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SHORT-TERM WELLNESS
PROGRAM FOR A SCHOOL STAFF
COMPARING LEVELS OF SUPPORT

by
WYNFERD RAY CHILTON

A dissertation submitted in partial fulfillment of the
requirements for the degree of

DOCTOR OF EDUCATION
in
PUBLIC SCHOOL ADMINISTRATION AND SUPERVISION

Portland State University

1983

TO THE OFFICE OF GRADUATE STUDIES AND RESEARCH:

The members of the Committee approve the dissertation
of Wynferd Ray Chilton presented May 19, 1983.

[REDACTED]
John Lind, Chairperson

[REDACTED]
Loyce Hales

[REDACTED]
Michael Carl

[REDACTED]
Eugene McNally

[REDACTED]
Ralph Rands

[REDACTED]
Gerald Guthrie

APPROVED: [REDACTED]

George V. Guy, Bi-University Program Coordinator (Portland
State University)

[REDACTED]
Max Abbott, Bi-University Program Coordinator (University
of Oregon)

[REDACTED]
Donald J. Leu, Dean, School of Education (Portland State
University)

[REDACTED]
Stanley Rauch, Dean, Graduate Studies and Research
(Portland State University)

AN ABSTRACT OF THE DISSERTATION OF Wynferd Ray Chilton for
the Doctor of Education in Public School Administration and
Supervision presented May 19, 1983

Title: Short Term Wellness Program for a School Staff
Comparing Levels of Support

APPROVED BY MEMBERS OF THE DISSERTATION COMMITTEE:


John Lind, Chairperson


Loyde Heles


Michael Carl


Eugene McNally


Ralph Rands


Gerald Guthrie

.This study conducted an experiment with 139 staff
volunteers from a suburban school district (K-12) who
participated in a eight-week program of exercise, nutri-
tional practices, and stress control measures. All parti-
cipants were pretested and posttested for mental well-being

and physical fitness. Two treatment groups set goals, wrote contracts, and met weekly to hear speakers and share experiences, and made weekly reports to a director of the project. One treatment group was provided with leaders who organized supporting activities; the other treatment group were divided into support groups without leaders. A third group was composed of individuals who did not participate in the formal program but were present in the schools where general wellness activities may have affected their health-related activities.

The program produced significant changes in mental and physical health, whereas the informal influences on the third group produced no significant change in physical fitness but did, to a lesser degree, produce a significant change in the mental health of its members. Significant relationships were found between the level of health-related behavior sustained in the program and changes in mental and physical health; physical health levels and improvement were not found to be related to mental health levels or improvement. The levels of support produced significant results only when comparing treatment groups with the third group (that did not participate in the formal program); leader-led groups did not produce significantly different results from the leaderless groups.

The description of the wellness program and the results of its use provide a model for school administrators

who wish to improve the health and productivity of their staff. It also represents a method of introducing wellness into the school curriculum. Staff members become models for wellness and enthusiasts for the benefits of such programs.

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CHAPTER I

INTRODUCTION

Recent Changes in Health Problems and Solutions

The present American lifestyle is responsible for more deaths in the United States than any other factor, is responsible for rising costs of hospitalization that could bankrupt the country (Blue Cross of Oregon, 1981, p. 2), robs industry and schools of valuable employees through premature death, absenteeism, and lowered productivity (Berry, 1981, p. 5), and reduces the quality of life for a majority of Americans. Despite a growing awareness, increased health-related activities, and promising research findings, most Americans persist in destructive lifestyle practices.

Changing Nature of Health Problems

In "The Good Life, It Can Kill You" (Blue Cross of Oregon, 1981), vaccines, improved sanitation, antibiotics and other medical advances are credited with conquering the scourges of the past; however, over the past 50 years, our unhealthy living habits have grown into a gigantic new disease that kills 7 out of 10 people. "The biggest killers today--heart disease, cancer, stroke, and accidents--along with cirrhosis of the liver, bronchitis, emphysema, and asthma, kill 76% of the 2 million Americans who die each year" (p. 2). "Coronary heart disease, hypertension,

obesity, diabetes and other conditions related to nutrition account for well over half of all deaths each year"

(Parkinson, 1982, p. 173). "American people are presently dying mostly from diseases associated with over-consumption" (Conners, Note 1).

Total medical care in the United States is increasing at an alarming rate; in 1960, it represented 5.3% of the Gross National Product; in 1980, 9.4%. "If permitted to continue, 1985 yearly costs are expected to be about 10% of the Gross National Product, or \$1,946.50 per person" (Parkinson, p. 1). Health care is reported by Tager and Goldberg (1982) as having "mushroomed" from \$192 billion in 1978 to \$279 billion in 1981. (p. 12) More disturbing is the belief expressed by Blue Cross of Oregon (1981), "We are spending \$104 billion a year for health care that some experts say we should not need." Further, "National health insurance programs could bankrupt the country if our health care system continues to spend millions treating disease after it strikes, instead of preventing it" (p. 2). Health care is now the third largest industry in the United States. (Ferguson, 1980, p. 244)

In "Fitness in the Workplace" the President's Council on Physical Fitness (Note 2) described health problems facing business and industry today. (1) Premature deaths are estimated to cost \$25 billion annually. (2) Recruiting replacement annual costs are \$700 million. (3) Chronic

fatigue and lethargy sap efficiency and productivity and increase the probability of accidents. (4) Excessive sick leave is estimated to be three to five days per person per year. (pp. 5-6) Jennings and Tager (1981) estimated health benefit costs to employers "have increased more than 800% over the past 25 years" (p. 14). Because the health care costs incurred by a company come also from the family and the retiree, corporate concern is extending to dependents as well as active employees. (Parkinson, 1982, p. 1)

Trend Toward Redefining Health

A growing health concern in the United States goes beyond a consideration of premature death and illness and addresses the quality of life.

There are many degrees or levels of wellness, just as there are degrees of illness. Nor is wellness simply the absence of disease. While people often lack physical symptom, they may still be bored, depressed, tense, anxious, or generally unhappy with their lives" (Ryan & Travis, 1981, p. 2).

Ardell and Tager (1981) proposed wellness as a life-style stressing the benefits of "a zest for living" and the goal of "your best possibilities for well-being" (p. 12). John Naisbitt (1982), who has yearly analyzed 6,000 newspapers in the United States during the last twelve years, has identified a trend toward self-help as one of twelve recent "megatrends." He concluded that the redefinition of

health has changed from the "mere absence of disease to the existence of a positive state of wellness in the whole person....Wholistic health simply means dealing with the body, mind, and emotions as a whole" (p. 137). Drolet (1982) reported "a change of attitude toward health--a harmonious blending of physical, mental (including emotional), social, and spiritual well being serves as the positive model for 'health'" (p. 1).

The Surgeon General's report, Healthy People (United States Department of Health, Education, and Welfare, 1979, p. 280) stated the growing belief among health experts that further improvements in the health of the American people will be achieved through a national commitment to efforts of health prevention and promotion.

Trend from Institutional to Self Help

Ardell and Tager (1981) stressed the importance of the individual in health promotion, "Modern medicine is such a wonderful thing that there are two problems: people expect too much of it and too little of themselves" (p. 17). Further, "Other factors under your control, such as the extent to which you place yourself at risk, are ultimately more influential than the quality and availability of medical care" (p. 16). John H. Knowles, president of Rockefeller Foundation, wrote that the next major advances in the health of the American people will result in the

assumption of individual responsibility for one's own health. "This may require a change in lifestyle for the majority of Americans" (Blue Cross of Oregon, 1981, p. 2). Naisbitt (1982) reported, "America's loss of faith in the medical establishment gave a strong symbolic push to the paradigm shift from institutional help to self-help" (p. 133). "The trend has been strengthened by the triumph of wellness over the old model of illness, drugs, surgery, and treating symptoms rather than the whole person" (p. 134).

Changing Individual Lifestyles as a Solution

The description of a lifestyle that could lengthen life, improve the quality of living, and reduce costs is available but many of the changes necessary are not under the influence of medical science; factors such as smoking, dieting, exercising, coping with stress, and practicing safety are at the control of the individual. (United States Department of Health, Education, and Welfare, Living Well, p.4) A reduction in these risk factors could substantially "reduce 7 of the 10 leading causes of death in the United States" (United States Department of Health, Education, and Welfare, Living Well, p. 10).

Lester Breslow concluded that "by switching from a bad lifestyle to a healthier one, a person can figure on adding 14 years to his life" (Blue Cross of Oregon, 1981, p. 6). He based this statement on a five and one-half year

study of 7,000 selected adults in northern California. Health habits associated with longer life were: eating three meals a day, moderate exercise, not smoking, maintaining moderate weight, and moderate use of alcohol. Medical Datamation (1976), an organization that measures health hazards, claimed the risk of dying stems from family medical history, existing conditions, and health habits. "Many factors can be altered favorably--diet, exercise, use of smoking/alcohol, stress, and attitudes and support" (p. 2). Seventh Day Adventists have been shown to have a death rate due to cancer, heart diseases, and pulmonary diseases that is 50% less than the national average. This is related to their distinctive diet and lifestyle. (Blue Cross of Oregon, 1981, p. 6)

Health Promotion on the Corporate and National Level

On the national level, interest in health promotion is reflected in the 1978 Report of Health, Education and Welfare, the 1979 Surgeon General's Report, Healthy People, the 1979 National Conference on Health Promotion Programs and the 1980 Health Objectives for the Nation. All these publications and conferences designate "disease prevention and health promotion as major health initiatives" (Parkinson, 1982, p. 8). Business is interested in health promotion for a number of reasons: (1) reduction of health benefit costs, (2) improving productivity, (3) fear of

government mandates, (4) and improving the corporate image by providing that in which employees have a growing interest. (Jennings & Tager, 1981, p. 16.) The present illness care system (community-physician-hospital) is broadening its function to health promotion although "there are embedded constraints in the system that will seriously blunt it's contribution ... for the next five to ten years" (Parkinson, 1982, p. 119).

Problems of Changing Lifestyle

Despite the research evidence of the value of health promotion, the abundance of lifestyle practices that give promise of lengthening and improving the quality of life, and the efforts of government and business, a majority of Americans "either ignore preventive health measures or are unwilling to make the specific effort to change long established habits of an unhealthy lifestyle" (Argeropoulos, 1981, p. 1). "Traditional approaches in attempting to help individuals achieve health and safety through their own efforts have not been effective" (King, 1982, p. 35). The acquisition of knowledge does not necessarily lead to developing and maintaining desirable practices. King (1982) reported that, when 26 health majors were asked to identify the most important meal of the day, they were 100 % correct in naming breakfast; however, only four regularly ate breakfast. (p. 35)

In 1979, 92.5% of people questioned in a Harris poll agreed with this statement: "If we Americans lived healthier lives, ate more nutritious food, smoked less, maintained proper weight and exercised regularly, it would do more to improve our health than anything doctors could do for us" (Parkinson, 1982, p. 7). The data reveal a wide discrepancy between this belief and actual behavior. For instance "nearly half of Americans are overweight...and fewer than one-third follow the widely publicized recommendation to exercise vigorously at least three times a week" (Parkinson, 1982, p. 7). "Research has consistently shown that good advice on food consumption is rarely followed. Programs for weight loss, for example, have been notoriously ineffective" (Parkinson, p. 174). Half the patients who begin treatment for hypertension do not remain under care despite the fact that effective treatment is available and the patients are aware of its value. (Parkinson, 1982, p. 163)

Recent Health Activities Lack Sound Basis

There is encouraging evidence that increasing numbers of people are beginning to actualize a new-found personal responsibility for health. (Naisbitt, 1982, p. 134) There has been 100% increase since 1965 in the number of people exercising in some way, butter consumption is down 28%, and smoking is down the same percentage in the same period.

More than 500 companies in the United States have fitness programs with directors. In the 1970's, interest in diets and nutrition soared; running and jogging became a mass movement soon after. (p. 133)

The recent public interest in health has produced a proliferation of popular publications, health clubs, health and fitness counselors, and even changed our notion of physical beauty--lean is in. A growing portion of the population, eager to reap the benefits of better health, is accepting fad diets and misinformation along with the research evidence of the real experts. (Hopper, Note 3)

There is a danger that improperly conditioned people may exceed their physical capacity in poorly managed sports programs (President's Council, Fitness in the Workplace, Note 2, p. 4) and that "popular diets are often irrational, distorting, or ignoring principles of good nutrition." (Nash & Ormiston, 1978, p. 4). Beck (1982) claimed that "although numerous authors have espoused the virtues of attempting to motivate patients to assume responsibility for their own health, there appears to be little systematic research directed at how this should be accomplished " (p.38).

Implications for the Public School System

There are two implications of the problems of health promotion for the public school system: (1) elementary and

high school education should include knowledge, decision-making skills, and values that will prevent a repetition of the destructive life-style practices of the present generations and (2) the reduction of absenteeism, "burn-out", premature death, and lowered energy could increase the productivity of the school staff.

Present State of Health Education

Passwater (1980), in reviewing the literature concerning nutritional education in public high schools in the United States, reported a history of nutritional misinformation and misconceptions from 1967 to 1980. (pp. 24-27) Even in the instances where apparently adequate programs existed, "there was a low correlation between health knowledge and behavior" (p. 27). Ardell and Tager (1981), in advocating modern health promotion principles, stated that "the values that we have been taught in public schools generally do not support wellness" (p. 21). Conrad (Note 12) quoted President Carter as saying that the national youth fitness scores "have not improved in the last 15 years" (p. 8).

Present recommendations for health program adoptions in the state of Oregon by the state consultant for health and physical education, Len Tritsch, contain the wellness theme. Topics that reflect this theme are decision making and communication, skills in monitoring one's own health, and the importance of aerobic exercising. (Note 4, Note 5,

and Note 6) Tritsch has had a significant effect in promoting wellness concepts and practices in Oregon schools through the Seaside Health Education Conferences from 1977 through 1982. Unique features of the conferences are self assessment of personal health behaviors, the practicing of wellness recommendations at the conference and, the formulation of action plans to use in the participants' respective schools. Eight other states are modeling Tritsch's Seaside Conference. (Drolet, 1982, p. 3)

School Staff Needs

The second implication for public school system is for the staff. Not only do teachers need the necessary knowledge and techniques to teach health promotion programs in an effective way, they also "should realize that children must also be able to observe examples of the kind of behavior they are expected to learn" (Rubin, 1978, p. 144). Important to educational administrators are the same factors that are important to business--absenteeism, premature death of valued employees, low productivity and the cost of health benefits to employees, their dependents, and retirees. "There is no doubt that teacher stress, burnout, and job dissatisfaction are critical issues in education today" (Wangberg, 1982, p. 452). "Stress may aggravate the course of all illnesses Virtually all illnesses can be handled by the body more effectively when

stress factors are identified and reduced" (Jacobs, 1982, p. 1).

