four percent of those responding to the questionnaire stated that they were notified of an elevated cholesterol level. The goal of the wellness program is to make the individual more aware of their state of health and to try to improve that level.

It is very important to note that although many of the findings from this study are statistically significant at the .05 level, it would be very difficult to make any conclusive inferences back to the population due to the small sample size in each of the areas. The low response rate (50%) may be attributed to several factors. The wellness program was conducted during the fall semester of 1987, while this study was performed the spring semester of 1988. During the intersession, several of the original one-hundred forty-seven subjects moved without leaving forwarding addresses making them unavailable for the survey. Another reason for the low response rate may be the fact that the first mail-out occurred during the period when postal rates were increased. If the participants failed to return the questionnaires by the deadline stated in the cover letter, the envelope would have been returned for insufficient postage. A follow-up mail-out was conducted but this was at the end of the semester and was not very successful, only adding thirteen percent to the original thirty-seven percent for a total response rate of fifty percent. The results for the study might well have been changed by using a larger sample size (increasing the response rate).

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

It has been within the last decade that the issue of one's personal health has come to the forefront. As our longevity increases, so does the need to maintain our bodies in the best condition that is possible. Health clubs, spas and even health resorts have inundated the public with offers to slim us down, firm us up and make us feel like a totally new person. These types of facilities do offer a service in that they provide a location, equipment and often instruction as to how these results may be achieved. But before an individual is ready for that step, he/she must first be evaluated and educated as to what good health really should mean to them. This is the responsibility of a wellness program. A wellness program attacks the problem with basically three phases. The first phase is obtaining a complete history of the individual, both medical and personal. All the necessary paperwork should be completed at this stage, including attaining a signed informed consent. The next phase involves the actual screening and physiological evaluations of the participant. The final stage of a program centers on the counseling and education of that individual. The results gathered from the testing

procedures should be explained here as well as methods for improving these figures. Suggestions should be made as to how the individual may enhance their wellness lifestyle. Relevant literature should also be made available as well as where the person may go for additional sources of information.

The leading cause of death in the United States is cardiovascular disease which is often preventable through education early in life. The sooner that the individual becomes aware of their personal health, the greater the opportunity that they will have to enjoy a long and fulfilling life. It is this understanding that compelled this investigator to discover whether lifestyles of students could actually be affected by a wellness program.

Therefore, the purpose of this study was to determine if participation in the OSU Student Wellness Pilot Project would result in behavioral changes. If so, would the modifications occur in the areas of exercise habits, body weight, seatbelt usage, in the safe storage of cleaning agents and guns, in the occurrence of driving after drinking alcohol, in caloric intake, the consumption rate of baked goods, snack chips, candy, and fast foods, or in the discovery of potential and/or existing health problems.

This study was conducted using descriptive research and analyzed through the use of t-tests and chi-squares.

Conclusions

Based on the hypotheses stated and the limits of this study, the following conclusions were made:

1. Participation in the OSU Student Wellness Pilot Project has a significant effect on some behaviors.

2. Participation in the OSU Student Wellness Pilot Project has no significant effect on exercise habits.

3. Participation in the OSU Student Wellness Pilot Project has no significant effect on body weight.

4. Participation in the OSU Student Wellness Pilot Project has a significant effect on seatbelt usage.

5. Participation in the OSU Student Wellness Pilot Project has a significant effect on the safe storage of cleaning agents.

6. Participation in the OSU Student Wellness Pilot Project has a significant effect on the safe storage of guns.

7. Participation in the OSU Student Wellness Pilot Project has a significant effect on occurrence of driving after drinking alcohol.

8. Participation in the OSU Student Wellness Pilot Project has a significant effect on the caloric intake.

9. Participation in the OSU Student Wellness Pilot Project has a significant effect on the consumption rate of baked goods, snack chips, candy, and fast foods.

10. Participation in the OSU Student Wellness Pilot Project will uncover potential and/or existing health problems.

Recommendations

Based on the data collected in this study, it is evident that additional research is needed to establish the most beneficial type of programming in a wellness program to yield the highest results. The ideal duration for the program also needs investigating as does whether or not conducting a follow-up phase to the program would enhance the findings. If participants are aware that they will be evaluated a second time, their adherence to living a wellness lifestyle may increase. Additional research is also warranted to establish what population would most benefit from this type of program.

