INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Leadership style and employee stress outcomes

Tanabe, Mildred Reiko, Dr.P.H.

University of Hawai'i, 1993

Copyright ©1993 by Tanabe, Mildred Reiko. All rights reserved.
LEADERSHIP STYLE AND EMPLOYEE STRESS OUTCOMES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PUBLIC HEALTH

DECEMBER 1993

By

Mildred Tanabe

Dissertation Committee:

Elizabeth Clark, Chairperson
Charles Araki
Jerome Grossman
Uichol Kim
Arthur Kodama
ACKNOWLEDGMENTS

I wish to acknowledge Dr. Elizabeth Clark, who patiently and persistently guided this dissertation process, along with the other program committee members, Drs. Charles Araki, Jerome Grossman, Uichol Kim, and Arthur Kodama. Additional acknowledgements are extended to the administrators and employees of the host agency who volunteered their thoughts and time to this research, to Drs. Tom Saka and Daniel Blaine for their valuable help with the statistical analyses, and to my husband Gil for his untiring assistance and support.
ABSTRACT

The purpose of this research was to study the relationship between leadership style and employee stress. Leadership style was measured using a modified version of Misumi's PM Leadership Scale. Employee stress was based on assessments of five employee stress outcome variables--job dissatisfaction, and frequency of employee health problems, absenteeism, health care visits, and health risk behaviors (e.g., smoking, alcohol use).

The subjects were employees of a large, public service agency involved in facilities operations, office services, maintenance, and safety-emergency services related to the transportation field. A 98-item questionnaire was distributed to workers and supervisors. A total of 469 personnel received the questionnaire (359 workers and 110 supervisors) and 256 questionnaires were returned; 192 from workers and 64 from supervisors, a return rate of 54%.

Overall, both workers and supervisors reported low stress outcomes on all five stress variables evaluated--job dissatisfaction, health problems, health care visits and health risk behaviors. The frequency of absenteeism was medium.
In PM Leadership Theory, P relates to a supervisor's ability to enhance workgroup productivity, and M to promote group relationships. PM-type leaders (i.e., high P, high M) have been shown to be more effective in cultivating employee productivity and morale while pm-type leadership (i.e., low P, low M) has been associated with less effectiveness in cultivating worker job productivity and morale.

In this study, workers rated the collective leadership style of their first-line supervisors as pm-type, that is, low in performance and in maintenance while supervisors rated their own supervisors as PM-type, (i.e., high P, high M).

Overall, leadership style was found to be significantly related to employee stress. Specifically, PM-type leadership was associated with significantly lower job dissatisfaction, and pm-type leadership was related to higher employee job dissatisfaction. Leadership style was also found to be related to absenteeism, but less so than for job dissatisfaction, and not at all related to frequency of employee health problems, health care visits, or health risk behaviors. Several demographic variables were found to be related to employee stress.
# TABLE OF CONTENTS

Acknowledgments ........................................ iv
Abstract .................................................. v
List of Tables ........................................... xi
Chapter 1. Introduction ................................. 1
  Overview ................................................ 1
  The Concept of Leadership .............................. 2
    A Historical Perspective ............................ 3
  The Concept of Stress ................................. 6
  Statement of the Problem .............................. 9
    Psychological Outcomes of Stress .................. 12
    Physiological Outcomes of Stress ................ 12
    Behavioral Outcomes of Stress .................... 13
  Objectives of the Research ........................... 15
  Review of the Literature ............................. 16
  Leadership ............................................ 16
    The First-Line Supervisor .......................... 16
    PM Leadership Theory ................................ 18
    Supervisor Support .................................. 19
  Stress Outcomes ...................................... 21
    Job Dissatisfaction ................................ 23
    Job Dissatisfaction and Stress .................... 23
    Job Dissatisfaction and Burnout ................... 25
  Health Problems ...................................... 28
Health Risk Behaviors .......................... 31
Drug and Alcohol Use .......................... 31
Smoking ........................................ 33
Absenteeism ..................................... 34
Health Care Visits .............................. 36
Conditioning Variables ........................ 38
Relevance to Public Health ................. 39
Mission and Philosophy ....................... 39
Towards an Open Society ..................... 41
Occupational Health ........................... 42
Health Protection .............................. 43
Health Care System ........................... 46
Health Care Administration ................ 46
Health Care Costs ............................. 47

