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Research on Health Promotion: Evaluation of a Health Seminar

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RESEARCH ON HEALTH PROMOTION:

EVALUATION OF A HEALTH SEMINAR

by

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LIFE

The author, Christine Ovcharchyn Devitt, is the daughter of Dmytro Ovcharchyn and Stephanie (Brudny) Ovcharchyn. She was born January 12, 1954, in Chicago, Illinois.

Her elementary education was obtained in the public school of Chicago, Illinois, and secondary education at Gage Park High School in Chicago, where she graduated in 1971.

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In September, 1978 she was granted an assistantship in applied social psychology at Loyola University. In October, 1980, she was married to Thomas J. Devitt of Chicago, Illinois. While attending graduate studies at Loyola, she was also a consultant to Westinghouse Evaluation Institute of Evanston (1980-81), Harris Trust & Savings Bank (1981-1983), and is now a research analyst for the Illinois Criminal Justice Information Authority.

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CHAPTER I

INTRODUCTION

There is a growing crisis in the field of medicine today. Despite a vast increase in health care expenditures and greater accessibility of care for a majority of the population, American health status with respect to illness, disability, and premature death shows little, if any, improvement (Task Force on Preventive Medicine, 1976). On the other hand, the latest statistics show that health costs now account for nine percent of the GNP, with total expenditures of $212.2 billion dollars, as opposed to $100 billion in 1976 (Health Care Financing, 1980). Why, then, has Americans' health failed to show a proportional improvement?

A look at the major causes of morbidity and mortality reveals that they are primarily related to lifestyle, or behavior affecting health, rather than infectious diseases, as was the case in previous centuries. The major causes of chronic illness and death in the United States (cardiovascular diseases, cancer, cirrhosis of the liver, accidents, suicide, and homocide) have been clearly linked to the social ecology of industrial life (Monthly Vital Statistics, 1975). Heart disease has been linked to diet, cigarette smoking, and particular types of stress and strain, such as occupational stress and Type A behavior (Rosenman et al.,1975). The presence of stressful life

events has been tied to illness onset, as have uncontrollable noise, crowding, and other stresses of urban life (Dowrenwend & Dowrenwend, 1974; Glass & Singer, 1972). Of these major causes of illness and death, however, only the first three mentioned above are being directly treated by the present health care system, and then, usually only after the diseases have progressed to the stage of debilitating symptoms (Task Force on Preventive Medicine, 1976). In light of these facts, it is not difficult to understand the lack of improvement in the health status among Americans.

A central factor in the failure of the medical profession to effect a net decline in the mortality and morbidity rates is that it is primarily a <u>disease</u> care, rather than <u>health</u> care system (Kristein, Arnold, & Wydner, 1977). The former approach places an emphasis on individual pathology and assumes that the physician must take an active role in the healing process, while the holistic approach emphasizes the body's natural healing abilities which should be allowed to operate without unnecessary interference (Stone, 1979). The trend toward focusing on the acute illness episode has been further accelerated by the dramatic breakthroughs in chemotherapy and advanced surgical procedures which has created even greater demand for professional intervention (Task Force on Preventive Medicine, 1976).

However, the treatment of sick <u>individuals</u> has not been demonstrated to have any significant effects on the health levels of an

entire population, despite a strong popular belief to the contrary (Jonas, 1979). Instead, as McKeown (1976) points out, historical evidence clearly shows that it is prevention, rather than treatment, that has been the major factor in improving health levels since the beginning of the eighteenth century. He cites three central phenomena that account for most of this improvement: 1) better nutrition through increased availability and distribution of food, 2) better sanitation, and 3) at the turn of this century, effective immunization against devasting infectious diseases.

The unprecedented rise in discretionary income in the last twenty years has produced changes in lifestyle that have also strongly influenced health habits and health status of Americans. This time, however, the changes wrought are not all for the better. It appears that the relationship between availability of life's necessities and good health is actually curvilinear, in that too much of a good thing can be as harmful as an insufficient amount. The sting of affluence is being felt by hundreds of thousands who are now afflicted by the consequences of cigarette smoking, overeating, excessive drinking, and overmedication. To compound the problem, the continuing focus in medicine toward treatment of acute illness has lead to a shift of responsibility for health from the individual, where it has historically rested, to the authority of the medical profession. For the majority, the pursuit of health now is largely constituted of seeking adequate health insurance, access to a physician, and perhaps an

annual check-up (Task Force on Preventive Medicine, 1976).

Fortunately, there does exist a new movement within the medical field that is concerned with reversing these trends and creating renewed interest in prevention, health education, and increased consumer responsibility. As Green (1979) defines it, this new field of health promotion (popularly referred to as the "wellness movement") includes health education, and related organizational, political, and economic interventions that are designed to facilitate behavioral and environmental changes to improve health.

This definition encompasses two interrelated levels of intervention: 1) primary prevention that focuses on education of the individual to protect himself, and 2) managerial prevention, or the control of health risks through environmental management rather than by personal behavior (Kristein et al., 1977). In this way, it is recognized that changes are necessary not only at the individual level, but also within the social-political mileau which currently sanctions, and even encourages, the use of the very same self-destructive substances that health providers are attempting to control. Unfortunately, managerial prevention has been very difficult to institute, primarily because there is no meaningful national policy on health promotion that can resolve the inconsistent federal policies that abound in this area (e.g., the allocation of funds to preventive health programs while substantial subsidies are paid to produce the very commodities that are causing the diseases being fought) (Task

Force on Preventive Medicine, 1976). Thus, the field of health promotion is, in practice, concerned primarily with individual health education at this stage in its development, in hopes of creating the public awareness needed to enact effective legislation.

A myriad of programs have sprung up around the country that can be categorized under the rubric of health promotion. Based on some combination of preventive measures identified by epidemiologists and behavioral scientists, they all propose to accomplish an improvement in health status, both in terms of proper physiological functioning, and psychological well being. According to Baranowski (1981), a holistic approach that combines both the biological well-functioning which provides the body with the physical capacity to fulfill higher order tasks (health), and the capability of the person to fulfill personal goals and perform socially defined role tasks (wellness) is necessary to achieve any long lasting effects; each of these aspects alone is insufficient. Further, as defined by the Task Force on Preventive Medicine (1976), these health promotion programs seek to provide the necessary information to help prevent illness to the fullest extent possible, to maintain well being in the face of existing disability, and bring about necessary modification in individual lifestyle or behavior.

Efforts in health promotion have been identified in many diverse settings. The Task Force on Preventive Medicine (1976) has constructed a taxonomy of such programs, based on their primary

target audience. Several categories have been established, as follows:

Patient education in health care institutions: These programs target those who have a diagnosed health problem, usually chronic in nature. The emphasis is on education and self-help techniques that will motivate compliance with necessary medical regimens. Programs can vary from informal one-to-one basis by physicians or nurses to highly structured, disease specific classes.

School health education: These programs are targeted toward the child during the impressionable years when most health habits are established, and when the foundations of many chronic illnesses are laid. Most states mandate some form of health education instruction; however, the quality and quantity of these efforts vary widely, due to lack of adequate funds, a narrow definition of the appropriate content for these programs, and a shortage of adequate trained educators.

Occupational safety and employee health: This category encompasses two distinct types of programs found in the occupational setting. The first of these are programs aimed at detecting hazards on the job, and educating employees in safety procedures and their rights to protection from toxic physical agents. The second category of occupational programs is targeted toward general health promotion among employees, generally in the form of seminars geared toward

specific health problems (e.g., smoking, improper nutrition, exercise) that results from employees' lifestyle, on and off the job. The assumption is that such programs to improve employees' well being will ultimately result in increased productivity and less absenteeism.

Community health programs: These are local programs, operated usually on a small scale, aimed at identifying individuals at risk, in order to make them aware of those risks and preventive measures they can take before and after the occurrence of any symptoms. Some of these programs are of the same variety as might be found in occupational settings under the rubric of general health promotion; these are usually sponsored by a hospital or YMCA, and become offshoots of patient education programs. Other community programs consist mainly of screening for common chronic diseases (e.g., diabetes, hypertension, etc.). Many low-income communities are beginning to establish Health Facilitator Programs that serve as a community based liason between consumers and professional health care providers and also as coordinator of the various community health programs in the area.

National health and health-related agency programs: These programs can be categorized into one of two "Types," as in the work of Tracy and Gussow (1976). Both categories operate on a national level, with the distinction that Type

I (self-help) groups play a direct rehabilitative, supportive role in the long-term care of patients, while Type II groups are organized to accomplish primarily managerial health prevention, through fund-raising, promotion of biomedical research, and legislative activities.

The media: A 1971 Harris poll found that 20% of the American people receive most of their health and medical "information" from TV advertising, 28% from newspaper medical columns, 26% from magazines, and 25% from TV medical news. The media as sources of information, were exceeded only by doctors, who, in turn, were named only by 51% (Task Force on Preventive Medicine, 1976, p. 39). The potential for consumer health education is tremendous; however, a 1970 survey of one commercial TV network channel reported that 70% of the information offered was inaccurate or misleading, particularly those associated with commercial products (Smith, Trivax, & Zuehlke, 1972). Truth in advertising legislation has reduced some of this misleading information, particularly in children's programming. In addition, there has been a marked increase in the number and quality of TV medical documentaries and news programs dealing with health issues, along with a few attempts at health intervention via the media (e.g., maintainance of smoking cessation).

Self-Help aids: Closely allied to health promotion efforts through the communication media is the recent proliferation

> of books, magazines, and do-it yourself diagnostic kits that have been produced in respose to the renewed consumer interest in preventive health measures. By far, such aids constitute the majority of efforts toward health improvement on the part of the populace, as 95% of those who successfully lose weight or stop smoking do so without any formal intervention (Vickery, 1977).

From the taxonomy of health promotion programs discussed above, it is indeed evident that the majority of efforts in this field are some form of organized educational activity, with much less effort in managerial prevention through political and social change. It would also appear that most of the credit for any improvement in health status in the past decade must be given to individuals acting independently of most of these formal health programs (Vickery, 1977). In order to understand why the health educational approach has had such limited effectiveness to date, the chapter that follows will present issues and dilemmas that are unique to the process of behavior change via primary (i.e., educational) intervention.

CHAPTER II

ISSUES IN BEHAVIOR CHANGE

The growing evidence that detrimental lifestyle patterns and daily health habits are causally linked to the development of major chronic diseases has spurred the development of preventive health programs aimed at modifying maladaptive behaviors into habits that will prolong physical and emotional well being. As Haggerty (1977) flatly states, however, the evidence of success in this area is modest, at best. The control of self-destructive behavior has been found to be very difficult, in that much this behavior is not accompanied by unpleasant symptoms in the early stages, and further, may even bring benefits to the individual, in the form of social approval or release of tension (Henderson, Hall, & Lipton, 1979). Changing an individual's lifestyle is even more difficult when the value of health is a low priority because it conflicts with, or fails to accommodate conveniently to the pursuit of other social values, such as wealth, power, or acceptance (Haggerty, 1977). In addition, there are many powerful environmental factors operating in our society to reinforce unhealthy behaviors, much of which are beyond the control (and perhaps the conscious awareness) of the individual (Moser, 1974).

Rational Model of Behavior Change

The complexity and intractability of this problem has given rise

to several models of human behavior, each of which emphasizes different views of man and suggests different intervention strategies. The most influential is the rational model, derived from the 18th century view of man as guided by objective, logical thought processes, such that merely providing the information about the health risks of certain behaviors and the health protective quality of others should be sufficient to motivate people to modify their behavior appropriately (Henderson et al., 1979). A majority of health programs rely on this rational approach; unfortunately, both large-scale information campaigns and small-scale controlled studies have demonstrated that an information-only treatment is generally not a very effective means of behavior change (Henderson & Myer, 1972). This is primarily due to an oversimplification of the change process in dealing only with an individual's cognitions, to the exclusion of evaluative, affective, and behavioral components that are equally important.

Refinements of the basic rational model of behavior change acknowledge that motivation is a key variable in behavior change. Motivation is defined as an internal determinant of behavior that intervenes between environmental events and actual behavior (Hunt, 1973). Motivation theory further stresses that the needs of the individual will influence how information from the environment is perceived, and that behavior will be more greatly influenced by those motives having the greatest relevance for the individual at that moment in time.

Health Belief Model

A variant of the rational model that has been widely adopted by workers in the health field is the Health Belief Model, developed by Becker (1974), Rosenstock (1974), and other colleagues. This model improves upon the rational model in that it identifies several types of information that may influence health behavior. More specifically, it states that an individual should be most likely to take action to avoid disease if he believes that 1) he is personally susceptible to the disease, 2) that the occurrence of disease would have serious detrimental effects, and 3) that the proposed preventive action would be efficacious in reducing susceptibility or severity of the disease. However, this proposed corrective action must not be perceived as entailing psychological barriers (i.e., lead to cost, inconvenience, or pain) that would outweigh the perceived benefit of the alternative behavior. In addition, two mediating variables are proposed to affect the beliefs that lead to behavioral performance: 1) the individual's general health motivation, or the desire to maintain a positive state of health, and 2) behavioral cues that "trigger" health related action. These cues need not be health related; often they are immediate rewards and punishments, rather than considerations of possible or probable long term consequences of the behavior (Becker, 1974).

The Health Belief Model is an improvement over the general rational model, in that it includes many more variables and specifies their relationship to one another, and to health related behavioral

outcomes. However, it has generated little research designed to directly test its propositions. Although retrospective studies on health behavior have demonstrated results in the expected direction (Becker & Maiman, 1975), studies done prospectively have produced inconsistent findings. This suggests that health beliefs may actually result from, rather than cause changes in health behavior (Taylor, 1980.

Fisbein and Ajzen Model of Behavior Change

Another approach to understanding behavior change is taken from attitude theory, which provides a model of the multidimensional processes involved in thought and action, based on cognitive, affective, and behavioral components (Rokeach, 1967). One such model that has been found to be fairly accurate in the prediction of overt behavior, was formulated by Fishbein and Ajzen (1975). According to this model, the best predictor of behavior is the intention to actually perform that behavior. This intention is theorized to be determined by 1) an individual's beliefs about the consequences of performing the behavior and the value these consequences have for the individual, and 2) his beliefs about what significant others in his life think he should do, along with his motivation to comply with these norms.