Statement of the Problem

With health knowledge and theory that is adequate to increase the quality and length of life, a majority of Americans are not availing themselves of the benefit. Misinformation, societal pressure, and ineffective programs often support a person in unhealthful practices. Despite a recent surge of interest in physical fitness and nutrition, effective practices that change lifestyle behavior are not widely employed. The public school's responsibility to prepare youngsters with promising wellness practices and attitudes is not being met, partially because school staff members do not have the knowledge, skills, or values necessary to teach and model wellness concepts. Further, their own lowered physical and mental health due to stress and lifestyle practices reduce their general productivity.

Scope and Methods of This Study

This study investigated the following related topics.

1. Identification of a lifestyle that is compatible with the recommendations of today's leading health promotion authorities.
2. Identification of an effective educational model for producing changes in individuals, particularly the

staff members of elementary and secondary schools.

3. Identification of the relationship of physical, mental, and behavioral factors in the model wellness program.

4. Identification of effective support systems for individuals engaged in attempting the recommended lifestyle changes.

The methods used in this study were:

1. A review of the literature that deals with wellness and health promotion.

2. Personal involvement of the writer in interviews with authorities in the field of health promotion and in health conferences, seminars, and classes appropriate to the study.

3. The designing and presentation of a 12-week wellness class intended to produce changes in health related activities in the staff members of an elementary and a high school district. The class was pretested and posttested for physical, mental, and behavioral factors. The means of these tests were compared for significant gains for each of the study groups.

4. A controlled experiment in which two treatment groups representing two methods of support was conducted to measure improvement in knowledge, health factors and short-term behavioral practices. Treatment groups were

each compared with the control group with a Dunnett t-test (Winer, 1962, p. 90)

5. Studies of the relationship of physical and mental measurements, physical and behavioral measurements, and mental and behavioral measurements were made by comparing the scores collected in the experiment. Pearson product-moment correlation coefficients were used to determine significant differences.

Importance of the Study

By designing and testing a model of a wellness program appropriate for a school staff, this study could provide valuable information to school administrators who wish to incorporate health promotion in their school curriculum. That health promotion and wellness concepts are vital to the physical and mental well-being of our nation's citizens is well documented; that present health promotion practices while increasing, lack a sound basis in research is also reported by leading health authorities. Since models are generally not transferable intact, this study investigated relationships of physical, mental, and behavioral factors so that future health promotion planners will be assisted in modifying the model program to meet their own needs.

Successful adoption of wellness practices by members of a school staff could lead to modeling of desirable behaviors for students, increased productivity in achieving

the curricular goals of the school, and reduced costs in substitute teacher and health insurance payments.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a review and summary of the literature that describes the content, the programs, and the methods recommended for changing the lifestyle of Americans from current destructive health practices to one that gives promise of lengthening and improving the quality of life. This literature is usually identified under the title of "health promotion."

Health Promotion

Health promotion literature arises from programs associated with business, hospitals, government, youth organizations, and public schools. Research scientists also contribute to the literature, often through the auspices of universities or one of the institutions cited.

Health Promotion in Business

The first physical fitness program in an American firm began in 1894 at the National Cash Register Company in Dayton, Ohio, with morning and afternoon exercise breaks for employees. Today, more than 400 companies in the nation have established health/fitness programs. While

many companies build their own facilities, others arrange for participation in community facilities. (President's Council, Fitness in the Workplace, Note 2, pp. 3-4) The primary reasons companies are spending millions of dollars on wellness programs are (1) to decrease sick time, health insurance utilization and accidents and (2) to increase the productivity, as well as the general well-being, of its employees. (Bauer & Robinson, 1982, p. 37) A Canadian research project contrasted two comparable white collar employee groups--one with a fitness program, one without. Shephard, who analyzed the data, reported savings to the company of 84 dollars per individual for those in the fitness program. (American Health Consultants, 1981, p. 1) Although cost effective data "is not readily available in a usable form" (Parkinson, p. 17), health promotion is making monetary sense to business administration and big business in America has begun "monitoring its weight as closely as its Dow Jones average. Fat is out and thin is in. An employee...who stays healthy is just as valuable as one who can turn a ... profit in the stock market" (Peters, 1981, p. 5).

Health Promotion in Hospitals

Traditionally, hospitals have focused their efforts on curing the ill or injured. "Although this remains the primary function of a health care facility, many hospital

administrators are realizing both the importance and the value of offering an additional service--health promotion" (North Florida Regional Hospital, Note 7, p. 1). Ferguson (1980) in her widely read book, The Aquarian Conspiracy, described the "emergent paradigm of medicine" (p 246). She wrote, "Medicine is undergoing an amazing revitalization. Patients and professionals alike are beginning to see beyond symptoms to the content of illness: stress, society, family, diet, season, emotions" (p. 242). The new movement "is hitting the old assumptions of medicine hard. The search for self becomes a search for health, for wholeness" (p. 246), from an emphasis on eliminating symptoms to an emphasis on achieving "maximum wellness" (p. 246).

An example of a hospital emphasizing health promotion is the North Florida Regional Hospital in Gainesville, which has "instituted three hospital-based health promotion programs within the past three years." (North Florida Regional Hospital, Note 7, p. 1) The programs are for well people who seek to improve their health. These "wellness" programs consist of good fitness, good diet through nutritional understanding, stress management, non-smoking and weight control. The Portland (Oregon) Adventist Medical Center (PAMC) (Note 8) offers a full wellness program of health assessment, nutritional and fitness prescriptions, evening and weekend classes for the public, exercise logs,

and assistance to business and school health enterprises.

Health Promotion by Government

The national government designated health promotion as a major health initiative through the Department of Health, Education and Welfare (DHEW) reports, reports of the Surgeon General, and national conferences. (Parkinson, 1981, p. 8) Healthy People, the Surgeon General's report on health promotion and disease prevention (U.S. DHEW, 1979), cited the change in morbidity and mortality in the United States from infectious diseases to cancer and heart diseases. The report is a compilation of research papers, one large section of which is devoted to "Preventive Services for the Well Population." "Many papers ... make strong cases for greater preventive efforts, using means presently available but not fully exploited" (p. 5). The Public Health Service launched "an intensive effort to improve the health of the American people and contain soaring care costs by establishing comprehensive national preventive objectives in 15 areas" (President's Council on Physical Fitness & Sports, Note 2). Nineteen public and private agencies were represented on the physical fitness and exercise committee. (p.2). The official statement of the problem by the Public Health Service was:

The health benefits associated with regular physical fitness and exercise have not been fully defined. Based on what is now known it appears that substantial benefits ... are possible. Yet most Americans do not engage in appropriate

physical activity" (p. 2).

Health Promotion in Youth Service Organizations

An example of a private service organization that is interested in health promotion is the YMCA. In the administrator's guide for the YMCA camp in Frost Valley, New Jersey, the introduction read, "Wellness springs from a growing national awareness that what we do for our health is substantially more than what pills, doctors and hospitals can do " (YMCA , Frost Valley YMCA, 1974, p. 1). The guide explains that the major causes of illness are attributable to lifestyle rather than chronic diseases. "It has become the norm (accepted and expected behavior) in our society to live in a way that is unhealthful" (p. 1). The camp program was devoted to developing "optimal well-being" and "finding a sense of purpose and self-esteem" through attention to nutrition, exercise and stress management. (p. 1)

Health Promotion in Schools

The State Department of Education in Oregon has a strong advocate of health promotion education in Len Tritsch, consultant for health and physical education. For six years, Tritsch has conducted a summer health conference which has had a wide influence on school programs in Oregon. Drolet (1982) found a significant change toward wellness concepts and practices in schools that had sent

teams of staff members to the summer conferences (called the "Seaside Conferences").

Control group members, who did not attend the conferences, maintained the traditional disease diagnosis and treatment orientation for health education while Seaside participants adopted the wellness model and ... achieved positive status for health education in the curriculum" (p. 13).

"An outgrowth of the Seaside Conferences was the allocation of federal funds for Nutrition Education Training Programs (NETP)" which subsequently resulted in a greater emphasis on nutrition education in Oregon. (p. 19) Eight other states have used the "Seaside" approach. (p. 60)

Integrated Versus Single Factor Programs

Programs that have concentrated on a single health factor generally have not been successful. However, such programs have produced much valuable research. Most programs now recommend integration to some degree.

Dietary Guidelines and Research

The U.S. Department of Agriculture and the U.S. Department of Health, Education, and Welfare have jointly prepared and distributed "Dietary Guidelines for Americans" (1980). These guidelines were intended to set the patterns for the nutrition projects of the federal government. These guidelines are prepared every five years and are "intended for people who are already healthy" (p. 1). The

guidelines suggested that a person needs (1) knowledge of food selection and the effects of consuming various food groups and (2) a willingness to change some lifestyle habits. Further, they suggested that nutrition is an individual matter, "People differ--and their food needs vary depending on age, sex, body size, physical activity, and other conditions such as pregnancy or illness" (p. 1). Therefore, the improvement of the health of each person is a unique problem that is best solved by each individual. General guidelines proposed for most Americans are: eat a variety of foods, maintain ideal weight, avoid too much saturated fat and chlorestrol, eat foods with adequate starch and fiber, avoid too much sugar, avoid too much sodium (salt), and consume alcohol only in moderation, if at all. (p. 2) However, the "Dietary Guidelines for Americans" contain this reminder, "Food alone cannot make you healthy. But good eating habits based on moderation and variety can help keep you healthy and even improve your health" (U.S.Department of Agriculture and U.S.DHEW, p. 1).

Comparison of the Health of Different Cultures

Connors (Note 1) has shown that the dietary habits of different cultures are related to the chlorestrol level in the blood and to the mortality rates due to heart disease. The Taramara people of Mexico, who exist mostly on corn and beans, have a very low incidence of heart disease compared

to people in the United States. The death rate from coronary heart disease in Japan is low compared to the United States, a fact that Connors related to the difference in the meat diet of the two populations. The coronary death rate is declining in the United States, Canada, and Australia in the last few years, years in which dietary habits in these countries changed; England, with no change in diet, showed no change in coronary heart disease rate (Note 1). These comparisons, however, are among cultures where physical exercise also vary. The Taramara people have long led a vigorous, primitive life; the United States is just undergoing a mass movement to exercise.

Weight Reduction Programs

Parkinson (1982) reported that weight reduction programs often have only short range benefits. Eleven studies of weight reduction programs that were pretested and post-tested involved 501 persons who were mildly overweight. After eight to twelve weeks of treatment, the group receiving treatment showed greater weight losses than groups not receiving the treatment. (Parkinson, p. 179) However, follow-up studies caused Parkinson to conclude, "Although some people may lose a few pounds while actively following a treatment program, none of these treatment techniques has been shown to result in significant long-term success for most obese people" (Parkinson, p. 174).

Tucker (1982), explaining "setpoint theory", con-

tended that "it is difficult for overweight people to achieve permanent weight loss by dieting because the body seeks to maintain its level of stored fat within a narrow range" (p. 84). While experiments have shown that the setpoint is highly resistant to dietary manipulations, physical exercise can lower the setpoint, possibly by affecting the hypothalamus. (p. 88) "Given the existence of a setpoint," Tucker concluded, "the grim reality is that any approach to weight control must be a life-long endeavor....with no way to turn down the body's fat thermostat other than physical exercise" (p. 90).

Limitations of Sports Programs

The physical activity boom that started in the mid-1970's has resulted in substantial changes in the exercise profiles of American adults. "Evidence ... supports the belief that an increase in habitual physical activity promotes better health" (Parkinson, p. 253), however, conventional notions of physical activity can be misleading.

Although 50,000 business organizations have some sort of organized recreational programs--sports teams, jogging tracks, ... clubs, etc.--these programs do not necessarily mean the kind of regular, vigorous exercise the experts say is essential to improve and maintain fitness. Employee sports programs that fail to include training and fitness related activities may even be dangerous, since deconditioned people ... may exceed their physical capacity. (President's Council, Fitness in the Workplace, p. 4)

Participants should be aware that cardiovascular

improvement requires a sustained elevation of the heart rate, that muscles need to be stressed, and that joints must work through their full range of motion. "Fitness programs should be vigorous and sustained" (President's Council, Fitness in the Workplace, Note 2, p. 9).

Integration of Physical and Nutritional Programs

Programs that integrate physical fitness and nutrition are believed to give greater promise of success than single factor programs. Bailey, in Fit or Fat, (1978) claimed that dieting alone will not work. (p. 2) He explained that through aerobic exercising and proper eating "you can change your body to become more proficient in using fat" (p.74). His program advocated exercising at 80% of an individual's maximum heart rate for periods of 12 to 20 minutes four times each week. (pp. 23-28) His methods required constant self-monitoring of the pulse rate and a decrease in the consumption of sugar, unsaturated fat, salt, and red meat, with a corresponding increase in fiber and fruit. (pp. 83-88)

Malinow (Note 9) explained the benefit of an integrated program. There are two ways, he said, of reducing plaque build-up in the coronary arteries: one is by decreasing the amount of low density cholesterol (LDL) in the blood through dietary means; the other is by increasing high density cholesterol (HDL) through exercise.

Integration of Physical and Mental Health

Ardell and Tager (1981) described their wellness program as "wholistic--embracing physical, emotional and mental health" (p. 14). It is more than nonsickness, emphasizing physical fitness, stress management, nutrition and being sensitive to the body's external and internal environment. Ryan and Travis (1981) suggested that wellness is not only an integration of body, mind, and spirit; it is "a decision", "a process", "an efficient channeling of energy", and "a loving acceptance of yourself" (p. 1).