Chapter 2. Method ............................... 49
Subjects ........................................ 49
Procedure ....................................... 50
Subject Groupings ............................. 52
Design of the Questionnaire ................ 54
Section I. Leadership Style ................. 54
Section II. Job Dissatisfaction ............. 54
Section III. Health, Absenteeism, Visits ... 55
Section IV. Health Risk Behaviors .......... 56
Section V. Self-Efficacy ....................... 57
Section VI. Demographics .................... 57
LIST OF TABLES

Table 1. Questionnaire Distribution and Returns . . . 52
Table 2. Subject Groupings . . . . . . . . . . . . . 53
Table 3. Employees' Ratings of Supervisors' PM Style . 65
Table 4. Stress Outcomes . . . . . . . . . . . . . . . . . 68
Table 5. Leadership Style and Employee Stress . . . 69
Table 6. Summary ANOV of Job Dissatisfaction . . . 70
Table 7. Summary ANOV of Absenteeism . . . . . . . 71
Table 8. PM Leadership Style and Stress Outcomes . . 72
Table 9. Self-Efficacy . . . . . . . . . . . . . . . . . . . . . 74
Table 10. Variables with Conditioning Qualities . . . 76
Table 11. Demographic Information . . . . . . . . . . . 79
CHAPTER 1
INTRODUCTION

OVERVIEW

The purpose of this study was to further explore and describe the relationship between leadership style (a supervisor's style of leadership as perceived by supervised employees) and employee health, specifically stress outcomes. The measures of employee stress outcomes in this study included job dissatisfaction, health problems, health risk behaviors, absenteeism, and health care visits.

Leadership style, or how a supervisor's style of leadership is perceived, has been identified as a major determinant affecting the way supervised employees feel about their jobs and about themselves. A range of studies has indicated an association between certain leadership styles or "leadership conditions" and positive outcomes in employee morale and job satisfaction (Marrow, 1972; Stout, 1984; Beehr and Gupta, 1987; Bordieri et al., 1988). On the other hand, studies have also shown certain other leadership styles to be associated with negative outcomes with respect to employee health, feelings of dissatisfaction, burnout, and employee stress (French and
Kaplan, 1972; Davis-Sacks et al., 1985; Sorenson and Verbugge, 1987; Seltzer and Numerof, 1988; Balshem, 1988).

THE CONCEPT OF LEADERSHIP

In view of the many stressors that have been identified as operating in the workplace (work overload, repetitive work, role conflict, role ambiguity, etc.), the question arises, "Why investigate the effects of leadership style on employee health?"

One answer to this question involves the general proposition underlying efforts to clarify the impact of "environmental forces and conditions" on the quality of life at the workplace. With respect to organizational or corporate settings, the proposition suggests that seemingly neutral and benign aspects of organizational structure (e.g., reporting linkages and line-staff arrangements), and organizational systems (e.g., communications, planning, decision making and problem solving) in fact have a major impact, singly and in combination, on employee morale, job satisfaction, productivity, health, and retention.

In sum, we have only begun to understand the importance of workplace structure and systems in relation to the quality of employee worklife and employee health. As a beginning, the perceived leadership style of immediate
supervisors has been suggested as one of the most influential factors in creating a productive and healthful work environment (Balshem, 1988).

A Historical Perspective

In the sixteenth century, Machiavelli offered a view of effective leadership which has become the basis for the evolving development of the concept of leadership, and even touches on more recent leadership theories. Machiavelli saw leadership as a two-dimensional process of, 1) maintaining a flow of accurate information for problem-solving, while 2) preserving respect among followers. Four centuries later, these two components of leadership, "information flow" and "mutual respect," can still be found as basic elements in several current theories of leadership (Smith and Peterson, 1988). While Machiavelli's labels have been broadened (information flow and mutual respect are now often referred to as "task organization" and "interpersonal relationships"), the essential nature of these two dimensions of leadership have remained basically the same over the years.

Current interest in leadership as a style first began in America in the 1930s, primarily with the work of Kurt Lewin. Up until that time, the dominant perception of a
leader was one who possessed certain inherited traits and predispositions (intelligence, physical attractiveness, etc.). Lewin argued that there were identifiable behaviors and skills (constituting a style) which a leader could learn (acquire) and adopt. In their classic study supporting this idea, Lewin, Lippitt and White (1939) had "leaders" role play different "leadership styles," independent of their own (inherited) personality characteristics, and found that role-played styles of leadership had a differential impact on employees. In the Lewin study, two-dimensions of leadership were highlighted - task performance was best under "autocratic" leadership while morale was best under a "democratic" leader.