This model differs from the Health Belief Model in viewing a person's intention as the intervening variable between beliefs and overt action; the Health Belief Model does not formally incorporate the construct of intentions, but rather emphasizes the individual's

beliefs regarding the possibility of adversive outcomes (disease) and his evaluation of the alternative behaviors available. Second, Fishbein and Ajzen's model recognizes the possible importance of social norms as a determinant of health intentions, while the Health Belief Model does not include these specific environmental factors. Conversely, the Health Belief Model explicitly includes the specific beliefs of perceived susceptibility and severity of disease, while Fishbein's model remains content free (in that it can be applied to predict any behavior), and, as such, would consider these two beliefs to influence health related behavioral intentions.

It is recognized that certain factors can influence whether or not a person's intentions will actually correspond to his overt behavior (Fishbein & Ajzen, 1975). The most important of these mediators are: 1) the time interval between the measure of intention and the observation of behavior, in that there is an increased likelihood that some event has occurred during that time period that has altered the intention, or has made the performance of the intended behavior impossible, 2) exposure to new information between the time of intention formation and actual behavior, which also may cause an individual to alter that intention, 3) the number of intervening behaviors that must be performed to reach the intended behavior, in that the more complex the chain of behaviors is, and the more such a chain is invariantly ordered, the less likely it is that the last, intended, behavior will be successfully performed, 4) whether the individual actually possesses the ability to perform the intended act, 5) memory

factors, including whether the individual remembers the intention to perform the behavior when the opportunity arises, and 6) the strength of previous habits (i.e., highly overlearned behaviors) that may cause the person to automatically perform those behaviors, rather than the intended ones. Any one of these intervening factors may inhibit the performance of an intended act, and thus should be emphasized in any program that seeks to alter behavior.

Social Learning Theory

Another approach to behavior change that is not based on the rational model of human behavior is a model derived from Social Learning Theory, as formulated by Bandura (1969; 1977). Briefly, social learning emphasizes that behavior is influenced by its consequences, but that external outcomes are not the only determinant, as earlier learning theories held (c.f. Skinner, 1969). Instead, the mechanisms of learning are expanded to include the effects of modeling, or learning through the imitation of others, and also a concept of reinforcement based on subjective expectations that the future consequences of one's behavior will be positive. In this way, contingencies of behavior can be under the control of the individual, rather than strictly external forces. On the other hand, social learning theory also emphasizes the importance of the social reinforcing properties of other people, which can be so powerful that even vicarious reinforcement experienced as a result of observing another person receive approval or disapproval has been found to have a profound influence on the behavior of the observer (Bandura, 1969).

According to this model of behavior, individuals engage in self-destructive behavior because they have learned through observation of adult or peer models (in the proximity of the observer or via the media), that this behavior is socially acceptable.

Once the behavior becomes part of the individual's repertoire of actions, it is then maintained by its intrinsic rewards, or by social reinforcement. It can however, be altered by reducing its reward value at the same time that a new behavior is introduced that has a higher reward value, via selective reinforcement and modeling. Models have been shown to be particularly effective in inducing new actions if they further enhance the change process by providing chances to practice the new behaviors with concomitant social reinforcement (Bandura, 1977).

The social learning approach to intervention in self-destructive behavior is focused on one behavior at a time, and is usually specified in terms of 1) outcome goals set by the individual, and sequenced objectives that break down the goals into individual target behaviors, 2) a behavioral analysis of the conditions under which a given response occurs, 3) rewards and punishments that will be selectively received, 4) feedback and evaluation of the success of the program, and 5) revision of the goal activities or rewards used, based on the evaluation of the program (Henderson et al., 1979).

Programs based on social learning theory have met with moderate success in changing behavior, at least in the short term (Stuart, 1977).

However, as Haggert (1977) points out, most of the studies done using this model have treated highly motivated subjects, such as those with distressing symptoms. These results cannot be generalized to the majority of the population who are not already motivated to take some ameliorative action, and who are presently enjoying considerable reinforcement of behavior that may lead to chronic diseases in the future. In addition, most of these studies are conducted over the course of a relatively short period of time, while most health behavior needs to be a lifetime endeavor to avoid illness. (This problem of long-term maintainance will be discussed further in a subsequent chapter.) Lastly, the methodology required by the social learning approach, as outlined above, requires meticulous adherence to be successful; few health professionals are adequately trained to carry them out. On the other hand, social reinforcement and group dynamics have been found to be more effective in modifying some forms of health behavior than the efforts of an individual therapist (Haggerty, 1977).

The theories of behavior change discussed in this chapter suggest several key factors that must be incorporated into any health education program that seeks to modify health behavior. The mere presentation of appropriate information is not sufficient to induce behavior change, particularly behaviors that are highly reinforced by the existing social mileau. Individuals must first be motivated to alter self-destructive behavior, and must be provided with alternative actions that will also be valued. In addition, social support of the newly adopted behavior is crucial to its being performed on a continuous

basis after the formal program is terminated.

As important as these basic tenets of behavior change are, the field of health promotion faces other unique dilemmas that must be considered in the development and accurate evaluation of an effective health program. These are the focus of the following chapter.

CHAPTER III

ISSUES IN THE DEVELOPMENT OF HEALTH PROMOTION PROGRAMS

According to leaders in the field, the health promotion movement is in a state of transition (Task Force on Preventive Medicine, 1976). On the positive side is the tremendous vitality associated with the field, as reflected by the variety of programs being conducted, the multiplicity of professions and occupations now involved in some facet of health promotion, and the growing amount of serious research and evaluation in progress. On the other hand, there are many shortcomings to be recognized and corrected. As identified by the Task Force on Preventive Medicine (1976), important factors are: 1) the lack of agreement as to goals, definitions, and methodologies, 2) the vast array of fragmented, uncoordinated, and often redundant programs in some communities alongside an almost total absence of programs in others, 3) inadequate number of trained program implementers, and 4) numerous difficulties with respect to research and evaluation. As Green (1977) further states, many of these problems stem from the lack of a cumulative body of literature based on actual programmatic experiences. Without this, the field will continue to produce ineffective attempts at health intervention via rigorously defined but trivial programs, or significant approaches

that are too vaguely defined to be replicated.

A basic problem that has hampered the development of the health promotion field is the lack of consensus on major health issues. At the present time, there is still considerable ambiguity as to the efficacy of commended health practices in actually preventing illness; almost every major public health education effort by one group is accompanied by a chorus of dissent from others, such that differences on the value of regular exercise, annual physical exams, and even vitamins provide justification for those who prefer to put off such preventive measures (Task Force on Preventive Medicine, 1976). One reason that is often cited for this lack of consensus is the traditional attitude in the medical profession of omniscience of the physician; it requires the consumer-patient to accept, on faith, the prescribed health activities (Somers, 1976). Such an attitude not only implicitly demands that the health program implementer be responsible for the effectiveness of the basic preventive and treatment activities which the program is endorsing as well as his own educational theories and techniques, but also precludes an investigation of preventive activities produced by the consumer in his daily life (Harris & Guten, 1979). Thus, as Podell (1975) concludes, any assessment of the effectiveness of a preventive health program should be prefaced by an evaluation of the recommendations and practices used to determine the substantive goals of the program, as these two components are inextricably linked.

Health professionals seeking to develop successful preventive health programs must also consider several issues unique to the field of health education, over and above the general issues of how to stimulate behavior change previously discussed. As identified by Henderson et al (1979) and Haggerty (1977), the most important factors to be considered in program design are: 1) individual variability, 2) premature termination, 3) long-term maintainance, and 4) generalizability of results, all of which appear to be influenced by personological and demographic characteristics.

Individual Variability

As Henderson et al (1979) points out, the question of individual variability (i.e., that the same treatment does not have equal impact on all participants), is one of the greatest challenges to designers of health programs. However, exploration of this variability and attempts to specify effective predictor variables have generally not yielded any clinically significant findings. Somewhat disheartening are the findings that such potentially modifiable social-psychological variables as health beliefs, knowledge of illness, perceived vulnerability, readiness to seek care, and group support, have been consistently found to correlate only marginally with health behavior (Haggerty, 1977).

Several dispositional factors within the program participant have been found to be more predictive of health behavior; however, these factors are also less amenable to modification. One of the

most important of these is current health status of the individual (Lerner, 1973). Not only does level of health put a limit on the amount of behavior change that will be possible for an individual (e.g., persons with debilitating symptoms may not be sufficiently mobile to alter their life styles, or may be taking drugs that adversely affect eating, sleeping, or even thought processes), but it is also a major factor in the amount of motivation for change with which the person enters any health program. In addition, this variable of health status is important in measuring the impact of health promotion programs; programs targeted at those with poor health status will need to be more intensive and last longer than those aimed at participants who currently are in good health. Problems in accurately evaluating a health program in which the health status of participants is not homogeneous, and problems encountered in utilizing change in health status as a measure of program effectiveness will be discussed later in this chapter.

A second personologic variable that may contribute to individual variability in program impact is the degree to which participants are prone toward Type A coronary behavior. This behavior pattern is characterized by extremes of competitive striving, impatience, easily aroused anger, and a sense of time urgency. The other end of the continuum, labeled as Type B behavior, is defined as the relative absence of these characteristics (Friedman & Rosenman, 1974). Type A behavior is important, as it has been implicated in the etiology of coronary heart disease, over and above the contribution of more

traditional risk factors, such as smoking and diet (Jenkins, 1971). It is also important in the context of compliance with health programs that seek to change behavior, in that Type A behavior has been found to be very resistant to change; the Type A individuals tend to suppress subjective feelings of discomfort (e.g., fatigue) in order to achieve goals that will confer additional status upon them (Glass, 1977; Williams, 1975). Therefore, it is reasonable to assume that Type A individuals will be less likely to adopt behavior changes that may result in a lowering of status; conversely, Type A individuals who are motivated to change their behavior (such as those who have already experienced a heart attack), may attempt to enter a health program in such a competitive fashion as to further endanger their health (Gentry, 1975).

A third personologic variable that has received considerable attention is whether a general perception that one has control over one's own health is related to adoption of certain health behaviors. This construct, developed by Wallston and her colleagues (1977), is termed health locus of control (HLOC) and is built upon the work of Rotter (1966) on a general concept of perceived control in all areas of one's life. Previous research in this area had found that more generalized I-E scales were of little use in predicting specific health-related action (Strickland, 1973). The original HLOC scale was designed to yield a single score to indicate the degree to which respondents felt internal factors under their control vs. external factors not directly under their influence were responsible for their

health; this scale has since been refined into a multidimensional instrument. Three dimensions of health locus of control beliefs have been identified, internality, powerful others, and chance, and are measured by separate subscales (Wallston & Wallston, 1977). In this way, researchers can choose the subscales that are most relevant for the health behaviors under consideration. In addition, the authors point out that, as with generalized locus of control, there is no reason to expect that these scales alone should explain much of the obtained variance in health behaviors; however, they should play a significant role in interaction with other contributing factors, and thus provide a more complete explanation of those behaviors (Wallston & Wallston, 1977).

Unfortunately, the variables that have been found to be most predictive of health behaviors are those that are least modifiable. These are the participant's demographic characteristics, including age, sex, marital status, family size, race, and occupation (Haggerty, 1977). As these variables are essentially proxy measures for lifestyles, and attitudes toward health and utilization of the services of health professionals, their predictive power is not surprising (Lerner, 1975). For example, age is usually correlated with health status, such that older individuals will probably be experiencing more symptoms that may increase motivation to change health behaviors. Marital status and number of children that reside with the participant are indications of the range of freedom available to the person in changing health practices that impinge on the others in the

household. They are also indicative of the degree of social support for change the person may receive, as in the Fishbein and Ajzen (1975) model of behavior prediction.

Another set of external factors that contribute to individual variability in health program results is the amount of changes in life circumstances in a relatively short period of time (usually six months to a year). Holmes and Rahe (1967) compiled a list of events that would require varying degrees of adjustment, such as death of spouse (empirically found to be most stressful among the items), marriage, changes in financial status, and even vacation (empirically determined to be least stressful, yet still demanding adjustment). Research in this area has produced some evidence that the greater number of changes and the greater magnitude of adjustment required to these changes, the greater is the likelihood of succumbing to illness in the year following the event (Holmes & Masuda, 1974; Rahe, 1972). Therefore, the positive effects of any program must be viewed as competing with the stresses generated by important changes in the participants' lives. Again, demographic characteristics determine, to some extent, the types of events the person will be likely to encounter, and the resources available to adequately cope with them.

In summary, individual variability accounts for much of the extent to which a health program aimed at modifying health habits will be successful. Factors that are responsible for these individual differences include demographic characteristics, the necessity of

coping with changes in important life events, various intra-personal factors (health locus of control orientation, Type A coronary-prone behavior, and current health status), and social-psychological cognitive variables related to health behavior (health beliefs and attitudes, readiness to seek care, etc.). Unfortunately, as Haggerty (1977) states, research has shown that the least modifiable of these variables are those that are most predictive of health behavior. Program designers and implementers should be aware of these factors, and should strive to target their programs toward well-defined, homogeneous groups for maximum likelihood of program success.

Other Issues in Program Development

As identified by Henderson et al (1979), there are several other issues that program planners should consider when designing a health promotion program. Two important ones, reducing the premature termination (dropout rates) and the generalizability of results from the program (or utilizing results from other programs), are dependent on adequate identification of characteristics of participants, in that the same factors that produce individual variability have been found to be responsible for certain groups to be more likely to drop out of a program; also, the degree to which methods endorsed by one program will be effective in another setting, or even if results from the same program will be replicated can be dependent upon the characteristics of the participants.

While these issues are important factors in the effectiveness

of any health promotion program, the issue that now occupies most attention in the field today is the problem of long-term maintainance of behaviors learned during the program. This problem is especially acute in the modification of addictive behaviors (e.g., drug abuse, alcoholism, cigarette smoking), as research has empirically determined that only a third of those who are successful abstainers at the end of a cessation program are able to maintain abstinence just three months following the last session (Hunt & Matazzaro, 1973). Little systematic investigation of recidivists has been conducted, and thus it is not known what follow-up measures are optimal to sustain behavior change, nor in what critical ways maintainers differ from those who return to prior habits (Henderson et al., 1979).