Jacobs (1982) described the effect of stress on physical and emotional health; "Our bodies respond to stress in a variety of ways. Common ailments such as insomnia, fatigue, intestinal dysfunction, headache, backache, anxiety, frustration and depression are often due to stress" (p. 1). Further, "stress may aggravate the course of all other diseases as well" (p. 1). Wangberg (1982) recommended physical exercise and nutritional diets (among other things) to reduce stress. (p. 453)

It is now well established that exercise releases antistress chemicals within the brain and spending 20 minutes three or four times a week engaged in simple, pleasurable physical exercise increases mental flexibility and stress-coping capacity" (Jacobs, 1982, p. 2).

Ferguson (1980) described a shift from "body and mind are separate" to a "bodymind perspective" as an essential part of the "emergent paradigm in medicine " (p. 246).

"What constitutes a basic wellness program is simple and uncontroversial," she wrote, "regular exercise, no smoking, a healthy diet (low-to-moderate intake of fat, salt, sugar and alcohol), adequate rest, and stress control" (p. 137).

Agreement of Major Wellness Proposals

The integration of exercise, nutrition, and stress management is reflected in programs proposed by writers, researchers, and other health-related organizations. The Frost Valley YMCA listed six interrelated goals of their camp program: enjoying fitness, eating well, taking care (hygiene and safety), enjoying life, relating to others, and being a part of the world. (YMCA Frost Valley, New Jersey, 1974, p. 3) In summarizing health promotion in the workplace, Parkinson (1982) devoted chapters to hypertension control, weight control and nutrition, control of alcohol and drug abuse, smoking cessation, stress management, physical activity, and self-protective measures against hazards. (p. vii) The health promotion goals of the United States Public Health Service for 1990 are grouped in these categories: Smoking and Health, Misuse of Alcohol and Drugs, Nutrition, Physical Fitness and Exercise, and Control of Stress and Violent Behavior. (U.S.DHEW, Promoting Health, 1980) The Wellness Center of North Florida Regional Hospital (Note 3) claimed that "wellness consists of good fitness, good diet through

nutritional understanding, stress management, non-smoking and weight control" (p. 1). Ardell (1979) and Ardell and Tager (1981) proposed a five dimensioned program: (1) physical fitness, (2) nutritional awareness, (3) stress awareness and management, (4) environmental sensitivity (which includes safety, smoking and drugs), and (5) self responsibility. (p. 14)

Institutional Help Versus Self Help

Ardell and Tager (1981), while offering a structured program, nevertheless, stress the individuality of wellness programs.

There is no way we or anyone else can tell you how to live a wellness lifestyle. There are no ... authority figures who could describe exactly what you ought to do ... to insure the highest returns. We can provide advice, information and alternatives You will be encouraged to find your own applications" (p. 15).

National Trend toward More Self Help

Naisbitt (1982) wrote that there were three major reasons for the shift from institutional help to self-help: (1) a new found sense of responsibility, (2) discovery of areas genuinely not needing professional care, and (3) the triumph of preventive and wholistic care over traditional treatment of illness model. He also cited the reason of a loss of faith in the invulnerability of the medical profession. (p. 133) Naisbitt wrote, "In our minds tech-

nology is always on the verge of liberating us from personal discipline and responsibility. Only it never does and never will" (p. 53).

Institutional Help Still Needed

While there is agreement that there should be greater self-help and individual responsibility, there is also evidence that institutional help is needed by a majority of people to some degree. Benson (North Florida Regional Hospital, Note 7) observed that:

Given ten potential participants in a behavior modification/lifestyle change program, the odds are that two will never start, two others will agree that they ought to change, start, and quit at the first excuse. Four people will start, complete and succeed if the program is a good one. The last two will succeed with or without a program (p. 7).

With this consideration, six of ten individuals could be helped by a good institutional program.

Common features of successful promotion programs in the workplace, according to the President's Council for Physical Fitness (Note 2) include much institutional involvement: (1) a high level of support by the administration and the labor organizations; (2) strong leadership by those who have solid training in principles of exercise and motivation; (3) accessibility of facilities; (4) availability of time when staff can participate; (5) confidential screening and assessment; (6) recording of progress; and (7) group participation--most people do not like to

exercise alone. (p. 7) While the ultimate responsibility for behavioral change rests with the individual, "merely offering space and time for a fitness program is not enough," the Council continued, "The company must provide a program of incentive and motivation." (p. 3)

The solution becomes one of providing a program with the institutional help that rewards and reinforces individual responsibility.

Developmental Levels of Behavioral Change Programs

Successful wellness programs have developed through the following levels of needs and objectives.

1. Awareness--individuals need to become aware of their health habits and of the consequences of these habits.
2. Knowledge--individuals need pre and post knowledge, alternatives available, and results of research.
3. Attitudes and Beliefs--individuals need to establish a favorable attitude and a belief that favorable results are possible.
4. Behavior--individuals change their behavior with regard to health practices. Although some behavioral changes may occur in a short time, maintenance is more difficult.
5. Risk Reduction--Three to five years are often necessary to assess significant changes in the risk to the

individual.

6. Reduction in Morbidity and Premature Mortality--a hoped for goal that is hypothesized if number four and number five are maintained. (Parkinson, p. 18)

Metress (1982) reminded the health promoter that "even though a vast amount of information is published routinely, it does not all make its way to the public. She advocated greater dissemination of accurate information. (p. 23)

King (1982) wrote, "traditional approaches such as 'telling and testing' and values clarification, have not been effective in helping pupils maintain or develop desirable health practices." "Therefore", she concluded, "the health educator should focus on actions and practices" (p. 35). Conrad (Note 12) wrote, "In considering how to address the problem of the non-exercisers in this country, I keep returning to the fact that knowledge is well ahead of practice" (p. 10).

More and more educational programs are focusing on the short-term behavioral change as the end product. Recent research suggests that although changes in knowledge and attitudes are important, they often bear scant relation to actual changes in behavior. Risk reduction and premature mortality are hypothesized but their realization cannot be realized in most assessment or research projects.

Focus on Short-Term Behavioral Change

Understanding does not guarantee effective action ... and this is the point at which ... behavioral psychology is needed. To successfully resist pressures and overcome susceptibilities, a person needs training in social and psychological skills. Examples are assertiveness training, role playing and social reinforcement" (U.S. DHEW, Healthy People, p. 203).

Parkinson (1982) noted that in the area of weight control:

In the past ten years ... a new strategy has been aimed at teaching people not only what to eat but how to adhere to a recommended diet. A number of techniques directed at behavior change have shown some recent success in altering habits that traditionally have been extremely difficult to reform" (p. 174).

Self Management

The best behavioral approach for weight control according to Nash and Ormiston (1978), is one that helps develop self-management skills by providing training in problem solving, behavioral training, thought management, nutritional information, and exercise. (p. 8) Their behavioral modification approach develops through the following sequence.

1. Self Observation, data, and record keeping.
2. Analyzing problems
3. Setting reasonable goals
4. Adopting tactics
5. Evaluating progress

6. Trying alternatives

7. Updating solutions as need changes

"The key to progress is to set short term, reasonable goals"--challenging but with room "to be human" (p. 15). The biggest problem is the extensive record keeping, but "when record keeping is omitted, a very important part of the behavioral approach is missing" (p. 8).

Farquhar (1979) suggested essentially the same program for "self-directed change" in stopping smoking: (1) accept the problem, (2) build confidence and commitment to quit, (3) develop awareness of why, where, and when you smoke, (4) develop and implement an action plan, (5) periodically evaluate the plan, and (6) maintain a degree of nonsmoking. (p. 39)

Problem Solving Approach

Ardell and Tager (1981) advocated a problem-solving approach to behavior change in their wellness program. Recommended steps were that individuals establish personal baseline data, brainstorm goals and solutions, list barriers and obstacles, and make commitments toward short-term goals. Record keeping of accomplishments and the periodic updating of goals were considered important. "You have to make some decisions eventually, and these decisions should grow out of personal assessments and an appreciation of your own expectations and desires" (p. 15). The authors ask

for "a commitment to the positive" (p. 14).

Motivation and Reinforcement

Langlie (1977) specified two hypotheses regarding an individuals readiness to engage in health promotion programs: (1) perceived vulnerability and perceived seriousness of the consequences of disease and (2) the belief about the relative effectiveness and availability of alternative actions. (p. 245) Beck (1982) believed "health threat warnings are likely to be effective only when people believe in their ability to control the particular threat in an effective manner." He called this belief "personal efficacy" (p. 39). For this reason, he thought it necessary to show cause-effect relationships to a patient as clearly as possible. Further, he advocated "direct feedback of one's success" and "gaining expectations of success" (p. 39, 40). Tager and Goldberg (1982) did not believe that scare tactics (consequences of health risks) were good motivators, "there must be an emphasis on positive payoffs" (p. 13). King (1982) described positive reinforcement as the most powerful motivator in developing, maintaining, and/or changing specific behaviors. Bauer and Robinson (1982) pointed out the importance of continuous promotion in the early stages of fitness programs, since "positive results are generally not objectively measurable in the early stages" (p. 39). "While the em-

ployee awaits the gradual rewards for lifestyle changes, he/she will be bombarded with conflicting messages from junk food manufacturers, friends, health agencies, and schools." (p. 43).

Personal Goal Setting and Self Monitoring

A factor associated with success in 11 studies of treating hypertension (Parkinson, 1982, pp. 167-169) was setting goals and contracts that provided tangible reinforcement. Other positive factors were increased contact between provider and patient and "some of the studies found an added effect when patients were given the opportunity to monitor their blood pressure and keep records of change" (p. 169). Stevens (1978) recorded a student's successful attempt to achieve the goals of a self-management endeavor by self-monitoring, record keeping, stimulus control and disclosure of results to others. (p. 17)

Stimulus Control

Stevens and Spurr (1978; Note 10) further discussed stimulus control as identifying stimuli that trigger undesirable responses and then avoiding them, changing them, or arranging alternative responses if they cannot be avoided or changed. Stimulus control (for increasing study time) was enhanced by working at the same time every day in a place where distractions had been removed. (Stevens, 1978, p. 203) Alternative responses to stimuli for eating,

Stevens suggested, were deep breathing, a hot bath, walking, calling a friend, or having fresh fruit on hand. (Note 10) Stevens also reported that students in a class he conducted experienced success in self-control, "but only when meeting as a group"; he wrote "clearly, the regular disclosure of behavioral records may be quite powerful" (Stevens, 1978, p. 204).

Value of Support Systems in Changing Behavior

Although psychologists know that praising and rewarding appropriate behavior is the best means of bringing about behavioral changes, most people are not skilled in its use; "people need to learn support skills" (Nash and Ormiston, 1978, p. 277).

Support from Others: A Basic Need

"Basically, all humans and all primates have needs which can be satisfied only through social interaction with others" (Kaplan, Cassel, Gore, & Susan, 1977, p. 50). "There is evidence," they added, "that loss of social support leads to unmet needs" (p. 50). This evidence is contained in the following types of studies: (1) high death rate for spouses followed the death of a partner, (2) relocation in a new neighborhood caused needs that were met only with difficulty, and (3) often observed inappropriate behavior of newly institutionalized populations. (p. 50)

Naisbitt (1982), in Megatrends, used the term, "high tech/high touch." He wrote, "the more technology that we introduce into society, the more people will aggregate, will want to be with other people" (p. 45). Predictions that home TV would cause movie theatres to be non-existent by 1980 were made by people who did not understand "high tech/high touch." People do not go to a movie just to see a movie. They go to cry or laugh with 200 other people. (p. 45) "In our factories we are also moving in dual directions: high-tech robots and high-touch quality control circles--groups of workers who discuss work-related problems and solutions." (p. 49) William Onchi's Theory Z management styles stressed long term employment, consensual decision making, slow promotion and evaluation and wholistic concerns. "Type Z organization provides a sense of belonging needed now in American society" (Naisbitt, 1982, p. 203).

Support by a Significant Other Person

A common observation of eleven industrial programs to control hypertension was the involvement of "a significant other person", in addition to the patient and the health care provider. (Parkinson, 1982, p. 169) Two University of Michigan studies tested the hypothesis that the enlistment of a partner would increase blood pressure control; preliminary analyses suggested positive results. (Parkinson,

p. 169) A North Carolina study at Chapel Hill successfully mobilized the effect of social support through family members or friends. (Parkinson, p. 169) Respondent perception of what motivated individuals to continue wellness programs were reported by Bauer and Robinson (1982) to include competition and "support of significant others," e.g., spouses, colleagues, as of primary importance. This finding, they believed, provided support for the inclusion of spouses in the program. (p. 43) The President's Council (Note 2) also reported that "many companies find that fitness programs are particularly successful when they include the spouses of employees. (p. 11) Ardell (1979) in describing "high level wellness" wrote,

I have tried to emphasize the importance of being connected with others, open to expressing your needs, able to respond with affection and caring to friends, and deeply aware of the value of being interdependent and part of a human network. All this is possible with and complementary to an active sense of self-responsibility for your own life (p. 110).

Taylor (Note 13) made suggestions for preventing tensions from building up to a damaging degree: (1) talk things out with a good friend, expressing emotions knowing that others care and understand, and (2) develop a circle of friends and acquaintances. Many and varied social relationships generally provide stimulation that tends to reduce tension. (p. 8) Feitler (1982) collected data from 3,300 public school teachers regarding stress. The most

popular coping strategy named in the survey by teachers was talking to a friend. (p. 457)

Informal Social Support

Informal social support systems include "naturally occurring helping networks" that can be a "key resource in daily coping and emergency assistance for the average person" (Hamburg & Killelea in U.S. DHEW, Healthy People, 1979, p. 263). "Reviewing both animal and human studies Cassell (1974) found evidence to suggest the ameliorative effect for the individual of the presence of significant others during periods of stress" (in U.S. DHEW, Healthy People, p. 256). Cobb defined social support as "information that tells a person that he/she is loved, valued and is part of a network of communication and mutual obligation" (in U.S. DHEW, Healthy People, p. 256). Caplan wrote that "support systems are ...attachments between individuals, ...that (1) promote emotional mastery, (2) offer guidance ..., and (3) provide feedback ... which validates identity and fosters improved competence" (in U.S. DHEW, Healthy People, p. 256). Examples of social support systems are families, friends, neighbors and community institutions. (U.S. DHEW, Healthy People, p. 46) In a nine year follow-up of 4,725 residents of Alameda County, California, the connection between the individual's social support systems and their mortality rates were studied. With few

exceptions, respondents with marriage, family or friends, religious, or other group membership had lower mortality rates than respondents lacking such connections. (Medical Self-Care, 1979/80, p. 2) Further, the report continued,

More recent studies have shown that maintaining a close-knit network of family friends is as important a self-care practice as wise eating, staying in shape, avoiding smoking and excessive drinking, or dealing with stress" (p. 1).