A modified version of this study was conducted in the late 1940s in Japan by Misumi (Misumi and Peterson, 1985). Misumi's early results, as well as his subsequent findings from a long series of studies, led to the development of his PM Leadership Theory (Misumi, 1988). In Misumi's PM Leadership Theory, two dimensions of leadership are proposed - "P" for Performance and "M" for Maintenance. The P or Performance dimension is concerned with facilitating a workgroup's goal achievement or problem solving. Thus, P relates to a supervisor's ability to enhance workgroup productivity. The M or Maintenance dimension is concerned with promoting group processes or
relationships. Thus, M relates to a supervisor's ability to enhance workgroup morale.

Using the PM Scale, Misumi has consistently found that employees who perceive and rate their supervisors as both high P and high M (high PM), tend to have higher levels of productivity, morale, job satisfaction, and lower levels of felt tension and anxiety. In effect, supervisors who are viewed as helping to get the job done (high P), and as working to maintain good group processes (high M), have employees who are more productive, have higher morale, and are less tense and anxious. Misumi does acknowledge that specific leadership functions (i.e., types of leadership activity) may vary according to context. However, Misumi's general definition of a leader is, "a specific group member who, more than other members, exerts some kind of outstanding, lasting, and positive influence with respect to group goal achievement or problem solving (Performance), and group processes or relationships (Maintenance)" (Misumi, 1988).

Other researchers have also identified two dimensions of leadership that are similar to Misumi's P and M. In the 1950s and 1960s, Stogdill and Coons at Ohio State University discussed leadership as consisting of "an initiating structure" which enables tasks to get done, and "consideration" which involves treating employees in a
considerate manner (Smith and Peterson, 1988; Smith et al., 1989). Likewise, a two-dimensional view of leadership was evident in Likert's (1961) description of supervisors as "production-oriented" versus "employee-oriented", and also in Blake and Mouton's (1964) use of a dichotomy to describe leaders as those with a "concern for production," versus a "concern for people."

THE CONCEPT OF STRESS

Over sixty years ago, William B. Cannon conducted his classic investigation of physiological changes caused by emotions. Based on his studies, he coined the now well-known phrase, "fight or flight response" to describe the choice of behaviors an individual has when encountering a stressful situation (Cannon, 1929). In the 1930s, Franz Alexander and Flanders Dunbar introduced the psychosomatic theory of disease based on the tendency of certain types of personalities to be prone to organic disorders (Alexander, 1950; Dunbar, 1948). And, Selye in 1936, theorized that prolonged exposure to stressors could result in disease (Selye, 1936; Warshaw, 1979). Thus began the many studies attempting to identify the effects of stress on physical and psychological health.
Unfortunately, the proliferation of stress research over the years since 1929 has not led to an integrated characterization of the stress phenomenon. Schuler (1980) suggested that this is because there has been a diversity of disciplines engaged in stress research, including biochemistry, medicine, and industrial psychology, and each discipline has worked quite independently of the others. As a result, a common definition and conceptualization of stress has not evolved, and thus, the development of an integrated body of knowledge concerning human stress has been impeded.

Almost from the outset, one major source of confusion in the effort to define stress has been whether to consider it as: 1) a stimulus, 2) a response, 3) an interaction or imbalance between a stimulus and a response, or 4) a cognitive process (Schwartz, G., 1980; Lazarus and Folkman, 1984).

Definitions which emphasize stress as a stimulus, are:
"...an external force operating on a system, be it an organization or a person" (Hall and Mansfield, 1971).
"...any event that taxes or exceeds normal adaptive resources" (Benner, 1984).
"...the environmental stimulus" (Schwartz, G., 1980).

Definitions which emphasize stress as a response, are:
"...an adaptive response, moderated by individual
differences, that is a consequence of any action, situation, or event that places special demands upon a person" (Matteson and Ivancevich, 1987).


"...the response to a stressor, a stimulus or a set of circumstances that induces a change in the individual's ongoing physiological and/or psychological patterns of function" (Warshaw, 1979).

Definitions which emphasize stress as an interaction or imbalance between a stimulus and response, are:

"...the product of a complex transaction between individual needs and resources and the various demands, constraints, and facilitators within the individual's immediate environment" (Handy, 1988).