When conducting these investigations, it would prove beneficial to include a large sample size to correct for any sampling errors and to allow for inferences to be made back to the population. It would also be advantageous to perform the same physiological assessments in a follow-up study to compare not only behavioral changes, but also physiological changes after participation in a wellness program. Finally, it would prove especially beneficial if the subjects of the wellness program could be tracked over an extended period of

time to see the long-term effects of participation in such a program.

Additional research is warranted in this area to establish the effects that participation in a wellness program deliver.

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APPENDIX

Dear Student Wellness Pilot Project Participant:

Congratulations on your completion of the initial testing phase of the wellness program. A total of 150 students were evaluated.

I am currently working on my Master of Science degree and seek your assistance in my research. My study is designed to identify the behavioral modifications, if any, that resulted from your participation in the student wellness program. Enclosed you will find a consent form and a questionnaire. Please read the consent form carefully, sign and date it. Proceed to fill out the questionnaire completely and return both forms in the enclosed self-addressed stamped envelope by April 1, 1988.

Thank you for your cooperation and assistance with the study.

Sincerely,

Kathy Dimond
OSU/Department of HPELS

Consent Form

I, _____, volunteer to be a part of the study Behavioral Modifications Resulting from Participating in the Oklahoma State University Pilot Wellness Program.

The study is designed to identify any changes in lifestyle that lead to a more healthful existence as a result of being a part of the OSU student wellness program. The knowledge acquired from the study will be used by the program to aid in more effective planning in the future. By responding to the questionnaire, the subjects are allowing the OSU student wellness program to better serve the needs of future OSU students.

By applying my signature below, I admit that my cooperation in this study is voluntary and I realize that my legal rights have not been waived. I also acknowledge that I have not released OSU from liability for negligence.

All data collected will be in aggregate form and will not be personally identifiable. I understand that if I have any questions concerning this study I may contact the principle investigator, Kathy Dimond, at (405) 372-6109 any time. The major advisor to this study, Dr. Lowell Caneday, may be reached at 624-5504. Any questions concerning my rights as a research subject may be addressed to the Office of University Research Services, Oklahoma State University or contact Steve Stone, Coordinator of University Research Services, 001 Life Sciences East, (405) 624-6993.

Date

Subject

Date

Witness

Date

Investigator

STUDENT WELLNESS PILOT PROGRAM QUESTIONNAIRE
 Conducted by: Kathleen Dimond

Please respond to the following questions:

Classification: GRAD____ SR____ JR____ SO____ FR____
 Age: _____
 Gender: Male_____ Female_____

1. Did you participate in any form of regular exercise prior to taking part in the wellness program? Yes____ No____
 If yes, please indicate with the appropriate numbers below:

<u>Exercise</u>	<u>Frequency</u>	<u>Duration</u>
	1 = 1-2 times/wk	1 = under 15 min.
	2 = 3-4 times/wk	2 = 15-25 min.
	3 = 5 or more	3 = 26-35 min.
		4 = 36-45 min.
		5 = 46-55 min.
		6 = over 55

Run/jog	_____	_____
Bike	_____	_____
Swim	_____	_____
Aerobics	_____	_____
Wt. train	_____	_____
Walk	_____	_____
Racquetball	_____	_____
Other	_____	_____
Please indicate "Other"	_____	

2. Are you currently engaging in any form of regular exercise? Yes____ No____
 If yes, please indicate with the appropriate numbers below:

<u>Exercise</u>	<u>Frequency</u>	<u>Duration</u>
	1 = 1-2 times/wk	1 = under 15 min.
	2 = 3-4 times/wk	2 = 15-25 min.
	3 = 5 or more	3 = 26-35 min.
		4 = 36-45 min.
		5 = 46-55 min.
		6 = over 55