Long-Term Maintenance of Program Effects

Despite the lack of empirical evidence, several factors contributing to loss of treatment effects have been hypothesized. Musante (1976) has suggested that the relatively short period of time that are common to most programs (three months at best) is insufficient for many individuals to acquire and maintain new behaviors, and successfully incorporate them in their daily lives outside the program. Again, due to individual variability, the pace of health programs should be tailor-made to each participant, to assure that adequate progress is made. However, such an approach may be too expensive to be a feasible alternative to traditional group approaches. Hall and Hall (in press), on the other hand, hypothesize that this traditional group approach may very well be contributing to loss of treatment effect, in that it

encourages dependency on others for sustained motivation. Once the group is terminated, however, the group members discover that they have not learned to cope with temptation and maintain their intrinsic motivation, and becomes recidivists within a short time. As Henderson et al (1979) further point out, program implementers should evaluate what behavior is being reinforced by the program, as it might be that participants are actually learning short-term, "crash" methods to keep up with the group, rather than techniques that will help them maintain once the program ends. Awareness of all these potential factors in the failure to maintain behavior change over a long period of time is necessary to develop an effective program.

CHAPTER IV

ISSUES IN THE EVALUATION OF HEALTH PROMOTION PROGRAMS

A theme to run throughout this chapter is the need to develop more effective programs to promote preventive health. By being aware of how behavior change is best initiated and maintained, and the extent to which the unique characteristics of program participants necessitate either homogeneous groupings or individualized approaches, health educators can begin to develop programs that will produce greater success in improving Americans' health status. But the key to this success, according to Green (1977), is accurate and timely feedback concerning how program components affect the participants, and whether these effects are accomplishing the goals of the program. Without such a rigorous evaluation, programs will continue to be designed and implemented on the basis of intuitive appeal or convenience, rather than sound, empirical evidence of techniques that are truly effective. As Sechrest and Cohen (1979) further state, evaluations must be conducted to assure that the interventions are not harmful instead of beneficial, and that the cost involved is justifiable.

According to Green (1979), evaluation can focus on any of three levels: 1) the process by which the program operates, in terms of the communication behavior of the instructor, and characteristics of participants that affect their receptivity, 2) the immediate impact

of the program on knowledge, attitudes, environment, and behavior (short-term goals), or 3) the outcome, or long-term effect of the program on health status, usually measured in terms of incidence and prevalence of illness and survival rates in the years following the program. Green strongly believes that at this time, impact evaluation is needed most. He believes that process evaluation may not provide much meaningful data, as most program instructors have not yet been adequately trained to implement effective programs, and thus are not ready to have their communication skills intensively examined. In addition, Green (1979) has stated that it is premature to expect that most health promotion programs will have measurable health outcomes, as these measures must be made many years in the future.

At the outset, it is important to understand that the measurement of health-related outcomes is a complex matter, and that the methodology thus far developed is still at a fairly primitive level (Sechrest & Cohen, 1979). And just as there are numerous issues to be taken into account when developing a health promotion program, there are several important considerations that must be dealt with in conducting an accurate evaluation of that program. These issues fall into three categories: 1) those that affect decisions on research designs, 2) those related to selection of impact measures, and 3) those that influence interpretation of the data collected.

Research Design

Green (1977), in an article reviewing some of the major dilemmas

of evaluation and measurement posed by the nature of health education, has identified two basic controversies that an evaluator must resolve in designing evaluation of any health program. The first of these is to strike a balance between rigorously maintaining the educational treatment in the face of many other factors operating during the implementation of the program, and constantly amending the program during its implementation to find techniques that will be effective with that particular audience. The former condition often results in rigorously defined but trivial interventions, while the latter approach creates significant interventions that are too vaguely defined to be replicated. Green asserts that this dilemma can be resolved by employing factorial research designs instead of the typical experimental and quasi-experimental designs that include only one treatment and control group, and no provision for variations in the program components. A randomized factorial design in which the program is implemented in phases, can allow for the necessary variation in treatment in a sequential manner, and can still include control groups in each phase. Of course, this more sophisticated design requires a substantial sample size in order to fill the various cells and knowledge of the total time available for the program; smaller programs with modest funding will still have to rely on the simpler pre-post research design.

The second dilemma Green (1977) identifies is the methodological problem of experimental control in community or clinical settings, as it relates to internal and external validity. Internal validity, or the degree to which results observed after the program can be

definitely attributed to the educational treatment, is more important when the primary purpose of the evaluation is aimed at determining the "true" effectiveness of program components, while external validity, or the extent to which results can be generalized to other situations, is more important when the purpose of the evaluation is to demonstrate the feasibility of the program under actual community conditions. Unfortunately, both types of validity cannot be achieved at the same time; what is not known is how and to what degree one should be sacrificed for the other. Green has suggested the adoption of a set of decision rules for use in striking the right balance between internal and external validity that are based on considerations of the purpose and resources available to the evaluation. These decision rules stress that a primary consideration in the evaluation design should be economy, and the use to which the results will be put. Of course, the research design must be predicated on accurate assessment of participants' characteristics, for these factors play a large role in the effectiveness of any program, as well as determine the extent to which the results will be generalizable to other settings.

Selection of Measures

Once the appropriate research design is formulated, the evaluator then faces decisions in the selection of outcome measures. As Sechrest and Cohen (1979) point out, the ideal situation is to use measures that are sufficiently sensitive to reflect any real changes resulting from the program, yet sufficiently stable to be differentiated from natural variability at any given measurement period.

Unfortunately, many indices of health status, such as blood pressure, are so sensitive to environmental factors (anxiety, time of day, body posture), that readings may vary widely even when taken a short period apart. On the other hand, many traditional psychological measures are designed to produce stable results over time, and thus may not be sensitive enough to small but important changes induced by a program. Even self-reported health status may not be a particularly sensitive measure over a long period of time, in that individuals gradually adjust to their typical level of functioning (Breuer, 1974).

Evaluation of health promotion programs is particularly handicapped by the lack of instruments designed to measure positive health, or quality of life. Recall that the goal of health promotion is not only to prevent disease, but to improve physical and psychological functioning, as well (Task Force on Preventive Medicine, 1976). At the present time, however, no satisfactory measures of well being exist, leaving the researcher no option but to continue to rely on merely measuring the absence of illness. As Sechrest and Cohen (1979) further point out, indices of quality of life are needed to assess the benefit of any health intervention; for example, in the aim of preventing future illness, the individual may be asked to adopt behaviors that generate added stress in his life resulting in increased susceptibility to other physical and psychological disorders.

Cost-Benefit Analysis

As a way of getting around this dilemma, and as a means of pro-

viding administrators with salient information on the effectiveness and practicality of a program, evaluators should also collect data on the costs incurred by the program as compared to the benefits resulting from it, or compared to alternative interventions or control (no treatment) conditions (Green, 1977). These benefits must somehow be assigned monetary values, and not only the direct cost of the program, but consideration of the opportunities that are foregone in order to produce some alternative service (Mushkin, 1979). In this way, the intent is to recognize that whatever resources are allocated to one policy become unavailable to meet other needs.

Once values are determined, various types of quantified comparisons can be made. These include: 1) the present value of net benefits, which is the present value of benefits minus the present value of continuing costs, 2) the rate of return on costs, which is a calculation of the amount of compound interest which would be required to raise the cost to the value of expected future benefits, and 3) benefit/cost ratios. Three decision rules are often applied to evaluate the outcomes of these calculations; one can choose programs with the highest values of net benefits, choose programs with the highest rate of return, or choose the programs with the highest benefit/cost ratio (Mushkin, 1979). In situations where the actual monetary outlays of the program is known, but where other more subjective costs and benefits are difficult to assign monetary values (such as pain or improved quality of life), a cost-effectiveness analysis is advocated instead. Components of alternative programs that bear the same cost

are compared as to their comparative effectiveness. It is then up to administrators to decide the value of the subjective components of the program (e.g., the benefit of reducing heart attacks in older men vs. preventing heart disease in children) (Green, 1977; Mushkin, 1979). As resources available to health promotion programs is limited, and increasingly subject to accountability reports on how they were used, data on costs as compared to benefits and effectiveness is also becoming increasingly important (Task Force on Preventive Medicine, 1976).

Interpretation of Results

Just as there are alternative ways of interpreting data obtained on costs and benefits of a program, the other data collected by an evaluator is also subject to decisions regarding interpretability. For example, in assessing the effectiveness of various program components and their impact on participants, it may be difficult to differentiate between the objective effect of the health education or intervention strategy and effects produced by the expectations of participants regarding outcome (placebo effect) (Green, 1977). It may very well be that the actual content of the program is not as relevant as participants' belief in the efficacy of the program, the beneficial psychological effects of perceiving that one's problems are being addressed (Hawthorne effect), and attempts to provide social support for new behaviors. To the extent that programs emphasize these aspects rather than specific content, it is difficult to assess in what ways health information interacts with these social psychological forces.

This problem is further complicated in the case when the sample size of the program is too small to look at each component of the program individually, or when the program is faced with a "ceiling effect" (i.e., where it is already highly favorably rated by participants, such that an increase would be difficult to achieve). Statistical analyses in these cases are unlikely to detect differences between groups. However, Posavac and Carey (1978) suggest that it is appropriate to evaluate the success of the program across all components, with the understanding that the constraints of the program do not allow the interpretation of any apparent differences between groups on individual criteria.

Other problems in interpretation of results often arise from the time-dependent nature of benefits created by health education, in that the timing of measurement of outcomes may produce different results at different periods. Dilemmas posed by short-term vs. longer-term evaluation have been identified by Green (1977). They include: 1) delay of impact, or the so-called "sleeper" effect, when the audience must go through an attitude change before there is an actual behavior change, or when fairly insensitive measures fail to detect subtle changes until a sufficient magnitude accrues, 2) decay of impact, where an immediate change is detected, yet fails to remain stable over time; such a backsliding effect would be found where there is a lack of long-term maintainance of behavior, 3) borrowing from the future, where the program merely hastens change that would have occurred naturally; a large increase immediately following the program may be due to those

who are highly motivated, such that far fewer than expected changes occur in the succeeding measurement, 4) adjusting for secular trends, where both experimental and control groups exhibit changes in the same direction, suggesting that some other factor is operating to cause the observed effect, not the health program under evaluation, and 5) contrast effects, where expectations of participants for the program are not met, creating a backlash or reversal of the behavior advocated. All of these rival alternatives to the hypothesis that the program had a significant impact need to examined before the data can be accurately interpreted.

Summary

The purpose of these introductory chapters has been to present a comprehensive picture of the field of health promotion, in terms of its background, goals, and unique problems. Issues in behavior change, health program development, and evaluation considerations were also discussed in order that the research project described in the remainder of this paper can be viewed as part of a larger attempt to improve the health and psychological well being of Americans by means of educational intervention. These introductory chapters describe ideal solutions to the issues raised; the report that follows describes solutions in the face of real-world constraints. By presenting both sides, it is hoped that the cumulative body of literature based on theory and actual programmatic experience, called for by Green (1977) and other leaders in the field, will begin to be formulated.

The purpose of the research reported here was to evaluate the effort in health promotion conducted by a large urban hospital. Specifically, an evaluation of a health promotion seminar attended by a group of hospital employees was conducted under the guidance of the Employee Health Center of the hospital, in response to a commission from the Director of Personnel. Results obtained from this evaluation will be a major factor in any decision for future contracting with the sponsoring agency of the seminar, Forest Hospital Foundation of Des Plaines, Illinois.

CHAPTER V

METHOD

Definition of the Program

The program evaluated in this project is the Personal Management System (PMS), a one-day seminar on health promotion (a new movement in the health care field that emphasizes prevention and personal responsibility for one's health), which was developed and presented by the Forest Hospital Foundation, a mental health facility. Although this program is aimed at employee participants, the focus is not on job safety or occupational health hazards; rather, the orientation is a holistic approach to personal responsibility for health maintainance. It seeks to make participants aware of health problems that may occur in seven life areas: 1) Nutrition, 2) Exercise, 3) Stress Management, 4) Social/Emotional Management, 5) Work/Education, 6) Leisure Time, and 7) Creative Thinking. Lectures are presented on each of these topics during the course of the one-day seminar. At the end of the day, participants are encouraged to specify improvements in each area to be worked toward in the year following the presentation. This goal setting is proposed to foster more personal responsibility for the participants' own health and well being, rather than relying on others (such as physicians or family members) for change. Each participant is given a 64 page booklet

that contains most of the health information presented during the seminar, in addition to several self-help techniques (i.e., relaxation methods, exercise and diet programs), paper-and-pencil measures to help each individual become aware of personologic variables that may aid or hinder progress (Life Events Scale, developed by Holmes & Rahe, 1976; Type A Scale, developed by Jenkins, 1971), and decision algorithms designed to help participants choose goals that would be most amenable to change.

The total treatment effect of this program extends beyond this one-day seminar. Each participant is mailed a newsletter and a copy of their goal sheets once a month from Forest Hospital, in an effort to reinforce motivation to continue to work towards the goals. Participants are encouraged to evaluate their progress via concretely operationalized indices (e.g., charting of weekly weigh-ins to monitor progress in the Exercise category), and to notify Forest Hospital of any changes they make in their goal expectations, so that their monthly newsletters could be adjusted accordingly.

This Personal Management System program was developed in 1975 by Dan Mathien and his associates at Forest Hospital. It was initially intended as an educational tool for the benefit of Forest Hospital employees, and developed very informally, in that it was based more on feedback from participants than on any prevalent theoretical model of behavior change. The original mandatory participation format was found to be ineffective, as participants reacted

against "being told what to do." The current format, offered only to volunteers, utilizes Management by Objectives (MBO) techniques coupled with a few similar techniques culled from social learning theory, and has been much more successful in terms of participant acceptance. The program is now being offered on a consultant (for-fee) basis to other organizations around the country.

Subjects

Attendance in the PMS one-day seminar on "Wellness" was limited to twenty-five employees, as the administrators who commissioned the program did not wish to invest more than $800 until there was more empirical evidence of its effectiveness. Any employee who was willing to volunteer was eligible to attend, although all volunteers were aware that a random assignment procedure would be used to select attendants, and thus, there was a chance that they would not be able to participate in the treatment condition. All participants were paid their normal wages while attending the seminar.

Control Group

Due to the very low limit on attendance, a control group could be established by capitalizing on the fact that more employees volunteered than could be accommodated in the seminar. Several days before the seminar, the entire group of volunteers was randomly assigned to either the attendance or control condition, such that all had an equal chance to attend. In this way, both groups were equivalent in terms of desire to attend the program. Those in the control

group were notified that they would be given first priority should another seminar be held in the future.