Organized Support Groups

Wangberg (1982), studying stress in school teachers, wrote,

Teachers tend to work in isolation, yet they undergo similar stresses Teachers tend to internalize their difficulties....We need to develop environments where teachers can admit failures, share successes, and support one another Support groups provide such environments. Support groups could meet at regularly scheduled times or between times individual members can give support through phone calls, notes, or visits (p. 453).

"It is not surprising that ... hospitals throughout the nation are opening their doors to a wide variety of medical self-help groups" (President's Council, Promoting Health, Note 2, p. 6). The American Hospital Association (1982) stressed the dual benefits of self-help groups as improving their patient's health and the reduction of expensive hospital care. (p. 1) Naisbitt (1982) described the trend toward networking in the United States: "Networks exist to foster self-help, to exchange information, to im-

prove productivity ..., and to share resources" (p. 192). "Thousands of organized networks become stable, ongoing organizations, but others remain fluid and open, dissolve, their members resurfacing elsewhere to create new networks" (p. 193).

Hamburg and Killelea (in U.S. DHEW, Healthy People) suggested that "mutual help groups" may be particularly helpful in managing life-cycle transistions, in dealing with long-term deficits ..., and in changing noxious habits and lifestyles" (p. 267). They defined mutual help groups as "associations of people who share the same life situation for the purpose of mutual aid." (p. 266) In mutual help groups, each person assumes a variety of roles, such as helper, helpee, fellow-sufferer, reinforcer, or a veteran of the experience. (p. 266)

Organization of Self-Help Groups

Reissman (1979/80) stressed the importance of autonomy in managing mutual-aid groups; "although they are supported and brought together by outside agencies, they must be run by the clients....Professionals may help such groups, may serve as consultants and advisors, but it must be the group members who are in charge" (p. 19).

The basic principle of "quality circles" is that the expert in any particular job is most often the person performing the job. Quality circles (QC's)--a hybrid of

Japanese and traditional American management practices--are small groups of perhaps ten workers doing similar work who meet to discuss and solve work-related problems. In companies where QC's have been used production is increased and absenteeism reduced. (Naisbitt, 1982, p. 201)

Shared Decision Making

Project Leadership (Note 11), an organization that provides training for educational administrators, cited "perceived and documented strengths of shared decision making" as follows.

1. Teachers, like other employee groups, tend to take greater responsibility for those decisions in which they have participated.

2. Involvement is a powerful factor for the development of commitment.

3. Many groups report that the quality and substance of decisions have improved.

Guidelines for support groups (Wangberg, 1982) usually provide for members to be (1) from similar circumstances, (2) non-competitive, (3) willing to give constructive criticism, and (4) committed to staying in the group over a period of time. (p. 453) The Challenge Process (attributed by Wangberg to Sparks) applied the techniques of group problem solving in support groups and

focuses on the positive--working on challenges rather than on problems. The groups work through three stages: stating a challenge, brainstorming suggestions, and making a contract. (Wangberg, 1982, p. 455)

Role of a Consultant in Support Groups

Nash & Ormiston (1978) wrote that behavioral change can best occur in small groups that meet regularly with a consultant. By sharing problems and brainstorming to generate possible solutions, each person in the group learns from the others. The functions of the group process are (1) sharing and evaluating goals, (2) generating potential solutions to problems, (3) helping with setbacks, (4) giving perspectives on individual rates of progress, and (5) participating in each other's successes. (p. 27). Nash & Ormiston (1978) approved of the social support offered by Weight Watchers but believed that the groups (30--50) were too large for important group functions to occur. (p. 7).

Gaasholt (1980) described the use of "self-formulated study groups" that used consultants. She cited the intentions of such groups to have been to bring theory closer to practice by encouraging students to solve personal problems that related to the field of study. She believed it "essential ... in the beginning stages ...to discuss relevant problems which in turn can be restated as goals" (p. 4). Students who applied for her program were assigned to

groups of 5-28 members (which was then assigned a consultant), and were given instruction in group processes. (p. 5) Instructions included roles, trust, group climate, hidden agendas, and decision-making processes. (p. 6) The dropout rate was high--35% of the groups lost 50% of their participants; there was a high level of frustration in the initial period; and there was a great disparity in the success of various consultants.

Miles and Stubblefield (1982) described three types of learning groups: leader-centered, content-centered and group-member-centered. In the leader-centered group, the teacher may set the agenda (or assist the class) and interaction is primarily between individuals and the leader. In the content-centered group, the leader performs both a content and a process function. In the group-member centered learning group, a "trainer" is available for problems in communication, self-understanding, decision making, and group functioning. Roles are temporary; leadership is a function of the total group. All members must take the responsibility for their own learning. (pp. 313-317) To different degrees, all three types of learning groups offer opportunities for the learners to (1) be actively involved in the process and (2) make use of their own experiences.

Summary of the Literature Review

Business, government, hospital, private health

organization and education leaders agree that a change in lifestyle is necessary to accomplish the next great advance in the health of the American people. The areas most often mentioned in the literature of change are physical fitness, nutrition, stress management, smoking/alcohol/drugs control, and safety. Programs that integrate physical fitness, nutrition, and stress management are favored over programs that focus on one area alone. Earlier physical fitness "booms", weight control organizations and clinics for cessation of smoking or drinking are incorporating some or all of the other areas into their efforts.

More programs designed to effect change in lifestyle are focusing on short-term behavioral change. Although knowledge and attitudes are important stages in an educational program, they do not insure changes in practice (behavior). Long-term benefits of risk reduction and decrease in morbidity and premature death are hypothesized when demonstrated short-term behavioral changes occur.

Techniques recommended to effect short-term behavioral changes are: goal setting, positive reinforcement, self monitoring, record keeping, stimulus control, and modeling of desirable practices. Self-management and problem-solving skills give the greatest hope of changes that will be maintained over a period of time long enough to reduce illness and premature death.

Although effective programs stress the need for in-

dividual responsibility, the term, "significant others", appears often in the literature as a necessary support for a continued effort. "Others" can be informal acquaintances, spouses, friends, or neighborhood networks; or they may be more organized groups, such as self-formulated study groups, mutual-aid groups, learning groups, and self-help groups.

The advantages of small groups that manage themselves in trying to reach individual goals are believed to be a greater commitment and greater involvement of the individuals, and a pooling of experiences that improves the quality of decisions. The use of consultants with support groups is recommended more often than using dominant leaders. A leadership role that is consistent with wellness support groups recommendations is the "content centered leader" (Miles & Stubblefield, 1982, p. 315) who serves both content and process functions.

CHAPTER III

METHODS AND PROCEDURES

Description of the Wellness Program

This chapter describes the wellness program, the measurement of the dependent variables, and the methods of statistical treatment that were used in this study.

Hypotheses

The study was designed to test three research hypotheses gained from the literature review: (1) A twelve-week wellness program based on self-management and problem-solving strategies can produce significant changes in the short-term behavior and health of school staff members. (2) In wellness programs there is (a) a significant positive correlation between the improvement of physical health and the improvement of mental health and (b) a significant positive correlation between the level of health-related behavior and the improvement of physical and mental well-being. (3) Wellness programs that provide leaders for support groups are more effective in changing behavior, improving health, and imparting knowledge than those that provide support groups without leaders.

Selection and Organization of the Sample

The research was conducted with the staffs of the 11 schools of the Gresham High School District and the Gresham Elementary School District who were invited to participate in a wellness course during the fall term of 1982. Gresham is a suburb of Portland, Oregon, with two high schools, two middle schools, and seven grade schools. One hundred and forty-nine staff members elected to take the course, approximately one-fourth of the teachers. The enrollees were divided into two treatment groups. Both groups were given the same information regarding factors that could improve their physical, mental and emotional health. Both groups were asked to strive for the same general objectives: (1) acquisition of knowledge, (2) better physical and mental health, and (3) improved health practices (behavior). One group was organized into support groups of four to eight members; the other treatment group was assigned a leader per school. The objectives were measured respectively by: (1) a knowledge posttest in nutrition, fitness and stress management principles and research findings, (2) pre- and post- physical fitness tests in cardiovascular, strength and flexibility factors, and (3) pre- and post- self-reported inventories of behavior related to health (augmented by weekly reports). All members attended lectures given by authorities in the major areas of health promotion, used the same texts and

materials, were given instruction in self management, and were asked to maintain a minimum level fitness and nutritional program for eight weeks. A control group of teachers taken from the same schools was given all tests, but not the formal treatment.

Description of the Model Wellness Course

In addition to the eight-week treatment program, awareness activities, pretreatment measurements, and post-treatment testing and analyses were a part of the course. Participants could enroll for college or district credit.

Awareness Activities

All staff members of the Gresham Grade School District were required to attend a one-half day inservice in late September, 1982, to become acquainted with wellness concepts and the district's wellness course. Gresham High School District repeated the program for its staff a week later. Both meetings had been preceded by newsletters to all staff and advanced registration for a wellness course. The inservice programs included an address by the state consultant for health and physical education, Len Tritsch, a "wellness lunch", and a variety of health-related activities. Planning and execution of the programs were done by a team of twenty staff members who had attended the Seaside Conference in June, 1982, and were carrying out an

action plan made at that conference.

Preparation for the Exercise/Nutrition Program

Enrollees in the wellness course took pretests in physical fitness and mental well-being and completed nutritional and behavioral inventories following the awareness meetings. Those data were processed by Portland Adventist Center Health Services personnel and the individual and group results were reported by Dr. Don Hall at the first meeting of the class on October 4. Participants were asked to set goals and complete a contract based on their individual state-of-health reports. Two goals were a minimum requirement of the contract: (1) Physical exercise at the individual's target heart rate for 20 minutes, three times each week, and (2) following the seven dietary guidelines in "Dietary Guidelines for Americans" (U.S. Department of Agriculture and U.S. DHEW). Dr. Victor Stevens of Kaiser Permanente Hospital described self-management practices in the second class meeting and participants were asked to begin their individual eight week programs the next day. Charting of progress, disclosure of progress to a support group, and stimulus control were advised by Stevens. During the eight-week period that ended in mid-December, participants were required to submit weekly reports of their health-related behavior on a form provided by the director. Health behaviors on

the form were rated to a maximum of 100 points each week. (Twenty items, zero to five points each.) The course provided a speaker in each of the five areas identified by the text, Planning for Wellness, Ardell and Tager (1982): (1) Physical Fitness, (2) Nutrition, (3) Stress Management, (4) Harmful Habits, and (5) Self Responsibility. The course ended with a final knowledge test, a posttest in physical fitness, and the general well-being self-reporting schedule. Each student summarized his/her health-related behavior for the eight weeks of the course and determined a general level of participation based on the weekly reports. Thus, data available for analysis were: (1) pre- and post-well-being scores, (2) behavioral level scores before and during the course, (3) pre- and post- physical fitness test scores, and (4) a final knowledge test score.

Treatment Groups

Treatment groups for the third hypothesis represented different levels of support. Group L was provided with a health education leaders who assisted each participant in establishing weekly goals, reinforcing successful progress, and readjusting schedules. The leaders were to serve both content and process functions. Students submitted a record of progress weekly to the leader who signed and transmitted the reports to the project director. The group size varied from eight to twenty participants.

Group S was divided into smaller groups of from four to eight participants and was given brief instructions in group processes; however, there was no designated authority in health education in the group. Participants were to set individual weekly goals in the group setting, brainstorm activities to accomplish the goals, reinforce each other, and share the successes or setbacks in weekly meetings. Students submitted a record of weekly progress signed by two team members directly to the project director through the intraschool mail.

Individuals were assigned to treatment groups on the basis of the school in which they worked or with which they were associated. Thus, one school had only one treatment method which helped to prevent contamination of the treatments. Having determined that a particular school was a part of Group S, participants were assigned to a small group with the help of the principal and the project director.

A third group, Group C, was composed of staff members who participated to a limited degree in the program and were, in some respects, a control group for the formal program. Members of this group took all pre- and post-tests, were free to attend lectures, and were subject to informal staff discussions at lunches and breaktimes. They did not, however, enter into the contract, make weekly reports, or belong to support group designations

requirements of Groups L and S. They represented a low-level treatment group that "controlled" the formal self-management program.

Measurement of Dependent Variables

The criteria for selecting measuring instruments for the research were the following:

1. The instrument should purport to measure factors that are directly associated with the objectives of the course.
2. The instrument should have evidence of validity--of measuring what it purports to measure.
3. The instrument's scales should be sensitive enough to show individual and group changes for the periods of time used in the project.
4. The results should be capable of quantitative analysis.

Measuring Knowledge

Knowledge was measured with a criteria-referenced test, composed by the project director, based on the content of the two texts and the presentations of the expert speakers. As such it met criteria 1, 3, and 4 but not criterion 2. The test items were, therefore, submitted to the state consultant of health education, Dr. Len Tritsch, and compared with a similar test given in 1978 by the North

Clackamas School District. (Note 5) However, the knowledge test was not used as a dependent variable for the experiment. Rather, it was regarded as part of the treatment and as an indication of the degree of participation.

Measuring Physical Fitness

The dependent variables of the experiment were health factors (physical fitness and mental well-being) and health-related behavior. Health factors were measured with tests supplied by the Portland Adventist Medical Center, a physical fitness test (which incorporated the Canadian Test of Physical Fitness) and a mental well-being test (General Well-Being Schedule). (Note 13) The physical fitness test measures four components: (1) body weight and composition, (2) flexibility, (3) muscular strength and endurance, and (4) cardio-respiratory fitness. Activities from the Canadian Test of Physical Fitness were devised and tested on a significant sample of the Canadian work population. Norms for each of the separate tests are based on 6,213 males and 3,651 females; sedentary or light work occupations composed 83.1% of the female sample and 75.9% of the male sample. (Canadian Assessment Report, 1979) Therefore, the norms and percentiles were considered appropriate for evaluating the performance of a school staff.