Run/jog	_____	_____
Bike	_____	_____
Swim	_____	_____
Aerobics	_____	_____
Wt. train	_____	_____
Walk	_____	_____
Racquetball	_____	_____
Other	_____	_____
Please indicate "Other"	_____	

3. Please indicate height and weight below:

Before participating in the wellness program

Weight _____ Height _____

After participating in the wellness program

Weight _____ Height _____

4. Prior to the wellness program, did you ...

- A. wear seat belts _____ all of the time
 _____ most of the time
 _____ some of the time
 _____ rarely
 _____ never
- B. store household cleaners/chemicals in a safe place?
 _____ yes _____ no
- C. store guns in a safe place?
 _____ yes _____ no
- D. drink alcohol and drive _____ frequently
 _____ occasionally
 _____ never

5. Upon completion of the wellness program, do you now ...

- A. wear seat belts _____ all of the time
 _____ most of the time
 _____ some of the time
 _____ rarely
 _____ never
- B. store household cleaners/chemicals in a safe place?
 _____ yes _____ no
- C. store guns in a safe place?
 _____ yes _____ no
- D. drink alcohol and drive _____ frequently
 _____ occasionally
 _____ never

6. Please indicate your dietary habits before participating in the wellness program:

- A. total calories consumed per day: _____ 1,500-2,000
 _____ 2,100-2,500
 _____ 2,600-3,000
 _____ more than 3000
- B. number of times per week you ate red meat:
 _____ 0-2
 _____ 3-4
 _____ 5 or more

- C. number of times per week you ate:
- | | 0 | 1-3 | 4-6 | over 6 |
|---------------------------------------|-------|-------|-------|--------|
| 1. pastries, cookies,
donuts, etc. | _____ | _____ | _____ | _____ |
| 2. snack chips | _____ | _____ | _____ | _____ |
| 3. candy | _____ | _____ | _____ | _____ |
| 4. fast foods | _____ | _____ | _____ | _____ |
- D. type of milk consumed:
- _____ none
 _____ whole
 _____ 2% fat
 _____ skim

7. Please indicate your dietary habits now after completing the wellness program.

- A. total calories consumed per day: _____ 1,500-2,000
 _____ 2,100-2,500
 _____ 2,600-3,000
 _____ more than 3000
- B. number of times per week you ate red meat:
- _____ 0-2
 _____ 3-4
 _____ 5 or more
- C. number of times per week you ate:
- | | 0 | 1-3 | 4-6 | over 6 |
|---------------------------------------|-------|-------|-------|--------|
| 1. pastries, cookies,
donuts, etc. | _____ | _____ | _____ | _____ |
| 2. snack chips | _____ | _____ | _____ | _____ |
| 3. candy | _____ | _____ | _____ | _____ |
| 4. fast foods | _____ | _____ | _____ | _____ |
- D. type of milk consumed:
- _____ none
 _____ whole
 _____ 2% fat
 _____ skim

8. Were you aware of any health problems that you had prior to the wellness program?

- _____ none
 _____ high blood pressure
 _____ cardiovascular disease
 _____ high cholesterol level
 _____ obesity
 _____ other, please explain _____

9. What health problems did the wellness program alert you to that you were previously not aware of?

_____ none

_____ high blood pressure

_____ cardiovascular disease

_____ high cholesterol level

_____ obesity

_____ other, please explain _____

10. Please indicate any area(s) that were not addressed in the wellness program that you would have found beneficial.

Thank you very much for taking the time to fill out the questionnaire. All of your comments will be reviewed and taken into consideration for future programming of the wellness program.

VITA

Kathleen R. Dimond

Candidate for the Degree of

Master of Science

Thesis: BEHAVIORAL CHANGES RESULTING FROM PARTICIPATION
IN THE OSU STUDENT WELLNESS PILOT PROJECT

Major Field: Health, Physical Education and Recreation

Biographical:

Personal Data: Born in Artesia, New Mexico, April 15,
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Education: Graduated from Cherry Creek High School in
1983; received the Bachelor of Science degree in
Recreation Administration from Oklahoma State
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completed requirements for the Master of Science
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Professional Experience: Graduate Student Assistant,
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