Procedure

During the one-day seminar, participants formulated goals for the following year in the areas of Nutrition, Exercise, Stress Management, Social/Emotional life, Work/Education, Leisure Time, and Creative Thinking. In addition, they were asked to evaluate the presentation at the end of the day (see Appendix A for these questions). These were to serve as the measure of attitude toward the seminar.

Health Status Measures

Constraints placed on the depth to which employee health status could be measured resulted in an instrument that was aimed at only public health behaviors (smoking, coffee consumption, exercise), and general health indices (weight, height, blood pressure, and pulse). It was felt that a more detailed medical history or physical examination would place too great a respondent burden upon those involved in the research, and that the purpose for collecting the data might be misconstrued. Nurses from the Employee Health Center collected measures of height and weight via a standard scale, and blood pressure and pulse via pressure cuff and stethescope on all employees in the study (both treatment and control group) on the day of the seminar.

Personologic and Environmental Variables

Participants in the session were asked to complete questionnaires assessing several personologic and environmental factors:

1) Type A coronary-prone behavior (Jenkins, 1971), 2) changes in life events (Holmes & Rahe, 1967), and 3) a general life satisfaction scale (See Appendix A). The control group completed these instruments as they came to the Employee Health Center to have their health measures taken. Data on the demographic characteristics (age, sex, marital status, position in the hospital, number of children in the household and their ages) and current health behavior (smoking status, coffee consumption, and exercise) were also assessed for both groups.

Four Month Follow-Up

Four months following the PMS session, both attendance and control groups were contacted via inter-office mail. Control group members were merely asked to return to the Employee Health Center to have their health status measures (weight, blood pressure, pulse) assessed once more. The attendance group was also asked to follow this same procedure, in addition to completing a questionnaire designed to assess their progress toward each goal they had set for themselves during the PMS seminar. This questionnaire also contained items pertaining to perceived effect of the monthly newsletters, the probability that the respondent would continue to work toward the goals, and the extent to which mediating variables of a) previous habit strength, b) social support, and c) receipt of any new information had any effect on their intentions to work toward the goals, as formulated during the seminar (see Appendix B for a copy of this instrument). In addition, the attendance group were also asked to

rate the seminar presentation again, and to indicate how often they utilized other techniques offered during the PMS program (diet strategies, aerobic exercises, relaxation and creative thinking techniques) in the previous four months. Lastly, this group was administered the Health Locus of Control Scale (Wallston & Wallston, 1977).

Eight Month Follow-Up

Eight months after the PMS Seminar session, both attendance and control groups were again contacted via inter-office mail. The procedure and measures completed were identical to the four month data collection period, with the exception that the attendance group was not asked to rate the seminar, nor the Health Locus of Control Scale. The former instrument had been added to the four-month follow-up as a check on the stability of the attitudes toward the program; the latter instrument was not included in this latest follow-up period, as it is intended to measure stable characteristics that would not be expected to change over the short time between data collection periods. In addition, both groups were asked to complete the four item general life satisfaction scale.

Absenteeism Data

Of major concern to hospital administrators was whether the PMS program would have a positive impact on employee absenteeism and turn-over, thus providing a benefit to the hospital in terms of increased productivity that would be commensurate with the cost of sponsoring the program. Attendance data on each employee in the study

was made available, in terms of the number of sick days or days without pay were taken by each employee per month, beginning with six months prior to the PMS seminar, and extending over the eight months follow-up. Employees earn one sick day each month, in addition to nine personal days per year, and at least 10 vacation days per year. Those who are absent and do not have paid days accrued, are considered as taking unauthorized time, and are not paid.

Using the literature on employee absenteeism as a guide (Garrison & Muchinsky, 1977; Muchinsky, 1977), it was decided that the best indicators of absence due to illness would be the number of sick days taken, and the amount of unexcused time. The literature cited above suggests that the most consistently reliable indicator of absenteeism is the frequency of each category of paid and unpaid days, as opposed to composite indices of total time off, regardless of category. The two categories of sick days and unauthorized time is assumed to most accurately reflect illness, in that some medical excuse (verbal or written) must be given in order to claim a sick day, and the forfeit of pay is usually due to some unavoidable reason here assumed to be personal illness. (As it was not possible to ascertain the actual reason for unauthorized time off, it is recognized that inclusion of this category introduces an added source of error to this variable.)

CHAPTER VI

RESULTS

Pre-Test Measures

Data were collected from 40 employees on the day of the PMS Seminar. Of the 50 who had signed-up to participate in the program, 25 were randomly assigned to attend the PMS session (Experimental Condition-EC), and 25 were randomly assigned to serve as the Control Condition (CC). Twenty-one employees actually attended the Seminar, and 19 employees chosen for the CC group actually attended their pre-test measurement session. These 40 employees constituted the sample for this study.

The self-report data recorded on participants' "Personal Data Sheets" were analyzed to determine if the random assignment procedure had succeeded in creating equivalent groups for comparison; it was recognized that the attrition of 10 participants that had occurred prior to the collection of pre-test data might have jeopardized the equivalence of the two groups, if there was some systematic reason for their non-attendance.

Demographic characteristics. It was determined that the EC and CC groups were not significantly different on any variable except gender composition; the EC group consisted of 20 females and one male,

while the CC group contained 14 females and five males ($X^2(1) = 3.94$, $p < .04$). Participants' self-reported marital status was measured by four categories (single, married, divorced, widowed). The distribution within these categories was not significantly different ($X^2(3) = 4.77$, $p < .18$) between the EC and CC groups, with approximately equal numbers of single and married individuals within each group. Table 1 presents the means and standard deviations of other salient demographic variables for each group.

As can be seen from Table 1, the EC group was, on the average, slightly older ($\bar{x} = 39.4$) than the CC group ($\bar{x} = 36.8$), a difference that was not significant $t(38) = .7$, $p < .4$). Both groups had the same average number of children ($\bar{x} = 1.6$), with the average age of the youngest child approximately the same for both groups ($\bar{x} = 8.3$ yrs. for the EC and 9.7 yrs. for the CC; $t(38) = .19$, $p < .8$).

Occupational status. The self-reported job titles of participants in the study were categorized into four groups: 1) professional, 2) nursing staff, 3) medical support services (e.g., patient transportation, housekeeping, etc.), and 4) administrative services (e.g., secretaries, etc.). Cross tabulations conducted on these occupational categories revealed that there were no significant difference between the EC and CC groups on this variable ($X^2(3) = 2.26$, $p < .52$). Of the 40 participants in this study, there were higher percentages of nursing and administrative staff (35% and 33%, respectively), than medical

Table 1

Comparison of Experimental Group and Control Group on Pre-Test Measures

Measure	Experimental Group Mean N=21	Experimental Group SD	Control Group Mean N=19	Control Group SD	t
Age (Yrs.)	39.42	13.49	36.84	14.59	.70
Number of Children	1.66	2.33	1.63	2.21	*
Youngest Childs Age (Yrs.)	8.38	10.15	9.78	10.85	.19
Tenure (Mos.)	46.47	39.00	35.61	31.24	.94
Height (In.)	64.21	3.23	63.76	4.52	.82
Weight (Lb.)	139.26	29.33	136.72	29.97	.81
Systolic Pressure	122.94	11.07	118.69	11.13	.39
Diastolic Pressure	78.94	7.88	72.46	9.89	1.85
Pulse	80.63	6.84	81.10	9.18	.09
Years Smoking	4.52	10.16	4.36	9.41	.28
Life Events	273.09	158.45	243.73	171.85	.60
Type A Scale	42.33	15.11	40.26	14.39	.59
Health Satisfaction	3.75	.95	4.4	.69	1.29
Family Satisfaction	4.0	.81	4.5	.50	1.19
Job Satisfaction	3.75	.50	4.0	1.05	2.00
Life Satisfaction	3.75	.50	4.1	.87	2.13

Note: No t value reached significance at the .05 level

*$X^2(3) = 3.26$, $p < .8$

professionals (10%) or medical support services (20%). Although the EC group reported having worked at the hospital for a longer time, on the average ($\bar{x}$ = 46 months) than the CC group ($\bar{x}$ = 36 months), this difference was not significant $t(38) = .94$, $p < .35$).

Objective health measures. As can be seen from Table 1, both groups were equivalent in terms of average weight, blood pressure, and pulse which are the dependent measures in this research. It was hypothesized that the inclusion of significantly more men in the CC group would cause these results to be misleading, particularly since the norms for men on these physiological measures are higher than for women. Therefore, the averages for each group on these variables were recomputed, based only on the females' data. Again, the EC and CC groups were not significantly different in terms of average height ($\bar{x}$ = 64.11 in. and 64.24 in., respectively; $t(30) = .7$, $p < .4$), average weight ($\bar{x}$ = 144.2 lb. and 143.8 lb., respectively; $t(30) = .3$, $p < .7$), average systolic blood pressure ($\bar{x}$ = 124 and 120, respectively; $t(30) = .8$, $p < .4$) average diastolic blood pressure ($\bar{x}$ = 80.5, and 80.7, respectively; $t(30) = .06$, $p < .9$).

In terms of other health behaviors, the EC and CC groups were not significantly different in terms of the percentage of participants who smoke (21% and 16%, respectively; $t(38) = .88$, $p < .3$). The smokers in both groups were remarkably similar in the average length of time they had been smokers ($\bar{x}$ = 4.7 and 4.7 years, respectively), the average of number of cigarettes smoked per day ($\bar{x}$ = 20 and 23,

respectively), and in the almost unanimous use of low tar/nicotine brands of cigarettes. Thus, it could be concluded that neither the EC or CC groups contained heavy smokers who might negatively influence the physiological health measures (i.e., blood pressure, pulse, etc.).

Participants had also been asked to report on the types of exercise they engaged in "on a regular basis - at least once a week," and so were presented with a checklist of ten athletic activities (e.g., jogging, tennis, swimming, walking, etc.). Cross tabulations computed on the responses revealed no significant differences in the number of activities subscribed to, with the average number for the EC group equal to 2.0, and the average number for the CC group equal to 2.6. As the intensity of activity could not be measured with any reliability on such a self-report measure, no attempts were made to differentially weigh the various types of exercise. Given that the purpose of the question was to investigate differences in health status between the two groups at pre-test, it was sufficient to learn that there was no significant difference in the amount of self-reported physical activity.

Stressful life events. As measured by the Social Readjustment Rating Scale (Holmes & Rahe, 1976), the EC group reported having experienced slightly more life events that could be considered stressful in the previous six months than the CC group. However, this difference was not statistically significant ($t = .6$, $p < .5$). According to the scoring system used for this scale, the average score for

both groups ($\bar{x}$ = 273 for EC, $\bar{x}$ = 244 for CC), indicates that members in both groups could expect a 50% chance of experiencing a stress-related illness within the next two years. A closer inspection of the distribution of scores within each group revealed an approximately equal spread of scores at the low and high ends of the scale; one-third of each group scored 150 points or less (indicating only a 37% chance of experiencing stress-related illness in the next two years), and one-third of each group scored 300 points or more (indicating an 80% chance of stress-related illness in the next two years). As the distribution of stressful life events scores were the same for both groups, it could be concluded that the EC and CC groups were equivalent in terms of the number and magnitude of stressful life events occurring within their environment.

Type A coronary-prone behavior. All participants in this research were also asked to complete the Type A Scale, developed by Jenkins (1971), to assess coronary-prone behavior. This instrument is typically scored by considering the top third of the distribution as indicating Type A behavior, and the bottom third as indicating Type B, non-coronary prone behavior. There were no significant differences between the EC and CC groups in the number nor the average score of Type A individuals; indeed, the average score for each group ($\bar{x}$ = 58.5 for EC and $\bar{x}$ = 57.6 for CC; $t(38) = .59$, $p < .5$; 100 is the highest possible score), indicated that neither group was very prone toward behavior that may lead to coronary heart disease in the future.

Satisfaction scores. Participants were asked to rate how satisfied they were with four areas of their life: 1) their own health, 2) satisfaction with family relations, 3) job satisfaction, and 4) general satisfaction with their life as a whole; ratings were made on five-point scales developed for this research. No significant differences were found between the EC and CC groups in ratings of satisfaction in any area. The average ratings for both groups were substantially above the scale mean of 3.0, and are presented in Table 1. The consistency of positive ratings across all four scales presents a problem for detecting any further change that could be attributed to the PMS seminar, as the ratings could be the result of social desirability factors, and are already at the high end of the scale ("ceiling effect"). Thus, in an effort to minimize response burden at the follow-up data collection periods, these question were not re-administered.

Overall health status of participants. Although random assignment of hospital employees to the experimental and control conditions of this study resulted in equivalent groups for comparison, the actual average values of the two groups present obstacles to demonstrating PMS program effectiveness via improvements in the physiological health data of participants. The major assumption made by the hospital administration in undertaking this project was that employees who needed help in reaching a healthier lifestyle would be those who would express interest in attending the PMS seminar. However, the

average values for both groups on objectively measured health indices (i.e., blood pressure, pulse, etc.), and other health behaviors at pre-test, indicated that participants were already in good health (or at least within normal ranges), on almost all variables included in the study.

For example, according to statistics used by major insurance companies (Patient Education Council, 1982), normal blood pressure for adults under age 45 is between 100/60 and 140/90. From Table 1, it can be seen that the average blood pressure values for both EC and CC are well within that range ($\bar{x}$ = 123/79 and 119/73, respectively). A resting pulse rate of 79-85 is considered average for adults (Miller, 1976); again, the average pulse rates for the EC and CC fall within that range ($\bar{x}$ = 80.6 and 84.1, respectively). The only objectively measured health variable which is above average for both the EC and CC groups is weight. According to figures from Pacific Mutual Life Insurance Company (1981), women ages 30-49 who are an average of 5'4", should ideally weigh between 118-127 lb. However, the average weight for the women in both the EC and CC groups is at least 10 pounds over this range ($\bar{x}$ = 139 lb. and 137 lb., respectively).

From these data, it would appear that positive effects of the PMS seminar on physiological health measures should be considered the maintenance of blood pressure and pulse rate values within the normal range, and a reduction of average weight toward the normal

range for the group, as stated above. Of course, concomitant changes in the CC group would point to factors other than the effects of the PMS seminar for the observed impact on these health variables.