The test devised by the Portland Adventist Medical

Center (PAMC) was administered under their direction.

Individual subtests (grouped into components) and general method of testing are the following:

1. Body weight and composition--spring scales and skin-fold test with calipers.
2. Flexibility--trunk flexion, reach in inches.
3. Muscular strength and endurance--grip strength (pounds) and number of sit-ups in 60 seconds.
4. Cardio-pulmonary fitness--resting pulse rate, systolic and diastolic blood pressure, and the "step test". Jetti, Campbell, Mangeon & Routhier (1976) compared the "step test" (that can be performed with simple equipment) with the more direct treadmill test and determined that the maximum oxygen consumption "could be adequately predicted" by using an equation that relates the two performances. (p. 682).

A total score was used by the Portland Adventist Medical Center (PAMC) staff (Note 13) by assigning weights to each performance based on their judgment of the importance of the factor. Thus, the performance of individuals or groups could be compared through individual tests, component scores, or total scores.

Measuring Mental Well-Being

The General Well-Being Schedule (GWBS) "was developed

to ascertain how well people are coping with life, particularly in terms of mental and emotional health." The GWBS was developed by the National Center for Health Statistics (U.S. DHEW, 1977) and, after pretesting on 373 adults, was administered to over 6,900 adults as part of a national study which began in 1971 and was completed in 1975. It is a self-reporting instrument designed to assess subjective well-being and distress (p. iii). Six subscales measure health-worry, energy level, satisfying-interesting life, depressed-cheerful mood, emotional-behavioral control, and relaxed versus tense-anxious. It also provides a total score.

Interviews by clinical psychologists of 195 students were used to validate the GWBS and several other schedules. "The ... GWB total scale had the highest correlations with the criterion (interviewers' ratings) of the scales compared." (Overall the scales were established as "at the .01 level, or better, of correlation.") (p. 11) The high level of consistency of the GWBS total scale indicated that "it is a homogeneous scale basically measuring a single dimension or general psychological state in this sample." (p. 11) The weakest meaningful property of the GWBS "seems to be in differentiating the total scale into the six subscales." The evaluators believed there needed to be more elements in each. Therefore, "the GWBS seems to present coherent and useful data about the subjective

well-being of large cross sections of our citizenry" (p. 12). "It should be useful ... as a quality of life index ... and for measuring population changes in sense of well-being over time" (p. 13). Means, standard deviations, and score ranges were available for the individual items and for the total score. Since the GWBS seem to meet all criteria, it was given pre and post to treatment and control groups, and the total scores of each individual were compared.

Measuring Health-Related Behavior

A search for a validated schedule that would measure the health-related behavior of the participants produced a number of such scales (none with validation studies), but all were incomplete for the purpose. Therefore, portions of schedules that had been used in Tacoma and Kansas were used to compose the schedule that was used in the study. (Tacoma Public Schools, 1980; Kansas Department of Health and Environment, 1978) Scales were designed to agree with the goals of the program. To add to the validity of the instrument, it was submitted to Len Tritsch, state health consultant, to Dr. Don Hall, Portland Adventist Medical Center, and to Victor Stevens, Kaiser Permanente, Portland, Oregon. Their criticisms were incorporated into the final draft. To add to the accuracy of the self-reporting, the instrument was part of a weekly report from each partici-

pant that was signed by support group members in Group S and by group leaders in Group L. Two behavior scores were compared in the study. One, a total of points estimated on the twenty scales before participation in the course and, the other, the general level of behavior maintained during the course, based on weekly reports.

Statistical Treatment of Data

Hypothesis #1. The effect of the program on physical health was determined by comparing pre-treatment and post-treatment scores on the PAMC fitness test, using a t-test for dependent groups with alpha set at the .05 level. The same test was performed on the pre-treatment and post-treatment total scores of the General Well-Being Schedule. These analyses were done for all three groups separately: Group L, Group S, and Group C. Conclusions were based on significant changes in the two variables (physical fitness, and mental well-being) considered separately in each of the treatment groups.)

Hypothesis #2. The relationship of mental well-being and physical fitness scores was determined by computing a Pearson product-moment correlation coefficient for the differences in the pretest and posttest scores. Alpha was set at the .05 level. Similar comparisons were made between the physical fitness and the health-related behavior determinations. Comparisons were also made between mental

well-being and health-related behavior.

Hypothesis #3. The effect of providing different levels of support (Group L: leader-led support groups; Group S: leaderless support groups, Group C: no formal support) was determined by comparing the means of post-treatment scores using a Dunnett t-test. The means of the treatment groups were adjusted with pre-treatment means (using analysis of covariance) and compared separately with the adjusted mean of the control group. The adjusted means of the treatment groups were compared with each other with a t-test. Alpha for each of these tests was set at .05.

Qualitative methods of data collection and analysis were used--in addition to quantitative analyses--to determine the initial balance of subjects, treatment effects, and, in particular, the validity of the self-reported changes in lifestyle behavior. Weekly reports were analyzed for common patterns of motivation. These data were used to support the quantitative analyses and to generate new hypotheses or identify unexpected side effects.

CHAPTER IV

RESULTS AND ANALYSIS

This chapter will give greater detail concerning specific treatment and data collection, will display the data, and will give specific conclusions and analyses. General conclusions will be made in Chapter V.

Pre-treatment Characteristics of the Sample Groups

The treatment and control groups were selected from a school staff. A comparison of the demographic and health-related characteristics of the school staff and the sample groups was made to help determine the effect of the treatments.

Comparison of Staff and Sample Wellness Group

The group that participated in the 12-week wellness program in Gresham schools during the fall term of 1982 was composed of members of the staff (or their spouses) who volunteered after attending a compulsory inservice explanation. As such, they did not constitute a randomly selected sample. Several selective factors biased the selection process: (1) interest, (2) time limitations, and (3) perceived need. Table I compares the demographic characteristics of the sample and the total school staff. The staff composition is given in numbers and percentages supplied by the personnel office of Gresham schools at the

TABLE I
COMPARISON OF DEMOGRAPHIC CHARACTERISTICS OF GRESHAM
SCHOOL'S STAFF AND WELLNESS CLASS PARTICIPANTS

Group	Staff (%)	Wellness Class (%)
Sex		
Male	170 (40)	35 (30)
Female	253 (60)	80 (70)
Total	423	115
Age		
20 - 29	65 (15)	16 (14)
30 - 39	192 (45)	46 (40)
40 - 49	119 (28)	38 (33)
50 - 59	38 (9)	12 (10)
60 - 69	9 (2)	3 (3)
Grade Level		
Elementary (K-5)	169 (40)	51 (44)
Middle (6-8)	80 (19)	30 (26)
High (9-12)	174 (41)	34 (30)
Job Assignment		
Certified Teachers	423 (61)	98 (85)
Classified Employees	248 (36)	7 (6)
Administration	25 (3)	2 (2)
Spouses/Others		8 (7)

end of December, 1982, and is only approximate for any specific date. The numbers for the participating groups were those that finished all tests and reports. Numbers in the table do not include the 14.8% who did not finish all requirements and were considered "dropouts." They do include 17 spouses, classified staff, and teachers from a neighboring school.

Despite the volunteer nature of the sample group, it is interesting to note that the percentage composition of the sample group and entire staff is almost the same for age, and varies within 10% for sex composition and grade-level composition. Variations in age show a larger proportion of staff over 40 volunteering than under 40 (39% of staff are over 40 years of age, 46% of the sample were over 40). Variations of grade level showed more elementary (K-8) personnel participating than high school personnel (59% were elementary staff, 70% of sample were elementary). Classified employees composed 36% of the staff but only 7% of the sample was composed of classified employees. This was despite a determined effort to involve secretaries, cooks, groundskeepers, and aides. Administrators were proportionally represented and several more started, participated intermittently, but did not finish all tests. Certified teachers were the principal group participating, composing 85% of the total group.

Comparison of Wellness Treatment Group and Control Group

The 24 staff members who were considered to be the control group were selected from the same schools and, therefore, were subjected to general inservices, announcements, informal discussions, and the pretesting and post-testing. Members of the group, however, did not attend speakers regularly, did not make weekly reports of health-related behavior, and were not a part of any established support group. They "controlled" the formal aspects of the program while reflecting informal influences of the school, community, and national environments. The control group members were selected in the same manner as the larger treatment group; they were asked to volunteer initially and an effort was made to secure a representative sample from the volunteers. The control group members took the same pretests and posttests as the treatment groups. Table II compares the experimental groups and the control group.

The demographic composition of the control group compared very closely to the treatment groups for sex, age, and grade level. A higher percentage of classified staff were in the control group and more staff members over 50 were controls. The total numbers, of course, were greatly different; experimental groups had 63 and 52 members, the control group had 24.

TABLE II
COMPARISON OF DEMOGRAPHIC CHARACTERISTICS OF TREATMENT
AND CONTROL GROUPS OF GRESHAM WELLNESS PROGRAM

Group	Treatment (%)	Control (%)
Sex		
Male	35 (40)	8 (33)
Female	80 (60)	16 (67)
Age		
20 - 29	16 (14)	2 (9)
30 - 39	46 (40)	9 (38)
40 - 49	38 (33)	7 (29)
50 - 59	12 (10)	6 (25)
60 - 69	3 (3)	0 (0)
Grade Level		
Elementary (K-5)	51 (44)	11 (46)
Middle (6-8)	30 (26)	5 (21)
High (9-12)	34 (30)	8 (33)
Job Assignment		
Certified Teachers	98 (85)	18 (75)
Classified Employees	7 (6)	4 (17)
Administration	2 (2)	1 (4)
Spouses/Others	8 (7)	1 (4)

Participants who completed pre-treatment activities and signed contracts with goal statements but who did not complete weekly reports or did not take post-treatment tests and inventories were considered dropouts. (Participants who did not take pretests were not included in any group.) The dropout numbers and percentage rates are shown in Table III. (These numbers are not included in the previous numbers of participants.)

TABLE III
DROPOUTS FROM GRESHAM SCHOOLS' WELLNESS PROGRAM

Grade Level		Status in Program		
		Began	Finished	Dropout (%)
Elementary	(K-5)	59	53	(10.0)
Middle	(6-8)	31	29	(6.5)
High	(9-12)	42	33	(21.0)
Total		132	115	(14.8)

Dropping out was usually the result of a conflict of other school responsibilities during a successful football season and pre-Christmas programs. The physical fitness tests were difficult to make-up; missing the tests relegated the participant to dropout status for the project. The total dropout rate of approximately 15% compares favorably with other wellness program endeavors. Dropouts

were not replaced.

Pre-treatment Status of Treatment and Control Groups

The large treatment group was divided into two sub-groups for the purpose of testing one of the hypotheses of the study. Participants from one high school, one middle school, and five grade schools were assigned to Group L; the remainder (one high school, one middle school, and six grade schools) was assigned to Group S. The control group was called Group C. The schools were randomly selected to be in one group or the other; all participants in each school were assigned to the same group. Treatment group memberships were approximately equal, 63 and 52. Group comparisons of demographic characteristics as well as the means of pretreatment scores of the dependent variables are shown in Table IV.

Although the demographic characteristics of groups S and L show considerable variation, the mean scores on the pretreatment dependent variables are different by less than two percent in all cases. (As was noted earlier the composition of the control group was much the same as the combined treatment groups.) Group S had more male participants, more in older age groups, and fewer elementary teachers. The only variation of importance in pre-treatment means was the higher mental well-being score for the control group.

TABLE IV

COMPARISON OF DEMOGRAPHIC AND PRE-TREATMENT CHARACTERISTICS
OF TREATMENT AND CONTROL GROUPS OF GRESHAM WELLNESS PROGRAM

Demographic groups	Study Groups			
	<u>L</u>	<u>S</u>	<u>C</u>	Total
Sex				
Male	15 (24)	20 (38)	8 (33)	43 (31)
Female	48 (76)	32 (62)	16 (67)	96 (69)
Age				
20 - 29	11 (17)	5 (10)	2 (9)	18 (13)
30 - 39	24 (38)	22 (42)	9 (38)	55 (40)
40 - 49	19 (30)	19 (36)	7 (29)	45 (32)
50 - 59	6 (10)	6 (12)	6 (25)	18 (13)
60 - 69	3 (5)	0 (0)	0 (0)	3 (2)
Grade Level				
Elementary (K-5)	35 (56)	18 (33)	11 (46)	64 (46)
Middle (6-8)	14 (22)	15 (29)	5 (21)	34 (24)
High (9-12)	14 (22)	19 (38)	8 (33)	41 (30)
Means of Pre-Treatment Scores				
Behavior	51.67	50.00	50.96	
Mental Well-Being	74.92	75.85	79.38	
Physical Fitness	47.14	46.83	45.96	

Assessment of Health

All participants were asked to complete a nutritional intake inventory, a general well-being schedule, and a physical fitness test prior to setting goals and establishing contracts.

Nutritional Intake Inventory

The nutritional inventory was supplied by the Portland Adventist Medical Center and analyzed by their Health Services staff. Items were selected from the PAMC report that corresponded to the "Dietary Guidelines for Americans" (and to the practices stressed in this study) and compared for the three groups in Table V.

A comparison of the study group percentages with the recommended allowances of the "Dietary Guidelines for Americans" can only be done approximately since the categories from the survey do not match exactly.

1. Fat is recommended to supply 30% of the total diet; all study groups exceeded this by at least 10%.
2. Natural sugars and complex carbohydrates are recommended to supply 48%; total carbohydrate consumption in all study groups were 6% to 7% below this figure.
3. Saturated fats are recommended to be 10% or less; 90% of the study groups exceeded this amount.

TABLE V

PERCENTAGES OF TREATMENT AND CONTROL GROUPS FOLLOWING
RECOMMENDED NUTRITIONAL PRACTICES PRIOR TO WELLNESS PROGRAM

Recommended Practice	Group		
	<u>L</u>	<u>S</u>	<u>C</u>
Regular Breakfast	40	45	60
Variety of Food (% of total diet)			
Proteins	17	17	16
Fat (30%)	42	41	43
Carbohydrate (48%) ^a	41	42	43
Restrict Fat/Cholesterol			
Less than 10% saturated fat	1	5	7
Less than 300 mg/day HDL	37	46	40
No Salt Added	4	39	53
Drink Water, 6-8 glasses/day	21	14	7
Drink less than 2 oz. alcohol/day	39	40	53

^a Recommendation was for natural or complex carbohydrates; survey was for total carbohydrate intake.

4. Cholesterol is recommended to be 300 mg./day; 54% to 63% of the study groups exceeded this amount.
5. No salt added is recommended; 45% of the participants were complying.
6. Water is recommended to be 6-8 glasses daily; 7-21% of group did drink that much or more.
7. Alcohol, one or two drinks or less per day, was apparently exceeded by over one-half of the members of the study groups.

Individual and group summaries were returned and discussed with participants (as a group) by a nutritional specialist from Portland Adventist Medical Center prior to goal setting.

Physical Fitness and Mental Well-Being Measurements

The results of the pretests of the dependent variables of the study were also reported and explained to the treatment groups by the PAMC specialist prior to goal setting. Individuals were identified into levels of well-being based on their total score on the GWBS. Percentages at each level for the three study groups are found in Table VI. Fifty percent or more of each group was not experiencing "positive well-being"; over one-third of each group was described as having stress problems or significant distress. Total score means of the treatment groups were less than one point, approximately one percent) apart,

TABLE VI

COMPOSITION OF TREATMENT GROUPS AND CONTROL GROUP IN LEVELS OF WELL-BEING BEFORE AND AFTER THE GRESHAM WELLNESS PROGRAM

Level of Well-Being (% of group)	Group		
	<u>L</u>	<u>S</u>	<u>C</u>
Pre-Treatment			
Severe or Significant Distress	15	10	4
Stress Problems	24	29	25
Marginal Well-Being	18	6	8
Low Positive Well-Being	8	10	12
Positive Well-Being	35	46	50
Means of Total Scores (\bar{X})	74.92	75.85	79.38
Post-Treatment			
Severe or Significant Distress	3	2	0
Stress Problems	9	11	17
Marginal Well-Being	8	4	12
Low Positive Well-Being	6	11	8
Positive Well-Being	74	72	63
Means of Total Scores (\bar{X})	86.96	85.52	84.38

but the control group was 5% higher than that of the treatment groups.

The total physical fitness scores on the PAMC schedule were judged in five categories: poor, low, fair-average, good, and excellent. The percentages at each level for the three study groups are found in Table VII. Twenty-five to thirty-six percent of the groups were below average and no one was judged excellent. The means of total scores and the distribution of scores were similar for the three groups.

Health-Related Behavior Reported by Participants

Treatment and control group participants were asked to report their typical health-related behavior for the month preceding the assessment. The report form, supplied by the director, awarded points for performing designated health practices each week. A total score was determined and used as an index of pre-treatment health-related behavior. Treatment groups continued weekly reports to the project director on the same form throughout the eight-week program. At the end of the program, each participant used the accumulated reports to estimate an average sustained participation level. Estimates were made by graphing the eight separate levels and drawing a "best fit line" (excluding one extreme score). This estimate of the data was checked by the program director and a "sustained health-

TABLE VII

COMPOSITION OF TREATMENT GROUPS AND CONTROL GROUP IN LEVELS OF PHYSICAL FITNESS BEFORE AND AFTER THE GRESHAM PROGRAM

Level of Physical Fitness (% of group)	<u>L</u>	<u>S</u>	<u>C</u>
Pre-Treatment			
Poor	3	8	0
Low	33	23	25
Fair/Average	43	46	62
Good	21	23	13
Excellent	0	0	0
Means of Total Scores (\bar{X})	47.14	46.83	45.96
Post-Treatment			
Poor	1	0	0
Low	21	11	22
Fair/Average	35	52	65
Good	40	33	13
Excellent	3	4	0
Means of Total Scores (\bar{X})	55.89	57.10	48.25

related behavior score" established for each individual. Members of the control group were asked to estimate a total score average for the eight weeks period, using the same criteria. A comparison of pre-treatment and sustained behavior mean scores for all three groups follows:

1. Behavior levels, pre-treatment, were almost identical--L, 51.67; S, 50.00; C, 50.90.
2. Treatment groups sustained almost identical levels with resulting similar increases--L, 73.73, increase of 22.06; S, 72.31, increase of 22.31.
3. Control group sustained a 52.38 level for a 1.42 increase.

Degree of Participation in Type of Health Behavior

The weekly report contained 20 subscales that were grouped in categories of exercise, nutrition, stress management, and avoiding harmful habits. A summary of the degree of participation in each of these categories is shown in TABLE VIII.

According to the reported data, physical exercise was the most difficult wellness practice to maintain over the eight-week period and avoiding harmful habits and nutritional practices were the easiest. Perhaps an explanatory factor is that the nutritional and stress practices were easier to judge as attained; "less salt" is less specific

than "exercise 20 minutes at target heart rate."

TABLE VIII

SELF-REPORTED LEVELS OF PARTICIPATION IN WELLNESS BEHAVIORS
BY TREATMENT GROUPS IN GRESHAM PROGRAM

Category of Behavior	Level of Participation (% of group)		
	Low	Middle	High
Physical Exercise	30	41	29
Nutritional	3	33	64
Stress Management	6	35	59
Avoiding Harmful Habits	6	14	80>

Each participant also reported his/her type of physical exercise. Data from weekly reports provided type of exercise and frequency of times named that is summarized in Table IX.

TABLE IX

TYPES OF PHYSICAL EXERCISE AND RELATIVE FREQUENCY REPORTED
BY PARTICIPANTS IN GRESHAM WELLNESS PROGRAM

Type of Exercise	Frequency in % of Total Reports
Walking	32
Running/Jogging	24
Aerobic Dance/Exercise Routines	20
Bicycle (stationary and moving)	13
Minitramps	8
Other (associated with coaching)	3

The most often reported exercise was walking, although it was often included with other forms of exercise. Running and jogging was the second category most reported. Aerobic exercise and aerobic dance (third) meant organized group activities. A number of participants found mini-tramps (rebounders) preferable to being out-of-doors during the rain-filled fall and winter days.

Barriers and Resources Reported by Participants

Further indication of the type of treatment comes from a summary of the "barriers" and "resources" reported by participants in the weekly reports and final summary. At the end of the treatment period, participants were given their accumulated weekly reports and asked to prioritize a list of resources which they found most useful in maintaining their programs and to similarly rate a list of barriers and obstacles. Categories of resources offered were: weekly reports, speakers, charting progress, designated support group, other support at school, and family support. Categories of barriers offered were: other people, lack of time, lack of knowledge, lack of motivation (drive), and lack of facilities. Rankings are summarized in Table X.

The greatest resource reported was the speakers provided. Speakers were recognized authorities in their fields and carefully selected to match the goals of the

TABLE X

BARRIERS AND RESOURCES TO MAINTAINING INDIVIDUAL CONTRACTS
REPORTED BY PARTICIPANTS IN GRESHAM WELLNESS PROGRAM

Support	Priority Ranking (greatest to least)
<hr/>	
Resources	1. Speakers
	2. Weekly Reports
	3. Charting
	4. Family Support
	5. Designated Support Group
	6. Informal Support at School
Barriers	1. Lack of Time
	2. Lack of Drive
	3. Other People
	4. Lack of facilities
	5. Lack of Knowledge

class. Attendance for speakers was in excess of 85% of the group, despite numerous conflicts. Weekly reports were named as second most important. These reports had been carefully monitored, frequent reminders and calls for late reports produced almost 100% return. Bi-weekly newsletters reinforced the prompt reporting. Charting of progress, third in importance, was introduced by a pretreatment speaker and charts (graphs) were prominently displayed in all schools throughout the eight weeks. Designated support groups were not reported as important as family support. Members found support from friends who were not in the class but were often encountered in the work day.

Lack of time was the greatest barrier reported. Lack of drive (reported second among obstacles) included failure to resist the temptations of Thanksgiving, dinners out, and vacations. The barrier of "other people" (reported third) was occasionally mild ridicule; more often it was from well-meaning relatives and friends who did not agree with the importance of the wellness concept. Lack of knowledge was reported as the least barrier. There were no differences in the rankings of Groups S and L.

Knowledge Test

Participants were told in the beginning class that a final test would be given to help determine credit and grades for the course. Text assignments, the content of

the speakers' lectures, and the procedures used in the course were the targets of the test. The test was considered part of the treatment and not as a dependent variable of the experiment. Test items were designed by the project director to determine attendance and achievement in the course rather than to measure global principles of wellness. Members of the control group took the knowledge test at the time of posttesting. They had not been forewarned that it would be given to them. Average scores for the three groups were: Group L--83% correct; Group S, 82% correct; Group C, 59% correct.

Improvement of Physical and Mental Health Factors

Post-treatment physical fitness tests and a self-reported general well-being schedule gave individual scores and group means that were compared with pretreatment data and means for degree of improvement. A t-test for dependent groups was used to compare pre-treatment and post-treatment results in both physical and mental factors for each of the three groups. Table XI displays these comparisons.

Both physical and mental factors were improved significantly at the .05 level for both treatment groups. The only significant improvement by the control group was in mental well-being (.05 level).

TABLE XI

t-TEST COMPARISON OF PRE-TREATMENT AND POST-TREATMENT MEANS
OF PHYSICAL AND MENTAL WELL-BEING SCORES OF WELLNESS GROUPS

Wellness Factor Tests	Groups		
	<u>L</u>	<u>S</u>	<u>C</u>
Physical Fitness			
Pretest	47.14	46.83	45.96
Posttest	55.89	57.10	48.25
Value of <u>t</u>	7.14**	4.96**	1.03
Mental Well-Being			
Pretest	74.92	75.85	79.38
Posttest	86.46	85.52	84.58
Value of <u>t</u>	13.28**	5.84**	1.76*

* significant at .05 level ($p < .05$)

** significant at .05 level ($p < .001$)

Change in Physical Fitness Subtests

The individual tests that composed the physical fitness battery were (1) weight, (2) percent of body fat, (3) grip strength (measured in kilograms), (4) flexibility in stretching hands toward toes (inches), (5) number of situps in 60 seconds, (6) resting pulse rate, (7) systolic and diastolic blood pressure, and (8) maximum oxygen consumption measured with a "step test." Each individual's change was computed and an average change determined for the group. Table XII shows the changes expressed in units of measurement and in percentages.

The most pronounced gains during the eight week period were in (1) body strength as measured by sit-ups and grip strength, (2) maximum oxygen consumption as measured by the step test, and (3) flexibility. Pulse rates and blood pressure showed smaller gains. Least improved was the percent of body fat (where there was a 1.0% increase--the control group showed a 1.4% increase.)

Correlation of Behavior and Health Factors

Pearson product-moment correlation coefficients were calculated for selected pairs of measured or change scores where there was an interest in the relationship. The high correlations between pretest and posttest scores of the same factor bears out an expectation that individuals would keep the same relative position among other participants in

TABLE XII
AVERAGE CHANGES FROM PRE-TREATMENT TO POST-TREATMENT
MEASUREMENTS OF PHYSICAL FITNESS SUB-TESTS
IN GRESHAM WELLNESS PROGRAM

Sub-Tests	Group		
	<u>L</u>	<u>S</u>	<u>C</u>
Weight,pounds (%)	-2.3 (1.6)	-2.1 (1.5)	1.6 (1.1)
Body Fat,% weight (%)	1.5 (6.3)	.6 (2.5)	1.4 (6.0)
Flexibility,inches,(%)	1.3 (10.3)	1.2 (9.6)	.5 (4.0)
Grip Strength,kg,(%)	4.0 (5.7)	5.4 (7.3)	2.8 (4.0)
Sit-ups in 60 sec.(%)	6.6 (25.0)	5.9 (22.4)	1.0 (3.8)
Resting Pulse Rate(%)	-3.0 (4.1)	-1.0 (1.4)	.7 (0.9)
Blood Pressure,Sys.(%)	-5.2 (4.4)	-2.2 (1.9)	-3.9 (3.3)
Blood Pressure,Dia.(%)	-2.2 (2.8)	-1.5 (1.9)	-2.9 (3.7)
Maximum Oxygen Con.(%)	2.0 (6.2)	2.2 (6.9)	.9 (2.8)

the same test given before and after treatment. (See Table XIII)

The relationships between health-related behavior and mental well-being also appear in Table XIII. There is a significant correlation between the level of sustained health-related behavior and the level of mental well-being. There was a significant correlation between the change in behavior and the change in mental well-being. But, no significant correlation between level of behavior and change in general well-being was found.

The relationships between health-related behavior and physical fitness is shown in Table XIII. The only significant relationship was between the change in behavior and the change in fitness. Relationships between the level of sustained behavior and either the post level of physical fitness or the change in physical fitness were not found. Comparisons of mental well-being and physical fitness reveal positive correlations but only one of statistical significance (change in well-being and post physical fitness).

In summarizing the relationships of health-related behavior, general well-being, and physical fitness, (1) the strongest relationships ($p < .001$ throughout) are between pre- and post-treatment scores in the same test; (2) the second most consistent relationships are those between changes in behavior and changes in physical fitness and

TABLE XIII

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS BETWEEN
HEALTH FACTORS IN GRESHAM WELLNESS PROGRAM

Factors Correlated	Combined Treatment Groups, n = 115
<hr/> Pre and Post of Same Factor <hr/>	
Mental Well-Being	.445***
Physical Fitness	.762***
Behavior and General Well-Being	
Sustained Behavior/Post GWB	.392***
Sustained Behavior/Change GWB	.088
Change Behavior/Change GWB	.290**
Behavior and Physical Fitness	
Sustained Behavior/Post Fitness	-.050
Sustained Behavior/Change Fitness	.188
Change Behavior/Change Fitness	.224*
General Well-Being and Physical Fitness	
Post GWB/Post Fitness	.184
Post GWB/Change Fitness	.159
Change GWB/Post Fitness	.230*
Change GWB/Change Fitness	.186

* Significant at .05 level; ($\underline{p} < .05$)

** Significant at .05 level; ($\underline{p} < .01$)

*** Significant at .05 level; ($\underline{p} < .001$)

changes in mental well-being. (Change of factors are apparently more related than level of factors.) There is no pattern of significant relationships between physical fitness and mental well-being.