Evaluation of the PMS Seminar by participants. At the end of the day-long PMS Seminar, participants were asked to make an overall rating of the session on a five-point scale (1 = very poor, and 5 = very good). The average rating was 4.4, a very positive evaluation. In addition, participants were asked several open-ended questions about aspects of the seminar that were liked the best, the least, improvements that could be made, and whether they had obtained anything of value from attending.[1] The responses revealed that all participants reported receiving valuable information from the various topics discussed, and that most of the improvements fell within two categories: 1) presentation of less information at one time, so that each topic could be treated more fully, or 2) more concrete examples and exercises, rather than so much of an emphasis on scientific terminology and statistics.

From these data, it could be concluded that the PMS Seminar was very well received, and that participants were enthusiastic about the knowledge they had obtained, and were interested in implementing what they had learned in their daily lives.

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[1] Unfortunately, the researcher was not able to add any more quantifiable items, ostensibly due to time considerations.

Four Month Follow-Up

At this time period, participants in both the experimental and control groups were contacted via inter-office mail and asked to report to the Employee Health Center, at their convenience, for a second assessment of their physiological health measures (weight, blood pressure, pulse). In addition, the EC group was asked to complete a 17 page questionnaire designed to assess their progress toward each goal they had set for themselves during the PMS Seminar (see Appendix A). As each person's specific goals for each of the seven areas (Nutrition, Exercise, Stress Management, Social/Emotional, Work/Education, Leisure Time, and Creative Thinking) were not known, the questions focused on general progress toward each goal, the likelihood of continued effort toward the goal in the future, the effects of mediating factors that might have aided or hindered progress toward each goal, and the degree to which health promotion techniques presented in the PMS Seminar were utilized. In addition, the Health Locus of Control Scale (Wallston & Wallston, 1978) was included in the questionnaire.

Analysis of attrition rates. Data were obtained from 63% (N = 12) of the CC group, and, unfortunately, only 47% (N = 10) of the EC group at the four month follow-up. Two employees (10%) in each group had left the hospital, and could not be reached to schedule the collection of physiological health data. The high attrition rates that remained unexplained for each group (27% for the CC, and 43% for the EC) could be attributed to any, or all of the following

factors: 1) scheduling of the data collection was often a problem, as most employees could not leave their work stations during periods when nursing staff in the Employee Health Center was available to take the necessary physiological readings, and it was not possible to collect the data at the individual job sites, 2) it is likely that the added response burden of the questionnaire caused the higher attrition rates in the EC group; since the CC group had a higher rate of cooperation, even though their only reward/incentive was assisting in the completion of a research project they knew little about. The researcher did not have any other resources available to make follow-up appeals or offer incentives for cooperation, other than two reminder phone calls, and a second request memo sent via inter-office mail.

Given the high rate of non-cooperation for both groups (in an already small total sample size), it was necessary to analyze the effects of the attrition on the composition of the EC and CC groups at this data collection period. Such analyses revealed that the pattern of attrition had resulted in an almost totally female composition in both groups, such that it would not be necessary to examine the physiological health data (weight, pulse, blood pressure) separately for each gender. The two groups were still equivalent in terms of distribution among the four marital status categories (single, married, divorced, widowed); however, the pattern had changed since the pre-test measurement period, in that those that were divorced were now the

majority, instead of the even split between single and married participants found previously. In addition, there was now a marginally statistical difference in occupational status between the two groups, in that the EC group no longer contained any professionals, while the CC group contained three ($X^2(3) = 3.5$, $p < .05$).

Table 2 presents the means and standard deviations of the other demographic, personologic, and environmental variables that had been measured at pre-test (and based on those original pre-test scores). As can be seen, the EC and CC groups were still remarkably similar, with the only other marginally significant difference found in pre-test stressful life events scores (SRRS) ($\bar{x}$ = 346.1 for EC, and $\bar{x}$ = 239.54 for CC; $t = 1.91$, $p < .07$). The mean SRRS score for the EC was significantly higher at this time period than at pre-test ($\bar{x}$ = 273), while the mean score for the CC group was practically unchanged ($\bar{x}$ = 243 at pre-test). This finding suggests that those individuals in the EC group who had experienced greater stressful life events in the recent past were more likely to still be cooperating in the study than many of their less stressed colleagues who had dropped out of the research.

Analysis of follow-up physiological data. Table 3 presents the weight, blood pressure (systolic and diastolic pressure presented separately), and pulse values for the EC and CC groups at the four month follow-up period (Time 2) compared to pre-test values. As can be seen, there were no significant changes in blood pressure and pulse

Table 2

Comparison of Experimental Group and Control Group at the Four Month Data Collection Period

Measures	Experimental Group Mean N=9	Experimental Group SD	Control Group Mean N=12	Control Group SD	t
Age (yrs)	39.10	11.06	35.30	12.38	.10
Number of Children	1.44	1.30	1.00	2.30	**
Youngest Child's Age (Yr)	2.71	2.00	2.40	1.80	1.87
Tenure (Mos.)	48.33	7.61	46.80	7.87	.19
Type A	39.00	13.15	42.45	16.90	.90
Life Events	346.10	161.90	239.54	144.76	1.91*

*$p < .07$

**$X^2(3) = 2.51$, $p < .5$

Table 3

Comparison of Experimental Group and Control Group on Physiological Health Data at Four Months

Measures	Experimental Group Mean	SD	N	Control Group Mean	SD	N	t
Systolic Blood Pressure							
Pre-Test	122.94	6.7	(9)	118.69	11.13	(12)	1.91
Four Months	120.25	15.12	(9)	115.16	13.90	(12)	1.23
Diastolic Blood Pressure							
Pre-Test	78.94	3.54	(9)	72.47	9.89	(12)	.87
Four Months	76.25	9.0	(9)	70.83	10.07	(12)	.42
Pulse							
Pre-Test	80.53	6.84	(9)	81.10	10.57	(12)	.38
Four Months	80.75	6.30	(9)	80.66	12.00	(12)	.06
Weight							
Pre-Test	139.26	29.30	(9)	136.72	32.28	(12)	.78
Four Months	146.75	26.80	(9)	147.41	34.75	(12)	1.17

Note: No *t* value reached significance at the .05 level

within each group over time, nor were there any significant differences in those variables between the two groups. However, both groups exhibited the same magnitude of increase in weight, a difference that was significant within groups ($t = 3.21$, $p < .04$ for the EC group; $t = 3.46$, $p < .04$ for the CC group), but was not significantly different between groups ($t = 1.17$, $p < .10$). These data, albeit taken from a very small sample size, indicate that participation in the PMS session had not influenced physiological measures of health status four months after the session. Indeed, the average weight of participants that should have ideally decreased as an indication of improved health, had actually increased in both groups.

Results of the follow-up questionnaire-goal attainment. It could be argued that improvements in physiological health measures could not have been expected to occur in the EC group unless participants had actively worked at the goals they had set for themselves in the PMS session, and had utilized other components of the PMS program. The 17 page questionnaire administered to the EC group was designed to measure the extent to which intentions (i.e., goals set) to improve health habits had actually been carried out.

It will be remembered that participants in the PMS session had utilized a decision-making tool of paired comparisons of alternatives in order to focus on the various aspects of their lives that were both in need of improvement and amenable to change. As these goals had been set in an empirically derived and highly individualized

manner, it was hypothesized that participants would remain motivated to work toward their goals in the months following the PMS seminar.

Table 4 presents the average ratings (measured on 5 point scales - see Appendix B) made for each goal, in terms of its importance to the individual, progress toward the goal, and likelihood of continued effort toward the goal in the next three months. (For the purpose of this research, it was not necessary to know the specific content of each goal; instead, the focus of the Follow-up Questionnaire was to ascertain progress toward improvement in each of the seven life areas.)

As can be seen from Table 4, the EC group as a whole (N = 9) considered Work/Education goals to be most important at Time 2 ($\bar{x}$ = 5.0), and considered Exercise goals to be the least important ($\bar{x}$ = 2.2). The results further indicated that, on the average, participants had continued to work toward each goal, although had only made as much progress as planned in the Social/Emotional and Work/Education areas. Participants uniformly reported that it was likely ($\bar{x}$ = 4.0) that they would continue to work toward their goals in the next three months, regardless of the content area or importance rating of the goal. (A somewhat higher likelihood rating was made for the Work/Education goal ($\bar{x}$ = 4.4), perhaps indicating that completing ongoing training or academic courses were the goals that had been set.)

Utilization of other program components. Participants were

Table 4

Average Ratings of Goal Importance, Progress,

and Continued Goal Effect

Goal	Importance[1]	Progress[2]	Continued Effort[3]
Work/Education	5.0	4.1	4.1
Social/Emotional	4.3	4.3	4.1
Stress Management	4.7	3.4	4.0
Nutrition	4.3	3.4	4.0
Leisure Time	4.0	3.2	4.1
Creative Thinking	3.7	2.9	4.0
Exercise	2.2	2.8	4.0

[1]where 1 = not important at all; 5 = very important

[2]where 1 = no action taken; 5 = better progress than planned

[3]where 1 = unlikely; 5 = very likely

asked to report whether they had regularly utilized other techniques that had been taught at the PMS seminar, by checking those that applied in a list of six techniques (relaxation techniques, aerobic exercise program, diet diary, decision grid, creative thinking suggestions, nutrition/vitamin suggestions). The results indicated that an average of three techniques were being used on a regular basis (at least once a month), with nutrition/vitamin suggestions and relaxation techniques being the most popular, and aerobic exercises being the least used.

From these data on the utilization of the PMS program components, it could be concluded that participants were still practicing techniques learned at the PMS seminar at Time 2. However, the goals toward which the most progress had been made (Social/Emotional and Work/Education) would not be expected to directly influence physiological health measures; at the same time, nutrition and relaxation suggestions that were being used on a regular basis were not efficacious in counteracting the environmental events that had caused both EC and CC groups to increase weight (on the average). It is interesting that the exercise component (specific goal as well as aerobic exercise program), which was the most likely to directly affect the physiological measures included in this study, was the least used. This would suggest that this component entails greater psychological barriers (in the terminology of the Health Belief Model) or requires that more mediating variables be overcome (in the terminology of Fishbein and Ajzen model

of behavior change), such that it is the most difficult component to successfully utilize.

Effect of mediating factors on goal attainment. The Follow-up Questionnaire included items to measure the effects of various mediating variables on actual progress toward goal attainment, such that hypotheses on specific factors that influence each goal area could be empirically tested (see Appendix B for the questions asked). Taken primarily from Fishbein and Ajzen (1976) model of behavior change, these variables include, for each goal: 1) strength of habits that interfere with goal behavior, 2) failure to remember the resolution at the appropriate time for action, 3) hindrance or aid from significant others in the environment, 4) lack of skills or abilities necessary to reach the goal, 5) new information (read or heard) that cause a change in motivation to work toward the goal, including the effect of monthly newsletters mailed out by Forest Hospital to PMS Seminar participants. These newsletters included computerized copies of the participants' specific goal set at the PMS session, such that they would be reminded of their goals at least once a month. In addition to these items, the Follow-up Questionnaire also included the Health Locus of Control Scale (Wallston & Wallston, 1978), which measures the extent to which individuals feel that their own actions can affect their health, as opposed to fate/luck, or the actions of others (family, doctor, etc.).

The analysis plan for this study had originally called for the

use of multiple regression techniques to investigate the predictive powers of each of these mediating variables on goal attainment in the seven life areas. Unfortunately, the very small sample size (N = 9) at Time 2 precluded the use of multivariate statistics. Instead, zero-order Pearson correlations were computed among the mediating variables and ratings of progress toward each goal; this progress variable was weighted by how important the goal was to the respondent at Time 2 (measured on a five point scale, where 1 = not at all important, and 5 = very important).

Table 5 presents the correlation matrix of weighted progress ratings for each of the seven goals (ranked in order of importance), the mediating variables enumerated above, and demographic/personologic variables that were also hypothesized to mediate between intentions and goal attainment behavior. This last set of variables includes: 1) life events score, 2) Type A coronary prone behavior, 3) a composite variable of family influence (marital status, number of children, and age of youngest child), and 4) whether the respondents had sent progress reports to Forest Hospital to update their goal. (Of course, it must be remembered that these correlations are based on a very small sample size, such that the relationships would not necessarily hold for a larger group.)

The most striking aspect of the data revealed in Table 5 is that the few correlations that are of sufficient magnitude to be statistically significant do not form any consistent pattern <u>across</u>

Table 5

Correlation Matrix of Weighted Progress Ratings,

Mediating and Demographic/Personologic Variables

Variables	Work/ Educ.	Social/ Emotion	Stress	Nutrition	Leisure Time	Creative Think	Exer.
Habit[1]	-.24	.20	-.37	.008	.95**	.37	.69*
Memory[2]	.24	-.30	.08	-.10	-.53	.71*	-.28
Family[3]	-.02	.60*	-.08	.40	.66*	.18	.40
Skill[4]	-.28	.32	-.35	.31	.42	.53	.08
Reading[5]	-.24	.11	.28	.47	-.07	.34	.06
Life Events	.14	.38	.35	.39	-.65*	.002	-.44
Type A	-.30	-.04	.04	.63*	-.27	.30	.14
Sig Others[6]	.48	-.22	-.15	.73*	-.12	.37	.38
News Effect[7]	.14	-.49	.33	-.03	.59	.31	.08
HLOC[8]	-.30	-.26	-.52	.22	-.28	-.39	.18
Sent Progress Report[9]	-.26	.11	.39	.57*	.69*	.24	.24

N = 12
*p<.05
**p<.01

[1]Extent to which previous habits hindered progress-Rated on 5 pt. scale, where 1 = not at all; 5 = very much

[2]Extent to which new resolutions were remembered to be carried out-Rated on 5 pt. scale, where 1 = never forgot; 5 = always fogot

[3]Extent to which family helped respondent toward goal-Rated on 5 pt. scale where 1 = hindered me; 5 = helped very much

[4]Whether respondent lacked skill to reach goal-Rated on dichotomous scale

[5]Whether respondent read any new information that caused a change in goal intention-Rated on dichotomous scale (yes, no)

[6]Composite variable: marital status, number and age of children

[7]Effect of PMS monthly newsletter on goal attainment-Rated on 5 pt. scale where 1 = no effect; 5 = very great effect

[8]Health Locus of Control Scale

[9]Whether a voluntary progress report was sent by respondent to Forest Hospital to notify them of any change in goal to be attained

the various goals. Inspection of the inter-correlations among progress ratings for the seven goals (not reported in Table 5) revealed no significant relationships, such that it might be concluded that respondents considered the goals to be independent of one another, and progress was not due to a general goal attainment behavior. Instead, it is apparent that the specific mediating factors that were found to be related to goal progress depends on the object of each particular goal.