Comparison of Post-Treatment Levels of Group Means

The post-treatment means of the experimental groups L and S were compared separately with the means of the control group using the Dunnett method (Winer, 1962, p. 89). Further, the means and error terms were adjusted with corresponding pre-treatment means. The results are shown in Table XIV. Group L was significantly different from the control group for mental well-being (.05 level). Group S was significantly different for physical fitness (.05 level) although the mental well-being t was positive.

The post-treatment means of the L and the S groups were compared with a t -test with means adjusted with pre-treatment means. There was no significant difference in either the means of the physical fitness scores of the two groups or of the means of the general well-being scores. Based on these findings we are unable to say that the providing of a leader to organize support made any difference in the performance of the two groups.

TABLE XIV

DUNNETT t-TEST OF PHYSICAL FITNESS AND WELL-BEING MEANS
(ADJUSTED TO PRETESTS) OF GRESHAM WELLNESS PROGRAM

Statistic	Group		
	L	S	C
Adjusted Means, Well-Being	87.05	85.62	82.63
Adjusted Means, Fitness	55.68	57.10	49.20
Dunnett t			
Fitness with Control	2.05	2.50*	
Well-Being with Control	2.37*	1.46	

* Significant at .05 level

CHAPTER V

GENERALIZATION, RECOMMENDATIONS, AND FURTHER STUDY

This chapter will review the need (that led to the project) and the results, generalize from the conclusions and relationships established in Chapter IV, and make recommendations for further study in wellness programs.

Summary of the Study and Results

Need for Wellness Lifestyle

Business, education, and government leaders are advocating a change in lifestyle for Americans that they believe will lengthen and improve the quality of life. This recommendation is based on a change in the causes of death (overconsumption, stress, and lack of exercise) and a redefinition of health care (wellness: promotion and prevention, not treatment). Despite the evidence of research and a growing involvement in exercising and dieting, a majority of Americans are acting on misinformation or an ingrained lifestyle which increases the risk to their health.

Public schools can help bring about the desired wellness lifestyle by teaching principles and skills of good health and modeling appropriate behavior. Presently, typical school staffs are not properly prepared to do this. Further, the typical staff is affected by the same faults

of lifestyle as the general public, which reduces their job productivity and the cost to school districts of maintaining their health.

Study Reviewed

This study attempted to identify the elements of an effective staff development program that would motivate a school staff to teach a wellness curriculum and improve their own mental and physical health. The sample was 23% of the certified staff of 448 in a school district that had high schools, middle schools, and elementary schools. It was a volunteer group. Total staff age groups were proportionally represented, but 10% more females participated than an exact proportion and 11% more grade school teachers.

One hundred and thirty-two participants were asked to write contracts (14.8% subsequently dropped out) aimed at goals in physical fitness through exercise and nutrition, stress management, and the reduction of harmful habits. Participants were preassessed for nutritional practices, physical fitness, mental well-being, and health-related behavior. They participated in an eight-week program making weekly reports of their activities to a project director. Speakers, reading assignments, and the report form provided advocated an integrated program of exercise, nutritional practices, and stress control measures, but

participants were free to choose the exact form of the practice. Their reports indicated that walking, running and jogging, and aerobic dance were the exercises used 76% of the time. Thirty percent of the group, however, exercised below the recommended minimum level. For some, more points were earned through ways other than exercise. Posttests were given for physical fitness and mental well-being. The program treatment consisted of the assessment of health, contracting of activities, weekly reports, speakers and reading assignments, charting progress, and designated support groups. Participants ranked speakers, weekly reports, and charting as more helpful than designated support groups. They ranked lack of time and lack of personal drive as greater barriers than a lack of knowledge or facilities. A control group of 24 teachers from the same schools were proportionally matched with the total certified staff for grade level, sex, and age (slightly more older individuals were in the control). Since a general enthusiasm for wellness activities pervaded the schools, the control was for the formal program only.

Results of Hypotheses Testing

Hypotheses were tested in three general areas from which generalizations were made: (1) the effect of the twelve-week program in producing significant changes in mental and physical health; (2) relationships in the study

between behavior and health factors and relationships between mental and physical health; and (3) the effect of providing leaders for support compared to support without leaders. All hypotheses were tested at the .05 level.

The program produced significant changes in mental and physical health, whereas the informal influences on the control group produced no significant change in physical fitness and a significant change (but to a lesser degree) in mental well-being. The Dunnett t-test, that compared means of final physical and mental tests (adjusted with pretest means) showed a significant difference between the leader-led groups (Group L) and the control group for mental well-being and a significant difference for the leaderless groups (Group S) for physical fitness.

Clearly the program had a pronounced effect on the treatment groups that could not be explained by chance or by informal influences in the school, community or national environment. The significant increase in the control group in mental well-being may have been due to informal influences in a school environment where wellness was being stressed.

The second hypothesis that predicted significant relations between health-related behavior and health factors was realized between behavior level sustained for eight weeks and the mental well-being level and change. However, sustained behavior was not related to the final level of

physical fitness, nor, to the same degree, in a change in physical fitness. There was no pattern that consistently related physical fitness and mental well-being. Evidently, mental well-being was associated with the degree of involvement in the activities rather than the state of physical health.

The third hypothesis that predicted a significant effect of providing leaders to the support groups was not indicated in the knowledge, physical fitness, mental well-being test nor level of sustained behavior. They were all very much the same, well within the probability of chance. There were some advantages of management and planning but they did not result in significant changes in the dependent variables of the study.

Patterns Among Test Results

The study was centered around a staff development program performed as a college course to demonstrate the value of a model that could be used by other school districts. As a model it enjoyed several advantages that may pose limitations to others attempting to duplicate the project or to those generalizing from the data collected.

Limitations of the Study

(1) The sample was composed of volunteers and, although age, sex, and grade level were proportionally re-

presented, the sample undoubtedly was not typical for interest in the subject and in physical condition or need. Any attempt to generalize from the data should be to volunteers.

(2) The program had the advantage of excellent speakers and the help of nearby medical centers. These advantages may not be available to the same extent in all areas.

(3) The study was done at a time of growing national interest in wellness activities; newspaper and TV coverage produced a stimulation and excitement that may not always be available.

(4) The program has a large number of identifiable characteristics, each of which is variable to some degree. For example, an individual could earn a high score for health-related behavior in quite a different way than another. Yet, they both would be compared for improvement in physical fitness. This presents no problem if total physical fitness scores and total behavior scores are analyzed; sub-test scores, however, must be examined in a more speculative manner--for possible explanations or for clues to further investigation.

Physical Fitness Tests, Patterns, and Recommendations

The data support conclusions that the program was successful in changing the total fitness score, however,

not all sub-test scores were improved and those that were improved were not improved to the same degree. Several factors may account for the uneven changes.

Time Required for Change. Concern that an eight-week program (actual record-keeping period) would not be enough time to allow physical changes to occur was not true for the total score nor for strength and endurance (25% change), flexibility (10% change), and maximum oxygen consumption (6.5% change). There were marginal changes in pulse rate (less than 5%) and body weight (less than 3%). There was an actual increase in percent of body fat (5%) in all groups (including the control group).

Two logical explanations of the differing degrees of improvement in physical sub-test scores are: (1) the program strategies are not equally effective with all factors; (2) some factors are slower to change. Health literature review suggests the latter is true for body composition. Bailey (1977) wrote that some body composition reversals and blood chemistry changes take "months, perhaps years" (p. 101). It would appear, then, that strength and endurance, flexibility and oxygen consumption (aerobic health) are easier to change in programs of this nature. Programs designed to change body composition might well plan treatment periods greater than eight weeks.

Means and Distribution of Total Scores. The means

and the distribution of physical fitness total scores are better indicators of the effect of the program since all participants were striving for an increase in some aspect of the total score whereas they were not all aiming at all sub-test scores. Means of total scores differed significantly (Table XI) between pre-treatment and post-treatment measurements. The final distribution of physical fitness total scores are compared with the initial distribution using PAMC norms (see Table XV).

TABLE XV
DISTRIBUTION (PERCENT OF GROUP) OF TREATMENT GROUP
IN CATEGORIES OF PHYSICAL FITNESS

Testing	Poor	Low	Average	Good	Excellent
Pre	5	28	44	22	0
Post	1	17	42	37	3

The Gresham teachers group initially were slightly lower than the PAMC norming group. After the program there was a shift at every level toward greater health. The final percentages show the group somewhat above the norming group.

Difficulties of Fitness Measurements. Attempts were made to use the same personnel for measurements through the three days of pretesting and the three days of posttesting. Supervising personnel from PAMC and Mt. Hood Community

College Allied Health Division assisted in establishing exact procedures for each sub-test. Nevertheless, some recommendations can be made. Some physical factors (flexibility, strength, aerobic, body composition) are quite stable while others vacillate with the time of day, degree of stress immediately preceding the test, and the season (blood pressure, pulse rate). With some tests, the technique of measurements are extremely variable (skin-fold test for body fat) while others are difficult to mismanage (number of sit-ups in 60 seconds). Particular attention to the standardizing of procedures and measuring at the same time of day (and week) is more important for some tests than for others. The ill effect of errors in measuring is not only to produce a greater variation in the data but to discourage participants. A control group is very important not only to guard against seasonal changes (the weight and body fat averages increased with holidays and winter months), but also to guard against systematic mistakes in measurement (many participants were convinced that post-treatment skin-fold tests were done with a new technique).

Mental Well-Being Measurements, Distributions

Sub-tests of the GWBS were not used in the study; pre-treatment and post-treatment means (of total scores) showed significant differences at the .05 level ($p < .001$) for both treatment groups. The control group also showed a

significant increase ($p < .05$). When post-treatment GWBS means were compared, Group L was significantly different from the control group, but Group S was not. The final distribution of mental well-being scores were compared with the initial distribution by using norms accompanying the GWBS (Table XV)

TABLE XVI

DISTRIBUTION (PERCENT OF GROUP) OF TREATMENT GROUP
IN CATEGORIES OF MENTAL WELL-BEING

	Distress	Problems	Marginal	Low Positive	Positive
Pre	12	26	13	9	40
Post	3	10	6	8	73

The data reveal that, initially, less than half the Gresham teachers' sample group enjoyed positive well-being and 40% exhibited distress or problems. The post-treatment scores showed a strong movement to more positive well-being. The effect of the formal program (See Table XVI) is more accurate when compared to the similar data for the control group (Table XVII)

TABLE XVII

DISTRIBUTION (PERCENT OF GROUP) OF CONTROL GROUP
IN CATEGORIES OF MENTAL WELL-BEING

	Distress	Problems	Marginal	Low Positive	Positive
Pre	4	25	8	12	50
Post	0	17	12	9	62

There was, again, a shift to more positive well-being. Treatment groups showed a post-treatment increase in the top two categories of well being of 64%; control group, a corresponding increase of 15%. Apparently, there was a pronounced positive effect of the formal program. Whether the effect is due to specific stress control activities, improved physical fitness, or the stimulation of working on a project with a group of associates cannot be determined with these data alone. The significant improvement of the control group argues for a more general cause; the greater increase of the treatment groups argues for greater participation or increased physical fitness. To further investigate potential causal relationships, correlation coefficients were calculated (Table XIII).

Relations of Physical, Mental, and Behavioral Factors

The significant correlations between the level of sustained behavior and the final state of mental well-being indicated that those who maintained a high level of participation had a correspondingly high level of mental well-being. Sustained behavior, however, had almost zero correlation with final physical fitness levels. This suggests that persons low in fitness made a high level sustained effort but did not attain a high level of fitness. This is compatible with the significant correlation of "change in behavior" with "change in fitness". Physical

fitness and mental well-being were not significantly related. It is possible that well-being is caused by a number of factors, including physical fitness--but also participation and the excitement of a new project--and, therefore, they are not "correlated".

These may very well be only short-range effects; sustained health-related behavior, given enough time, should certainly produce physical fitness; the euphoria reported by "fit" athletes argues for that relationship. However, the results of this investigation point to a short term increase in mental well-being associated with changed and sustained behavior, not necessarily resulting in being more physically fit.

Comparison of the Treatment Groups

The t-test comparing mean scores showed no significant difference on the dependent variables of the experiment for the leader-led (Group L) and the leaderless (Group S) groups. Group S had been organized into small support groups without a designated leader; Group L were larger groups with an appointed leader. Leaders were selected by the project director on the basis of health education, leadership qualities, and demonstrated interest in the project. Most leaders organized some form of exercise groups and regular meetings. All leaders were directed to sign the weekly reports, reinforce gains, suggest solutions

to problems, and encourage sharing among group members. They were compensated for these services. Smaller support groups were asked to meet each week and to do the same things without a leader. Despite the energy and apparent good organization shown by most of the leaders, the t-test comparison of means (adjusted for pretests) showed that the accomplishments of their charges were not significantly different in any of the dependent variables of the study.

Two explanations have been offered by the management group of the project for the lack of difference in the improvements of the two experimental groups. One explanation is that other factors overshadowed the importance of the support group. Speakers, charting, weekly reporting were ranked by the participants as more important than the designated support group. Support from home and friends also was listed as more important than the designated group. While participants extolled the value of the support of the class and "others", the support was not limited to one identifiable source. Some of the more valuable support groups arose spontaneously among acquaintances in car pools, lunch companions, break-time associates, or people who daily passed in the hall. It is possible that participants should form their own support groups and not limit the membership to students in the class.

A second reason was the resourcefulness of teachers who, not being assigned a leader, were often quite capable

of sharing the leadership chores or appointing a leader of their own.

Despite the lack of significant differences in measured variables, schools with designated leaders were better organized with meetings, more coordinated with reports and contributed more to planning and management. To further test the value of a leader-led support group could be done with these changes:

1. Greater direction and training for the leaders to insure the repetition of a single procedure
2. Greater isolation of experimental groups to prevent the contamination of treatment.