For example, it would appear from the data in Table 5 that none of the mediating variables included in this research were particularly relevant to the attainment of Work/Education goals, although having fewer family responsibilities (being single, or married with fewer children), did approach significance ($r = -.48$, $p < .08$). This could be interpreted as an indication that those respondents had more time to devote to education or extra work-related duties. To the extent that better relations with family members or friends might have been the specific goals under the rubric of Social/Emotional area, it would be expected that aid from family or friends would be highly related to progress toward that goal ($r = .60$, $p < .04$). On the other hand, the number of family members is not related to attainment of that goal ($r = -.27$, $p < .28$). Interestingly, the only mediating variable that approached being significantly related to Stress Management goal attainment was respondents' score on the Health Locus of Control (HLOC) Scale ($r = -.52$, $p < .06$); those who felt that their

health could be influenced by their own actions were making better progress toward managing stress in their lives than those who believed that their health was in the hands of others, or fate.

Much emphasis had been placed on Nutrition and Exercise goals during the PMS seminar, such that it was somewhat surprising to find them ranked in the lower half of the goals. As might be expected, the size of one's family was highly related to progress toward nutrition goals, as the larger the family, the less freedom there is to easily change family food habits. However, the respondents' own food habits were not found to be related to nutrition goal behavior ($r = .008$, $p < .49$). This is in striking contrast to the finding for the Exercise goal, where the respondent's previous habits regarding exercise tended to greatly hinder progress toward that goal ($r = .69$, $p < .01$). This finding lends credence to the hypothesis that participants met with the least success in the Exercise goal because of the strength of the mediating variable affecting the individual from the time the intention is formed and the action (some type of physical exersion) is completed.

The relationship between Type A coronary-prone behavior, heart disease, and proper nutrition/exercise had also been stressed during the PMS seminar. It was encouraging to find that those who were more prone toward Type A behavior were making greater progress toward their nutrition goals, as proper nutrition has been shown to reduce the incidence of debilitating heart disease (Rosenman et al., 1975).

However, this relationship does not hold for the Exercise area, where Type A orientation was not related to goal progress ($r = .14$, $p < .35$).

The finding that Type A coronary-prone behavior orientation was related to goal progress for only one goal (Nutrition) also tends to confirm the hypothesis that a general goal directed behavior was not in operation for the EC group participants. Research in Type A behavior has found that an identifying characteristic of this behavior pattern is the setting of high standards for oneself, and single-minded striving toward those goals, even in the face of fatigue or other obstacles (Glass, 1977; Ovcharchyn, Johnson, & Petzel, 1981). In this study, however, those high on Type A were no more likely to report having made progress on all goals set than those low on Type A. Thus, the particular content of a goal appears to be important in which mediating factor will play an important role in behaviors directed toward that goal.

Comparison between EC group respondents and non-respondents at Time 2. It will be remembered that only 47% of the total EC group had participated at the four month follow-up data collection period, although only 10% of this group were no longer employed at the hospital. This leaves 43% of the EC group who were still employed at the hospital, but who had, in all likelihood, stopping working toward their goals, or had in some other way lost interest in the program. It is unfortunate that it was not possible to collect physiological

health data on this group also, or to gather information on the factors that had caused them to lose their enthusiasm for the program. As the only information available on the non-respondents was the data collected at pre-test, the only analyses possible were comparisons to determine whether EC respondents and non-respondents differed significantly on any of the demographic/personologic variables measured prior to the PMS seminar.

Table 6 presents the mean scores on these variables Time 1 (pre-test) for EC group participants who had cooperated at the Time 2 data collection (N = 9), as compared to those who had not responded (N = 12). As can be seen, the two sets of participants did not differ on any of the variables at the significance level set for this research ($p < .05$), although four variables were significant within the .10 level. Two of these variables are physiological measures (systolic blood pressure and pulse), with non-respondents having lower values than respondents ($\bar{x}$ = 128.8 for EC respondents, and $\bar{x}$ = 120.5 for EC non-respondents; $t = 1.91$, $p < .07$). A third marginally significant variable was mean age of youngest child, which was lower for non-respondents ($\bar{x}$ = 2.4 years old for EC respondents, and $\bar{x}$ = .91 years old for EC non-respondents; $t = 1.87$, $p < .08$). The fourth marginally significant variable was mean score on the Social Readjustment Rating Scale (life events), which was also lower for EC group non-respondents than respondents ($\bar{x}$ = 346.1 for EC respondents, and $\bar{x}$ = 218.33 for EC non-respondents; $p < .07$).

Table 6

Comparison of Pre-Test Measures for Experimental Group Respondents at Time 2 vs. Non-Respondents at Time 2

Measure	Respondents Mean N = 9	SD	Non-Respondents Mean N = 12	SD	t
Age (Yrs.)	39.1	11.06	39.6	15.5	1.98
Height (In.)	65.8	2.4	64.2	3.6	1.23
Weight (Lb.)	149.8	28.6	140.0	30.3	.76
Systolic B.P.	128.8	8.19	120.5	11.8	1.19*
Diastolic B.P.	88.8	5.1	77.8	9.4	.95
Pulse	84.0	8.6	78.0	3.7	1.95*
Tenure (Mos.)	48.3	37.6	45.0	41.5	.19
Children (Number)	1.4	1.3	1.8	2.9	**
Youngest Child's Age (Yrs.)	2.4	2.0	.91	1.6	1.87*
Exercise	2.1	1.8	1.9	1.08	.27
Type A	39.0	13.1	44.8	16.5	.90
Life Events	346.1	161.0	218.3	137.2	1.91*

*$p < .08$

**X^2 (3) = 2.75, $p < .05$

These data suggest that the EC group non-respondents were slightly healthier than respondents, and had experienced fewer stressful life events in the six months prior to the PMS seminar. It will also be remembered that the EC and CC groups were slightly different on their Social Readjustment Rating Scale (life events) scores at Time 2. The greater magnitude of stressful life events experienced by the EC group respondents may have provided motivation to continue to work toward their PMS goals, despite the effects of mediating variables (e.g., previous habits, aid or hindrance from significant others, skills and abilities, etc.) on the link between their intentions to work on the goals and the actual goal directed behavior. It is unfortunate that it was not possible to gather additional information from the EC non-respondents to empirically validate this hypothesis.

Eight Month Follow-Up

Participants in this research were contacted eight months following the PMS seminar, and again requested to report to the Employee Health Center for measurement of blood pressure, pulse, and weight. The EC group was also asked to complete another follow-up questionnaire (identical to the one administered at four months, with the exception of the Health Locus of Control Scale, and questions dealing specifically with the PMS session itself).

Although the response rate for the CC group remained constant at 52% (N = 10 respondents), the response rate for the EC group

dropped to a mere 20% (N = 4). Reminder letters and phone calls to non-respondents failed to obtain their cooperation, such that statistical comparisons between the EC and CC groups could not be legitimately conducted. Again, it would appear that the extra response burden placed on the EC group, coupled with the likelihood that a majority were no longer working on their goals (and thus reluctant to continue to participate in the research) created a severe attrition rate not also found in the CC group.

Description of physiological health measures. The means and standard deviations of the physiological health measure (blood pressure, pulse and weight) obtained from the EC and CC group participants over the eight months of this research is presented in Table 7. The results for the EC groups are not reliable, as they are based on only 20% of the respondents in that group; therefore, statistical tests of differences between the EC and CC groups were not performed. Instead, the magnitude and direction of change over time for each group was compared, to determine if the PMS Seminar experience had an impact on participants' health status.

From the data presented in Table 7, it can be seen that both groups exhibited a decrease in the first three physiological measures (systolic, diastolic blood pressure, and pulse). However, the change in the EC group was of greater magnitude in each case, particularly in pulse rate. Interestingly, the change for both groups on all measures (except EC pulse rate at eight months) was greatest between

Table 7

Comparison of Experimental Group and Control Group on Physiological Health Data Over Eight Months

Measures	Experimental Group			Control Group		
	Mean	SD	N	Mean	SD	N
Systolic Blood Pressure						
Pre-Test	127.5	9.57	(4)	119.2	10.24	(10)
Four Months	122.0	14.10	(4)	116.4	18.15	(10)
Eight Months	122.0	22.48	(4)	116.8	15.96	(10)
Diastolic Blood Pressure						
Pre-Test	80.0	3.54	(4)	73.0	7.81	(10)
Four Months	74.2	9.09	(4)	70.4	11.63	(10)
Eight Months	74.0	14.18	(4)	69.4	8.00	(10)
Pulse						
Pre-Test	79.0	2.00	(4)	81.5	11.04	(10)
Four Months	77.5	4.16	(4)	80.6	11.71	(10)
Eight Months	72.5	5.29	(4)	80.4	8.81	(10)
Weight						
Pre-Test	160.5	15.68	(4)	149.6	34.79	(10)
Four Months	158.0	5.16	(4)	151.7	31.10	(10)
Eight Months	168.3	13.86	(4)	151.4	35.80	(10)

pre-test and four months, with no further change at eight months. As this same pattern occurred for both groups, it cannot be attributed to the PMS Seminar with any confidence. The CC group exhibited practically no change in weight over the eight months, while the EC group exhibited a net increase in weight of eight pounds in this same period. Closer inspection of the EC data revealed that this finding was due to a 20 pound weight gain between four and eight months for the one male in the EC group.

As the gender composition of the EC and CC groups over the eight months was significantly different (one male in the EC group and five males in the CC group), the results for the physiological data was recomputed for females only. Table 8 presents these data for both groups over eight months. Again, the groups were too small to conduct statistical tests of significant differences between groups. As can be seen from Table 8, both groups decreased in blood pressure and both groups increased in weight over eight months. The two groups only differed in the direction and magnitude of change for pulse rate, with the EC group exhibiting a net decrease of six points, while the CC group exhibited a net increase of approximately one point. It is unfortunate that these results are based on such small sample sizes, as the data are not reliable enough to draw any conclusions about the efficacy of the PMS Seminar to have an impact on physiological health status over time.

Attendance data. The last set of dependent measures included

Table 8

Comparison of Experimental Group and Control Group on Physiological Measures Over Eight Months- Females Only

Measures	Experimental Group			Control Group		
	Mean	SD	N	Mean	SD	N
Systolic Blood Pressure						
Pre-Test	123.50	5.77	(3)	117.2	9.32	(5)
Four Months	116.0	14.42	(3)	114.0	12.16	(5)
Eight Months	119.0	15.01	(3)	110.8	11.40	(5)
Diastolic Blood Pressure						
Pre-Test	81.3	1.15	(3)	71.6	2.61	(5)
Four Months	73.3	9.86	(3)	67.6	8.04	(5)
Eight Months	75.3	6.42	(3)	67.2	7.42	(5)
Pulse						
Pre-Test	78.6	2.30	(3)	79.2	8.48	(5)
Four Months	76.6	3.05	(3)	83.6	7.40	(5)
Eight Months	72.6	3.05	(3)	80.4	5.72	(5)
Weight						
Pre-Test	138.6	8.08	(3)	134.6	36.34	(5)
Four Months	135.6	5.68	(3)	136.8	39.56	(5)
Eight Months	142.0	13.45	(3)	137.0	38.00	(5)

in this research was the amount of absenteeism from work exhibited by each group during the entire data collection period. It has been hypothesized that if the PMS Seminar was having a positive effect on participants' physical and mental health, that the EC group should have a lower rate of absenteeism related to illness. Attendance figures for both groups were obtained from Personnel records for the six months prior to the PMS Seminar and for the right months following the seminar.

Table 9 presents the average number of sick days (and unpaid days) taken by each group, based on the employees still employed at the hospital. As can be seen, there are no significant differences between groups either before or after the PMS Seminar, nor are there any differences within each group. The stability of these findings suggest that the hospital administrators may have had an unrealistic concern as to the rate of absenteeism among hospital employees, as each employee was absent an average of 2.35 days in 14 months due to illness. (However, employees are granted liberal paid vacations, personal days, and are even paid for "in-service" sessions, such that any given employee may be away from work for a substantial amount of time for reasons other than illness.) Again, the PMS seminar did not appear to have an influence due to illness, chiefly because absence due to illness was already at a minimum.

Turnover data. Access to payroll data also allowed the tabulation of the amount of turnover that had occurred among the 40 employees

Table 9

Comparison of Experimental Group and Control Group on Attendance* Data Prior and Following PMS Seminar

Time Period	Experimental Group			Control Group		
	Mean	N	SD	Mean	N	SD
Six Months Prior to PMS Seminar	6.73	17	.32	6.84	17	.88
PMS Seminar to Eight Months Following	7.00	17	.87	6.61	17	1.12

*Number of days based on Sick days and Unpaid days only

Note: There were no significant differences between means.

participating in this research. Within eight months after the PMS session, 17% of the total group was no longer employed at the hospital; there was no significant difference between the EC and CC groups in the number of employees who had left the hospital (4 employees from the EC, and 3 from the CC). If this low rate of turnover is representative of the hospital as a whole, then this withdrawal behavior is at an average level for service organizations; an Administrative Management Society survey of industry turnover rates found turnover to be approximately 22% for such organizations (Chicago Tribune, 1982). Thus, the PMS program could not be expected to have a positive impact on turnover, as this rate was already at a baseline level.

CHAPTER VII

DISCUSSION

From the results of the research just presented, it can be concluded that the PMS Seminar was a health promotion seminar that was very well received by participants, but one that could not sustain the long term commitment required to change basic health behavior. No significant differences were found between the Experimental Condition (EC) group and the Control Condition (CC) group on any of the physiological health measures (blood pressure, pulse, weight) assessed four months after the program, nor on the work-related variables of attendance and turnover. The extremely high attrition rate (80%) of the EC group within eight months of the program indicated that a majority of participants had lost their enthusiasm for the program, and/or were no longer working on their program goals. In addition, it was found that the participants had only made progress toward two goals (Work/Education and Social/Emotional), neither of which would be expected to directly affect physiological health.

These findings highlight the most fundamental problems facing evaluation of health promotion programs - that of retaining participants' cooperation on a long term basis, and that of being able to detect a positive impact of the program on participants' health. In

the case of the PMS program, there would appear to be several interrelated reasons for the lack of measurable impact on participants: 1) the program, in its attempts to provide a holistic approach to wellness, was asking participants to change something about many facets of their lives, and yet 2) the program did not provide follow-up mechanisms that would be powerful enough to maintain such drastic changes, and finally, 3) it is possible that the program did have an impact on participants that was not detected by measures included in the research design. Each of these factors will be discussed in this chapter.