Further Study

The thesis of this study is that an integrated program of nutrition, exercise, and stress control would produce significant changes in mental and physical health. Some obvious targets for further study can be suggested by narrowing the independent variables. Other suggestions arise by lengthening the time period of experimentation, and by further exploring some of the relationships and applications only tenuously shown in the present study.

Fewer Variables

(1) One of the components (nutrition, stress, or exercise) could be omitted in one treatment and the results

compared with a wholistic group's gains. Repetitions of this sort of experiment could aim at establishing the relative importance of the components of the integrated program.

(2) One of the components could be selected as the only independent variable (all else controlled) and the effects on mental and physical factors compared. (This is contrary to the wholistic thesis but has the advantage of specificity.)

Longer Time Period

The changes in lifestyle that would reduce health risks can only be hypothesized for the individuals that sustained a twelve-week program. Sustaining a program for a longer period of time would be more convincing. Further, some of the purported benefits of an integrated exercise-nutrition program (e.g., body fat composition) were not realized in the short time period. Mental well-being gains seem to be related more to the change in behavior than to any improved level of physical fitness. This, too, may be a short range effect.

Mind/Body Connection

The experiences of participants in exercise programs currently being promulgated by speakers and the press suggest a greater relationship between the improvement of mind, and body than the data of this study will support. How-

ever, other factors may have obscured the importance of this connection in the short-term program.

Another aspect of the mind/body connection is the negative effect of extolling the athletic image to individuals who may have inherited a "set point" (Tucker, 1982) that tends to return body weight to a predetermined (overweight) status despite dieting efforts. It may be more important for a person's mental health to accept a reasonable present health level than striving for higher levels that are very difficult, if not impossible, to attain.

Combatting Burnout

Although the causes for the improvement of mental well-being are not clear from the study, there was a dramatic improvement in the experimental groups and a significant change in the control group on the GWBS. Unsolicited comments from participants described the excitement of a group project and the gratitude of a district supported program aimed at their personal welfare. Public displays of progress charts, common testing and exercising groups, as many as two hundred people at meetings where testimonials, sharing, and good input programs brought people together in an agreeable environment for a definite purpose. These factors may have been more important to the mental health of the staff than the subjects that were the targets of program.

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APPENDIX A

Awareness Inservice for
Gresham Wellness Program

WELCOME TO GRESHAM-BARLOW INSERVICE

September 28, 1982

Today's program is designed to acquaint you with ways to improve your own health and the health of your students...and...to renew acquaintances among the 325 staff members of our district.

After lunch and listening to our keynote speaker, Len Tritsch, we invite you to visit the following displays and events in the gym:

Exhibitors

HOLIDAY PARK HOSPITAL - Stress materials - Mickey Clarizio
 OREGON LUNG ASSOC. - Joseph Weller
 MHCC - Recreation and classes - Johnnie Stokes
 BLUE CROSS - Pamphlets and materials
 AMERICAN HEART ASSOC. - Marcie Jeans
 AMERICAN CANCER SOCIETY - Cathy Rowland
 GRESHAM HOSPITAL - Nutrition - Jodie
 DANCERCIZE - Judy Reynolds
 AEROBIC DANCE - Barbara Nemenchek
 JAZZERCIZE - Chris Noga
 MINI TRAMPOLINE - Jeannie Burgess
 OREGON DIABETES ASSOC.

Main Stage Demonstrations

DANCERCIZE - Judy Reynolds
 JAZZERCIZE - Chris Noga
 AEROBIC DANCE - Barbara Nemenchek
 EUROPEAN HEALTH SPA
 MINI TRAMPOLINE - Jeannie Burgess

Activity Stations

MHCC FITNESS MEASUREMENT - Dr. Jeff Rheum
 P.A.M.C TESTING - Mr. Burden and Dr. Hall
 GRESHAM COURT CLUB - Scott Schaffer
 EUROPEAN HEALTH SPA
 HIGH SCHOOL TEAM
 Sam & Guy - Strength Measurement
 Sue & Gary - Fat Measurement
 Sharon - Heart rate
 Debbie & Kelly - Blood pressure
 WELLNESS CLASS REGISTRATION - Wink Chilton
 Rose Lowes

Use this space to record
your measurements!

Your lung capacity	_____
Skinfolds	_____
Your heart rate	_____
Your blood pressure	_____
Strength of grip	_____
Number of "curls"	_____
Other:	_____

APPENDIX B

Timelines for Gresham Wellness Program

Timeline and Resources for Wellness Program - 1982-83

- Prior to September 1 - Verbal announcements at elementary staff meetings.
 Newsletter to elementary staff
 Approval and arrangements for course and inservice.
- September - Weekly meetings to plan elementary and high school inservices.
- September 22 - All school inservice, elementary schools.
- September 30 - All school inservice, high schools.
- October 4-8 - Physical fitness tests, inventories for course participants.
- October 11 - General meeting #1 - Report of Test Results.
 Adventist Hospital staff.
- October 18 - Treatment Groups (L,G,S) meet for instructions.
- October 25 - Physical Fitness and Nutrition (ala Covert Bailey)
-Len Tritsch
- Treatment Begins - Week 1
- November 1 - Treatment Week #2
- November 8 -- Nutrition -- Jane Abbott
- Treatment Week #3
- November 15 - Treatment Week #4
- November 22 - Motivation and Charting - Vic Stevens
- Treatment Week #5
- November 29 - Treatment week #6
- December 6 - Stress Management and Expectations - Sterling Ellsworth
- Treatment Week #7
- December 13 - Treatment Week #8
- December 14-17 - Final Physical Fitness Testing
- December 20 - Final Written testing and inventories, journals due.

APPENDIX C

Directions for Developing a Plan for Gresham Wellness Program

WELLNESS FOR THE SCHOOL STAFF

Developing a Plan of Action
(For the eight week's program)

By October 17, 1982 you should have developed a plan of action that you can maintain through December 12 (8 weeks.)

Here are suggestions that we hope you will follow in developing your plan.

1. Goal setting and Planning

- A. Read chapter 2 in Planning for Wellness, 1982. This is the self-management format we will follow in this course.
- B. Two goals that we are requiring in the course are:
 - (1) aerobic exercising as described by Covert Bailey in Fit or Fat.
 - (2) following the U.S. DHEW dietary guidelines, handout copy provided.
 - (3) you should also set additional goals based on your own health needs. (Results of the tests and surveys will be returned on October 11.)
- C. By the end of the course we hope you will have added goals in all five areas of wellness (Tager and Ardell, p. 7) but you can add some as you go along.

Complete a Contract (Tager and Ardell, p. 185), extra copies provided, suitable for sharing with others.

2. Weekly planning and reporting.

- A. As you do the suggested reading and hear the speakers you may add new goals and strategies. Therefore, you are encouraged to reaffirm your plan or alter it each Sunday and start new weeks on Mondays. Discuss any changes with your group or leader. (Do not fill out a new form.)
- B. Keep any records or charts that you wish for yourself. Share these with your leader or group but you don't need to hand them in.

C. Submit a weekly report on the form provided on Mondays to your leader or to the project director. Please have the report signed by the leader or two other group members to show that it has been discussed. First report due is contract on October 18; then, regular report each Monday.

3. Group Support

- (a) A major contention of health promotion authorities is that people need the support of others to maintain a health program. Therefore, the class will test the value of two types of support; small group or teacher-led. Each school will have one or the other organization.
- (b) Teacher-led participants will submit goals and plans of action to their teacher who will reinforce successes and assist with changes. Weekly reports will be submitted to the teacher-leader. If possible, group meetings of those in a school should occur once a week.
- (c) Self-help groups should meet once each week to share experiences, reinforce successes and alter plans, if necessary or desired. It is hoped these meetings can be right after or just before school for convenience of the individuals.

Summary of Course Activities

- Oct. 4-10 - Set individual goals in exercise and nutrition.
- Oct. 11 - Receive reports from PAMC, 4:45-7:00, Dexter McCarty School
- Oct. 11-15 - Develop a plan of action, meet with small group or leader for approval.
- Oct. 18 - Attend Victor Stevens presentation, 4:45-7:00; Submit contract to leader or project director.
- Oct. 18-
Dec. 13 - Maintain 8 weeks program, meeting once each week with support group or leader; submit weekly report each Monday based on Monday through Sunday week.

Attend speakers and receive handouts and assignments on these dates.

- October 25 - Physical Fitness - Len Tritsch
- November 8 - Nutrition - Jane Abbott
- November 22 - Harmful Habits - Mark Miller
- December 6 - Stress Management - Sterling Ellsworth
-
- December 13 - Final test on text assignments and speakers.
Fill out stress inventory.
Final weekly report.
- December 14, 15, 16 - Repeat of fitness tests
-
- February 21-25 - Follow up fitness tests, stress and behavior inventories.

APPENDIX D

Sample Letter to Speakers for Gresham Wellness Program

GRESHAM SCHOOL DISTRICTS

1333 NW EASTMAN
P.O. BOX 655
GRESHAM, OR. 97030
661-3000
James M. Jenkins, Superintendent

October 27, 1982

Jane Abbott
P.O. Box 505
Portland, Oregon 97207

Dear Ms. Abbott,

Enclosed you will find several papers that have been given to the staff that you will address on November 8. (4:45 at McCarty Middle School).

Please note that the group has a nutritional profile from the Adventist Center, copies of Dietary Guidelines for Americans (assigned reading), and have heard Don Hall, Vic Stevens and Len Tritsch. The 150 participants will be finishing their third week of an eight week fitness-nutrition program. We are attempting to provide Ardell and Tager's 5 aspects of self-management, Self-Responsibility (Vic Stevens), Physical Fitness (Len Tritsch), Nutrition (Jane Abbott), Environment (Mark Miller) and Stress (Sterling Ellsworth). Also, we are stressing the holistic approach.

We have an enthusiastic group composed mostly of beginners organized into support groups. If you need projectors or other equipment, please let me know. We are looking forward to you visit.

Yours truly,



W. R. Chilton
Director Staff Development

WRC/rvl

APPENDIX E

Health Behavior Weekly Reports for Gresham Wellness Program



Health Behavior Practices

Physical Fitness

Name _____

- _____ 1,2,3, Performed aerobic exercise achieving, but not exceeding your personal target heart rate for 20 minutes or more.

0	3	6	9	12	15
none	one day	two days	three days	four days	five days

Name type of exercise: aerobic dancing, walking, jogging, other:

- _____ 4. Performed stretching and flexibility exercises especially before any vigorous exercise.

0	1	2	3	4	5
none	one day	two days	three days	four days	five days

- _____ 5. Performed strength-building or endurance exercises (such as sit-ups, leg lifts, push-ups or other, according to personal need).

0	1	2	3	4	5
none	one day	two days	three days	four days	five days

Nutritional Practices

0	1	2	3	4	5
two days or less	three days	four days	five days	six days	every day

- _____ 6. Ate good breakfast
- _____ 7. Ate a variety of foods each day; such as, fruits and vegetables, whole-grain breads and cereals, lean meats, dairy products, dry peas and beans and nuts and seeds.
- _____ 8. Limited the amount of saturated fat and cholesterol (fat on meat, eggs, butter, cream shortenings and liver).
- _____ 9. Limited the amount of salt by cooking with small amounts, not adding salt at the table and avoiding salty snacks.
- _____ 10. Limited the intake of sugar (candy, soft drinks, desserts or adding sugar to cereal).

Stress Management (use same scale with 11-14)

0	1	2	3	4	5
none	one day	two days	three days	four days	five days

- ____ 11. Found enjoyment and satisfaction in your job.
- ____ 12. Participated in relaxing time activities such as: sports, walks, dancing, reading or aerobic exercise.
- ____ 13. Discussed days events or any stressful matters with friends, family members or associates.
- ____ 14. Found a quiet time of one-half hour or more to meditate, reflect, or practice special exercises such as breathing, guided imagery or meditation.

Harmful Habits

- ____ 15. Didn't Smoke

0	1	2	3	4	5
more than 1 pack/day	less than one pack/day	fewer than 15 cig./day	fewer than 10 cig./day	fewer than 5 cig./day	not at all

- ____ 16. Limited drinking to two drinks or less per day

0	1	2	3	4	5
2 days or less	3 days	4 days	5 days	6 days	every day

Use the same scale for 17-20

0	1	2	2	4	5
not at all	seldom	infrequently	$\frac{1}{2}$ time	usually	all the time

- ____ 17. Avoided use of drugs (including sleeping pills, cafferine, tranquilizers) except as specifically prescribed for a short duration.
- ____ 18. Fastened safety belts and asked other passengers in your car to do the same.

Self Responsibility

- ____ 19. Recorded health behavior on charts or checklists or notes.
- ____ 20. Rewarded yourself for achieving goals as stated (or making significant progress toward goals).

Major Barriers this week
to maintaining progress

Major help this week to
maintaining program

Support from other people
(if any) came from:

APPENDIX F

Sample Letter to Participants of the Gresham Wellness Program

TO: Wellness class members
 FROM: Wink Chilton *WRC*
 DATE: November 15, 1982

***** This strip from "Shoe" may summarize for you our last two speakers. (There was excellent attendance for Jane Abbott's presentation and some nutrition handouts for those of you who weren't there).



***** Available to you for small group meetings (or individually) are audio tapes of Jane's presentation and VTR of Covert Bailey - the author of Fit or Fat; call Rose Lowes.

***** Mark Miller will speak on November 22 as scheduled. (4:45, McCarty Commons). He is reputed to be a "hard-hitting" speaker who is straight-forward about use of drugs of all kinds including caffeine and alcohol.

***** If you have not sent in Report #4, please do so. Ninety percent of reports were in on time last week. Thank You! Attendance is close to 150 members per session. Everywhere people are exercising, talking about nutrition, and attempting to reduce stress. We are doing well! Four more weeks until we measure the results.

APPENDIX G

Consent for Experimental Use of Data
Gresham Wellness Program

Consent for pre-, post, and follow-up testing

I understand that the physical fitness tests, nutritional intake inventory, General Well-Being questionnaire, and weekly reports of health practices will be used in a research project that will test the effectiveness of the program.

I understand that I will receive a copy of the analyses of my personal data and that the project director will have a copy which he will keep in confidence. No names will be used in any published study. I will share information with teachers and other class participants only as I choose to do so.

Signature _____

Date _____