Evaluation of the PMS Seminar Treatment

Research on long-term maintenance of behavior change has shown that length of treatment is positively related to outcome (Gerard & Saenger, 1966; Hunt & Matazzaro, 1973). The PMS Seminar "treatment" consisted of only one eight hour session, which is not sufficient time for participants to acquire and practice a wide variety of new, complex behaviors. Indeed, it is likely participants were working on the two goals toward which the greatest progress had been reported (Work/Education and Social/Emotional) prior to the Seminar, or that participation in the program at least hastened changes that would have eventually occurred anyway. It is unfortunate that the data required to test for such a "trigger effect" (Green, 1977), specifically, goal attainment ratings from a sufficient sample of EC group at eight months after the program, coupled with information on whether participants were working on any goals prior to the PMS Seminar, were not

obtained. Given the likelihood of such a spurious effect masquerading as a "true" program effect in very short-term treatment, it is important that future research include a test of this threat to validity.

The treatment effect of the PMS Seminar included a decision grid exercise to aid participants in setting their goals. This heuristic consisted of ratings made on successive pairs of potential goals, to determine which were actually the most important and amenable to change. In this way, participants should be able to form more realistic intentions of behavior change. However, given that the PMS program treatment was of such short duration, this decision-making process should have been more intensive. Research conducted by Janis and his colleagues on adherence to difficult decisions (Hoyt & Janis, 1975; Janis & Mann, 1976) has utilized a pre-decisional exercise that is designed to bring about conditions conducive to long-term maintenance. This exercise, called the "balance-sheet" procedure, requires that the decision makers confront and answer questions about potential risks and gains of the intended behavior they may not have previously considered. It is maintained that without such a systematic procedure, even the most alert and well-motivated person may overlook vital aspects of the alternatives that can have a negative effect on the strength of the intention to change (Janis & Rodin, 1979).

In terms of the Fishbein and Ajzen (1975) model of behavior change, this "balance-sheet" exercise is tantamount to having decision makers confront the impact of all relevant mediating variables between

their intentions and behavior, such that the intention can be reformulated to defend against these contingencies. As this research on the PMS Seminar revealed that the mediating factors that are relevant vary with the intended goal, it would be necessary to devise "balance-sheets" specific to each goal. This finding is corroborated by research conducted by Hoyt and Janis (1977) with women who had signed up for an early morning exercise class. Half of the women were provided with a balance-sheet relevant to regular participation in such a class, while the other half were given an irrelevant balance-sheet (pros and cons of non-smoking). It was found that those receiving the relevant balance-sheet attended significantly more classes than those who did not.

Evaluation of PMS Program Follow-up Procedures

The lack of adequate follow-up mechanisms is another factor that contributed to the severe attrition rates experienced by the EC group in this research. Even if the pre-decision exercise used during the PMS session had been sufficient to create strong and reasonable intentions to change health behaviors, participants were essentially left on their own to combat all the factors that were acting to induce recidivism.

The primary means of renewing and reinforcing participants' goal intentions was the mailing out of monthly newsletters and additional copies of the individual's goals. A manipulation check included in the Follow-up Questionnaire revealed that participants did

receive and read these newsletters, but that, on the average, they had little or no effect on goal attainment. In addition, participants were encouraged to change their goals as needed (e.g., scale up or down), and to report these changes to Forest Hospital, so that their records could be updated for future monthly mailings. Results of the Follow-up Questionnaire indicated that only three participants had actually notified Forest Hospital of changes in their intended goals, although approximately half of the EC group had indicated that they had modified at least one goal. Even participation in the follow-up data collection periods required for this research did not seem to create any spurious effects on goal attainment, as had been speculated when the research was first proposed; indeed, the differential attrition rate between the EC and CC groups indicated that a majority of the EC group had lost interest in the project within four to eight months after the PMS session, and/or were unwilling to publically admit that they were no longer working toward their goals.

Adequate reinforcement of treatment effects is crucial to the program's success, as participants must change behaviors that are in-grained. Habits are particularly hard to modify because they are conditioned responses that can be triggered and maintained by many different sensory and environmental cues which do not necessarily have to enter the individual's conscious thought. Those behaviors that are performed on a frequent basis, as most health habits are, can be further organized into complex behavior structures, where

outcomes of one response serve as cues for later responses. Verbal cues (labels) may even be incorporated to provide cues for the next response even when environmental consequences do not yield them directly (Stone, 1979). This may be why the latest research in nutritional habits have found that the best predictors of these behaviors are lifestyle variables, rather than self-reported nutrition knowledge (Broder, 1982).

Most health promotion program designers recognize that compliance with new behavior recommendations requires a change in the participants' interpersonal and life environment systems, so that the previous chains of conditioned responses can be broken, and more healthy ones developed (McCann, 1981; Shea, 1981). However, this is easier said than done. Many Wellness programs conducted at the worksite enlist participants from the same work unit, to capitalize on peer support/pressure to maintain good health habits. For example, Control Data's "Staywell" Program is designed to modify not only an individual's personal health habits, but also the norms that affect behavior in the workplace. This is accomplished by involving almost every employee (enrollment is reported to be an average of 91%) in a wide range of on-going health activities, as well as encouraging employees to form "Task Forces" to improve the healthfulness of the work environment (e.g., the choice of food in the vending machines, the addition of bicycle racks, showers, etc.) and to sponsor their own classes to meet specialized needs (e.g., lunch hour running clubs, low-calorie cooking classes, etc.) (McCann, 1981). The company is only now ready to begin to

assess the impact of this comprehensive approach on employees' health and work performance, after three years of program implementation.

Of course, not every company is able or willing to provide such a comprehensive program. Most program implementers must try to produce a measurable impact with much more limited resources. In such circumstances, enhancing the role of the program's coordinators has been shown to dramatically reduce attrition from the program, particularly if coupled with peer support. For example, a Wellness program designed by PRIME Systems, Inc. that can be easily implemented by an organization's own training department, recommends that trainers concentrate their efforts to maintain program goals during the critical thirty days following the actual treatment phase (Shea, 1981). They are asked to send notes of support to participants each day during the first week, and then at least once a week thereafter. Approximately sixty days after the program, another two days of intensive training and group support techniques are scheduled with participants. Reported results include an attrition rate of only seven percent (as opposed to 80% for the PMS Seminar in this research), and at least 15% of participants reporting a substantial decrease in illness incidence and low level illness symptoms in the first year of follow-up (Shea, 1981).

From these examples, it is clear that the PMS follow-up procedures hardly attain even the minimum required to maintain compliance

with the program. It is therefore not surprising that no short-term impact was detected. Indeed, another finding from the PRIME System Wellness Program highlights this conclusion. This program puts an emphasis on skills acquisition, or the practicing of new behaviors to supplant those that are to be discarded. To that end, those participants that seek to alleviate stress in their lives are not only taught relaxation techniques, but are also given a cassette tape of these techniques to share with their family at home. The greatest gains reported by participants at the three month follow-up was in stress management, with a concomitant decrease in chronic illness symptoms, such as, stomach aches, headaches, nervousness, etc., (Shea, 1981).

This can be contrasted to the results obtained from the PMS Seminar. Stress management techniques had also been taught during the course of the session, and it had also been an area in which goals could be formulated. After four months, this goal had been ranked second in importance across EC group participants; however, participants could report little progress in this area as compared to the first ranked goal (where "as much progress as planned" was the average response). As might be predicted by the Fishbein and Ajzen (1975) model of behavior change, the mediating factors of lack of skill, previous habits, and the degree to which participants felt they could control their own health were found to be the primary

factors interfering with attainment of this goal.[2] These findings further illustrate the importance of adequate behavior practice and reinforcement in successful behavior change.

Evaluation of the Dependent Measures Included in This Research

As cogent as the foregoing arguments are that the failure to detect any physiological or work-related impact of the PMS Seminar is most likely due to lack of strong treatment and follow-up mechanisms to induce such impact, it is still possible that the program did have a beneficial effect on participants that was not detected by the research design or instrumentation. As previously stated, it would have been ideal to have been allowed greater access to the research participants, in order to obtain information from those that would no longer cooperate with the study, as well as to obtain information on goal progress within the critical first thirty days after the Seminar. These data might have provided valuable information on how the various mediating factors were impinging on participants, to allow the design of more effective future treatment (e.g., appropriate "balance-sheets") and perhaps a better understanding on how to reinforce whatever compliance behavior was occurring.

The failure to detect short-term physiological impact was further confounded by the fact that all subjects (both condition groups) were

[2]It must be remembered that these correlations are based on a very small sample size, however conveniently they appear to confirm the hypothesis.

already within normal ranges at pre-test, and were not sufficiently numerous to allow separate analyses on the less healthy participants. The same ceiling effect was found in the questions designed to assess changes in psychological well-being; reported satisfaction with various life aspects was so uniformly high at pre-test, the questions were not asked again at the follow-up data collection periods. Future research should attempt to tap any changes in more sensitive physiological and psychological variables that might be influenced by success in goal attainment (e.g., fewer somatic symptoms, self-attribution of change, increased confidence in one's abilities, etc.). Given that such "state" measures are extremely sensitive to environmental events, many data points at frequent intervals would be necessary to reliably distinguish the changes due to the PMS program rather than other external factors.

Generalizability of Results

The initial impetus for this research had been a concern on the part of hospital administrators about the health status of employees, and its affect on work-related behavior. It had been assumed that those employees who were in most need of assistance with their personal health would volunteer to participate in the project. Without data on the demographic composition and health status of the entire population of hospital employees, it is difficult to assess whether this assumption was confirmed. In general, however, it was found that those who had volunteered for the program (both EC and CC groups)

were within normal ranges on health measures, had very low absenteeism rates (an average of approximately two days absence due to illness per year), and below average turnover rates (17% vs. 22% for most service organizations) (Chicago Tribune, 1982). These findings seem to indicate that employees with real health and/or work related problems did not seek out the assistance of the PMS Seminar, even though the program had been fairly well advertised and promoted in the Employee Cafeteria and Employee Health Center.

The demographic composition of participants in this research coincides remarkably with major findings in studies investigating the patterns of the use of preventive services. In general, it has been found that such services are used most often by younger or middle-aged persons, by females, and by those with relatively better, but not necessarily highest, levels of education and income (Rosenstock & Kirscht, 1979). Of the 40 participants in this research, 33 were female, and only six were male. The average age was 38 years (median age 35 years old). In terms of occupational status, 68% of the total group belonged to either the nursing or administrative staff, while only 20% belonged to the medical support staff, and only 10% were professionals. This is probably representative of the actual demographic breakdown for the entire hospital. However, in this research, there had been no minority participants; again, this is apparently in accord with findings that acceptance rates are usually much lower for non-whites (Rosenstock & Kirscht, 1979).

From these participant characteristics, it would appear that the sample was very much representative of those who usually seek out preventive health services. However, it is also clear that whatever factors are operating to cause indifference, avoidance, or lack of opportunity to participate in the remaining segments of the population were also in effect prior to the PMS Seminar as well. Further, these other groups (males, minorities, professionals) are precisely those who have been found to be at greater risk for various chronic diseases influenced by lifestyle (Friedman & Rosenman, 1975; Task Force on Preventive Medicine, 1976). Thus, to be maximally effective, future health promotion programs need to address themselves to issues of barriers to initial program acceptance as well as compliance with program goals.

The Health Belief Model (Becker & Maiman, 1975) may offer clues as to some of the conditions necessary for acceptance of preventative health services. This model, discussed in Chapter II, holds that health behavior is associated with a number of beliefs, including: 1) concern about one's health, 2) belief in one's vulnerability to illness, 3) belief in the efficacy of the treatment or service proposed, and 4) beliefs about the convenience and possible costs of accepting the treatment or service. Research conducted within the framework of this model have attempted to increase the use of preventive health services by increasing target groups' beliefs of susceptibility to illness, as well as strengthening beliefs in the efficacy of the

program to reduce that susceptibility via pre-program messages (Haefner & Kirscht, 1970; Suchman, 1970). It was generally found that such messages are effective in modifying health beliefs and subsequent behaviors in the desired direction.

Such an approach would appear to be feasible to conduct prior to the next health promotion program held at the hospital. Messages sent to all employees (e.g., special newsletters or paycheck inserts, etc.) used to announce the program could present information aimed at modifying the health beliefs of various target group (e.g., males, minorities, etc.), in an effort to increase their rate of participation. At the same time, efforts should be made to be sure that barriers to attendance are minimized, such as scheduling program sessions at times that do not conflict with job responsibilities, and enlisting the aid of supervisors in encouraging employees to participate in the program. Once health promotion activities become an accepted part of the work environment, it has been found that employee participation increases dramatically (c.f. Control Data "Staywell" Program).

Recommendations

The research presented here was conducted to provide empirical data to be used in making the decision whether future PMS Seminars should be held at the hospital. On the basis of the results of this evaluation, it has been recommended that the lack of adequate "treatment" and follow-up procedures provided by this program would make it

a poor choice for the substantial investment (at least $25 per each of 3,100 employees, not including salary) needed to implement it on a hospital-wide basis. On the other hand, given the importance of health promotion to the future reduction of chronic disease, and the success reported by other more intensive programs, it is recommended that an in-house Wellness program be implemented by the qualified staff already dealing with employee problems.

Any health promotion program implemented should ideally provide the following: 1) audits of participants' current health status, to provide a benchmark for future change, as well as motivation to change health behavior, 2) health knowledge and skills training over a sufficient period of time to allow participants to develop feasible goals for change, 3) a supportive system incorporating trainer, peer, and family support that is necessary to reinforce and maintain new health behaviors on a long-term basis, 4) evaluation of the program at appropriate intervals (e.g., during the first month after treatment, and at least quarterly thereafter), using measures sensitive to both short-term and long-term changes, and 5) re-design of program components in light of evaluation results to best meet participants' needs and maximize positive wellness benefits.

The research presented here on the PMS program should illustrate that wellness cannot be obtained for just a minimum investment. Good health is an important commodity which requires the concerned efforts of both the individual and the medical community to maintain

over a lifetime. It is believed that the health promotion field can provide the means to combat the threats to the quality of life, and it is hoped that this research has contributed to that effort.

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APPENDIX A

PERSONAL DATA SHEET

NAME: EMPLOYEE NUMBER:

DATE:

SEX:_____ AGE_____ HEIGHT_____ WEIGHT_____

BLOOD PRESSURE_____ PULSE_____

SMOKING--YES NO NUMBER OF CIGARETTES PER DAY_____

BRAND_____ NUMBER OF YEARS SMOKING_____

CUPS OF COFFEE PER DAY -- AT WORK_____ AT HOME_____

EMPLOYED AS (POSITION)_____ HOW LONG?_____

MARITAL STATUS_____ NUMBER OF CHILDREN_____

AGES OF CHILDREN_____

EXERCISES: WHICH OF THE FOLLOWING ACTIVITIES DO YOU ENGAGE IN ON A REGULAR BASIS (AT LEAST ONCE A WEEK):

_____JOGGING/RUNNING

_____SWIMMING

_____BICYCLING

_____TENNIS/RACQUETBALL

_____GOLF

_____BOWLING

_____DANCING

_____YOGA

_____CONDITIONING EXERCISES (sit-ups, isometrics, etc.)

_____HEALTH CLUB MACHINES

_____WALKING (mile or more at a time)

_____OTHER Please specify,

TYPE A-B PERSONALITY TEST

The following questions are intended to help you determine whether or not you tend toward the Type A personality. They are based on the work of Drs. Friedman and Rosenman, as well as other researchers.

Reach each question carefully and then circle the number which corresponds most closely to your usual habits and attitudes. Please answer every question. The scoring system is dependent upon an answer to each question.

Do you mind doing routine repetitive tasks?

0 not really
2 sometimes
5 yes, usually

Do you get impatient when things don't go as quickly as they could?

0 seldom
2 sometimes
5 yes, usually

Do you keep track of what you have accomplished in terms of things you can count - like the number of miles you have driven, letters you've typed, or parts you've assembled - even when you don't have to?

0 not really
2 sometimes
5 usually

When people talk slowly, do you feel like hurrying them along?

0 rarely
2 sometimes
5 usually

Do you clench your teeth or form your hands into fists without noticing it until later?

0 rarely
2 sometimes
5 often

Would people you know you well say that you enjoy a contest and usually try hard to win at whatever you do?

0 probably not
2 maybe
5 probably yes

Do you read or watch television while eating alone?

0 seldom
2 sometimes
5 usually

Do you know how people are going to finish their sentences and sometimes finish their thoughts for them?

0 once in a while
2 occasionally
5 often

Do you wake up early in the morning or in the middle of the night and think about the things that will have to be done in the days ahead?

0 seldom
2 once in a while
5 often

Do you walk and eat more rapid than others?

0 rarely
2 sometimes
5 usually

How often do you bring work home with you, or spend time during evenings or weekends thinking about things that are important on the job?

0 almost never
2 busy times
5 frequently

Does it irritate or anger you to be kept waiting when you have an appointment?

0 rarely
2 sometimes
5 yes

Do you try to make every moment count by doing two things at once whenever possible? (Like shaving while driving to work or reading while listening to the news?)

0 rarely
2 occasionally
5 frequently

Is time valuable to you? (Do you for example, schedule each day carefully, and still find that there often is just not enough time to do everything that needs to be done? Do you find yourself looking for faster ways of doing things?)

0 not really
2 sometimes
5 definitely yes

How often do you go to your place of work when it is officially closed (or outside your normal working hours?)

0 rarely
2 busy times
5 frequently

When faced with a deadline or quota, do you make every effort to be sure it is met?

0 not really
2 sometimes
5 usually

Would you say that whatever success you have had is due to the fact that you can do many things faster than other people?

0 probably not
2 maybe
5 definitely

When talking to people, do you find that your mind wanders to thinking about other things that still need to be done?

0 almost never
2 sometimes
5 often

Do you get angry when you are forced to delay your work or waste time because someone else has missed a deadline or failed to be prompt?

0 almost never
2 sometimes
5 often

Do you talk "explosively"? (For example, do you emphasize key words with your voice or by gestures of your hands and body or do you speed up towards the ends of sentences?)

0 rarely
2 sometimes
5 frequently

Add up the total of the numbers you have circled.

Interpret your score on page 9

SOCIAL READJUSTMENT RATING SCALE

Some medical researchers have found that mental and physical illness is sometimes preceded by a pattern of significant life changes, and that, therefore, future health or disease could be forecast by evaluating these events. The greater the number of life changes, the greater is the possibility that illness will occur.

To evaluate your own life change factors, circle YES or NO to each life event in the list below, that has happened to you in the last twelve months. After you have completed the list, circle the point value for each YES answer. Then add up the points for a total score. Compare your total with the life change score table given on the next page.

LIFE EVENT			
1. death of a spouse	yes	no	100
2. divorce	yes	no	73
3. marital separation	yes	no	65
4. jail term	yes	no	63
5. death of close family member	yes	no	63
6. personal injury or illness	yes	no	53
7. marriage	yes	no	50
8. fired from work	yes	no	47
9. marital reconcilation	yes	no	45
10. retirement	yes	no	45
11. change in family member's health	yes	no	44
12. pregnancy	yes	no	40
13. sex difficulties	yes	no	39
14. addition to family	yes	no	39
15. business readjustment	yes	no	39
16. change in financial status	yes	no	38
17. death of a close friend	yes	no	37
18. change to different line of work	yes	no	36
19. change in number of marital arguments	yes	no	35
20. mortgage or loan over $10,000	yes	no	31
21. foreclosure of mortgage or loan	yes	no	30
22. change in work responsibilities	yes	no	29
23. son or daughter leaving home	yes	no	29
24. trouble with in-laws	yes	no	29
25. outstanding personal achievement	yes	no	28
26. spouse begins or stops work	yes	no	26
27. starting or finishing school	yes	no	26
28. change in living conditions	yes	no	25
29. revision of personal habits	yes	no	24
30. trouble with boss	yes	no	23
31. change in work hours, conditions	yes	no	20
32. change in residence	yes	no	20

33. change in schools	yes	no	20
34. change in recreationsl habits	yes	no	19
35. change in church activities	yes	no	19
36. change in social activities	yes	no	18
37. mortgage or loan under $10,000	yes	no	17
38. change in sleeping habits	yes	no	16
39. change in number of family gatherings	yes	no	15
40. change in eating habits	yes	no	15
41. vacation	yes	no	13
42. Christmas season	yes	no	12
43. minor violation of the law	yes	no	11

LIFE CHANGE SCORE TOTAL

Point total of:	Chance of illness within next two years
150 or less	37 %
151-299	50 %
300+	80 %

Social Readjustment Rating Scale developed by Dr. Thomas Holmes and Dr. Richard H. Rake.

EVALUATION OF SEMINAR

Name of Evaluator (Optional):_____

I. What did you like best about the seminar?
Explain:_____

_____

_____

II. What did you like least about the seminar?
Explain:_____

_____

_____

III. What aspect of the seminar would you improve and how?
Explain:_____

_____

_____

IV. What did you hope to get out of the seminar?
Explain:_____

_____

_____

V. Did you get from the seminar what you expected?
Explain:_____

_____

_____

VI. How did you hear about this specific program? Newspaper___
Friend_____ Other_____ (please list)_____

VII. Overall I felt the seminar was:

0	1	2	3	4	5	6
Very poor			O.K.			Very good

FOREST HOSPITAL AND FOUNDATION

FOREST HOSPITAL FOUNDATION
PERSONAL MANAGEMENT SYSTEM

NAME: _____

STREET: _____

CITY, STATE, ZIP: _____

FACILITY: _____ ID#: _____

INTERVIEWER: _____ DATE: _____

AREA	
EXERCISE	Goal: Why: How: When: Assessment: Personal Reward: Progress:
NUTRITION	Goal: Why: How: When: Assessment: Personal Reward: Progress:
STRESS MANAGEMENT	Goal: Why: How: When: Assessment: Personal Reward: Progress:

NAME _____ DATE _____

LIFE SATISFACTION

The following questions deal with how satisfied you are with the various aspects of your life:

1. In general, how is your health? (circle the number that best applies)

1	2	3	4	5
Very Poor	Poor	Moderate	Good	Very Good

2. In general, how satisfied are you with your relationships with your family?

1	2	3	4	5
Not at all satisfied				Very satisfied

3. In general, how satisfied are you with your job?

1	2	3	4	5
Not at all satisfied				Very satisfied

4. In general, how satisfied are you with yourself as a person?

1	2	3	4	5
Not at all satisfied				Very satisfied

APPENDIX B

GOAL AREA:

1. HOW IMPORTANT IS THIS GOAL TO YOU AT THIS TIME? (Circle the number that applies

1	2	3	4	5
Not important at all	Not too important	Somewhat important	Important	Very Important

2. WHICH OF THESE STATEMENTS BEST DESCRIBES YOUR PROGRESS TOWARD YOUR GOAL IN THI
(Check the one sentence that best applies).

____ I have not taken any action to reach this goal.

____ I started taking action on this goal for the first week or two, but have si
stopped.

____ I took action on this goal for the first month or two, but have since stopp

____ I have been working on this goal since June, but have not made as much prog
as I would like.

____ I have been working on this goal since June, and have made as much progre
as I had planned.

____ I have been working on this goal since June, and have made better progress
than I had planned (or have reached the goal).

3. HOW MANY NEWSLETTERS HAVE YOU RECEIVED IN THE MAIL FROM FOREST HOSPITAL? _____

4. WHAT EFFECT HAVE THESE NEWSLETTERS HAD ON YOUR EFFORTS TO REACH YOUR GOAL?
(Circle the number that best applies).

1	2	3	4	5
No effect	Little effect	Some effect	Large effect	Very great eff

5. HAVE YOU MODIFIED YOUR ORIGINAL GOAL? Yes_____ No _____

a)If yes, in what way have you modified the goal? (Check the onestatement that a

____ I have scaled down the goal

____ I have increased the goal to be reached

b) Have you sent any progress reports to Forest Hospital to update your goal?

Yes _____ No _____

6. HOW LIKELY IS IT THAT YOU WILL CONTINUE TO WORK ON THIS GOAL FOR THE NEXT 3 MO
(Circle the number that best applies)

1	2	3	4	5
Very unlikely	Unlikely	Somewhat likely	Likely	Very likely

GOAL AREA:

7. DO YOU REMEMBER READING OR HEARING ANYTHING ABOUT THIS AREA IN THE LAST 3 MONTHS THAT HAS MOTIVATED YOU TO WORK HARDER ON YOUR GOAL?

YES_____ NO_____

DO YOU REMEMBER READING OR HEARING ANYTHING THAT HAS CAUSED YOU TO LOSE YOUR MOTIVATION TO WORK ON YOUR GOAL?

YES_____ NO_____

If you answered yes to either question, please describe where you read or hea the information:

8. HOW MUCH DID YOUR OLD WAY OF DOING THIGS GET IN THE WAY OF ACTING ON YOUR GOA (Circle the number that best applies).

1	2	3	4	5
Not at all	Very little	Somewhat	Great deal	Very much

9. TO WHAT DEGREE DID YOU FORGET TO CARRY OUT YOUR NEW RESOLUTION WHEN THE CHAN CAME UP? (Circle the number that best applies).

1	2	3	4	5
Never forgot	Almost never forgot	Sometimes forgot	Forgot much of the time	Always forgot

10. TO WHAT DEGREE DID YOUR FAMILY AND FRIENDS HELP YOU TOWARD YOUR GOAL? (Circle the number that best applies).

1	2	3	4	5
Hindered me	Did not help very much	Helped somewhat	Helped me	Helped very much

11. DID YOU FIND THAT YOU LACKED THE SKILLS OR ABILITY TO REACH YOUR GOAL?

YES_____ NO_____

NAME_____ DATE _____

THE FOLLOWING QUESTIONS DEAL WITH PEOPLE'S BELIEFS ABOUT THEIR HEALTH AND ABOUT THE FACTORS THAT THEY FEEL INFLUENCE HOW HEALTHY THEY ARE. PLEASE ANSWER EVERY QUESTION AS BEST AS YOU CAN.

PLEASE CIRCLE THE NUMBER THAT BEST DESCRIBES HOW MUCH YOU AGREE WITH EACH OF THE FOLLOWING STATEMENTS:

1. If I get sick, it is my own behavior which determines how soon I get well again.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

2. No matter what I do, if I am going to get sick, I will get sick.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

3. Having regular contact with my physician is the best way for me to avoid illness.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

4. Most things that affect my health happen to me by accident.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

5. Whenever I don"t feel well, I should consult a medically trained professional.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

6. I am in control of my health.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

7.My family has a lot to do with my becoming sick or staying healthy.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

8. When I get sick, I am to blame.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

9. Luck plays a big part in determining how soon I will recover from an illness.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

10. Health professionals control my health.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

11. My good health is largely a matter of good fortune.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

12. The main thing which affects my health is what I myself do.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

13. If I take care of myself, I can avoid illness.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

14. When I recover from an illness, it is usually because other people (for example doctors, nurses, family, friends) have been taking good care of me.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

15. No matter what I do, I'm likely to get sick.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

16. If it's meant to be, I will stay healthy.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

17. If I take the right actions, I can stay healthy.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

18. Regarding my health, I can only do what my doctor tells me to do.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

19. At the moment, I am in excellent health.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

20. In general, I am an extemely healthy person.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

The following questions deal with other aspects of the Wellness Seminar. Your answers to these will provide feedback as to how to make the program better in the future.

1. What was your reason for wanting to attend the Wellness Seminar in the first place?

2. Have you used any of the following techniques taught during the session? (Check those that apply)

_____ Relaxation techniques

_____ Exercise program (aerobic)

_____ Diet diary

_____ Decision grid

_____ Creative thinking (new uses for ordinary things or ideas)

_____ Nutrition/vitamin suggestions

For those you checked, indicate how often you have used them.

3. Did you get out of the seminar what you had hoped? Yes____ No____
If No, what other topics would you like to be included?

4. What was your overall rating of the Wellness Seminar? (Circle the number that applies.)

1	2	3	4
Poor	Fair	Good	Excellent

APPROVAL SHEET

The thesis submitted by CHRISTINE OVCHARCHYN DEVITT has been read and approved by the following committee:

Dr. Emil Posavac, Director
Professor, Psychology, Loyola University

Dr. Homer Johnson
Professor, Psychology, Loyola University

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that an- necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

April 21, 1983
Date

Director's Signature