"...a system which includes the stressor, a stressful event, a stress reaction, and all the intervening thoughts and feelings and behavior" (Krinsky et al., 1984).

Also included in this broad category are interpretations which view stress as a cognitive process involving appraisals of the relationship between the situation and the individual.

"...a (perceived) substantial imbalance between demand and response capability, under conditions where failure to
meet demand has important (perceived) consequences" (McGrath 1970; cited by Sharit and Salvendy 1982).

"...the relationship between the environment and the person that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus and Folkman, 1984). In this definition, the appraisal process is primarily evaluative in nature and involves a comparison of the situation as a person perceives it, with some relevant aspects of the person such as values, needs, abilities, and so on (Wolf, 1978).

STATEMENT OF THE PROBLEM

This study was designed to explore and describe the relationship between leadership style and employee health as measured by stress-related health outcomes. A particular focus was the relationship between the leadership style of first-line supervisors and the stress outcomes of the workers they supervise.

Earlier evidence has shown that the style supervisors use in managing their employees can have definite effects, both positive and negative, on specific outcomes such as employee morale and job satisfaction (and vice versa). However, there is very little that is known about the
relationship between leadership style and broader implications of employee psychological, physical, and behavioral health, especially in the context of stress outcomes. Those studies which have examined the relationship between style of leadership and employee stress have not offered any rationale for the stress outcomes being measured. For example, a search of the literature did not reveal any studies which have systematically examined health outcomes in each of the three areas that are traditional to the occupational stress research framework: psychological, physical, and behavioral parameters of employee health. In addition, such a rationale has not been used in conjunction with both leadership theory and stress theory.

For purposes of this research, PM Leadership Theory, cognitive stress theory, and the traditional occupational stress research framework provide the basis for a systematic approach to the problem of leadership style and employee health.

PM Leadership Theory suggests that employee health outcomes will be poorest in the case where supervisors are inexperienced, untrained, or both. That is, it is likely that inexperienced or untrained supervisors are less skilled with respect to fostering and implementing the high Performance and high Maintenance variables that Misumi has
shown to be associated with positive employee outcomes; thus, this study's particular attention on first-line supervisors, and stress outcomes among those they supervise.

Cognitive stress theory defines stress as, "...the relationship between the environment and the person that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus and Folkman, 1984). This definition applied to the problem of leadership and employee health suggests that rank-and-file workers who toil under the direct supervision of an inexperienced first-line supervisor (representing the "environment" in the definition above), are likely to "appraise" such supervision as being in conflict with their own needs and resources, and thus as a threat to their "well-being."

Cognitive stress theory suggests that a cognitive process takes place and is the link between the workplace stressor (i.e., supervisor style) and the manifestation of stress outcomes (i.e., measures of employee health). In effect, the day-to-day interactions with the supervisor are appraised by the employee as a source of frustration and stress. And, this situation in turn produces outcomes that can be psychologically, physiologically and/or behaviorally
detrimental to the employee's state of health (see Appendix A).

**Psychological Outcomes of Stress**

The fastest-growing occupational disease in the United States is stress-related mental illness (Mason, 1986).

In 1986, the U.S. Centers for Disease Control (CDC) reported increasing evidence that the work environment contributes to psychological illness. The National Institute of Occupational Safety and Health (NIOSH) has identified psychological disorders as one of 10 leading work-related maladies (Kendall, 1987), and the third most frequent disabling condition among Social Security Administration disability allowances, preceded only by musculoskeletal injuries and circulatory diseases. The NIOSH report goes on to say that workers' compensation claims based on mental stress have shown a dramatic increase in recent years (Occupational Safety and Health Reporter, 1987).

**Physiological Outcomes of Stress**

Workplace stress has been increasingly recognized as playing a part in the development of the chronic diseases
which are the major sources of current physical illness and death in the United States (House, 1981).

A growing number of researchers have adopted the position that stress is inextricably tied to chronic disease (Ivancevich and Matteson, 1980). The evidence linking stress and heart disease is especially strong (Cooper and Marshall, 1976; House, J.S., 1974; Karasek et al., 1981; Matteson and Ivancevich, 1979, 1987; Theorell, 1986). And, a number of other mental and physical illnesses are also associated with stress, such as hypertension, colitis, ulcers, diabetes, asthma, allergies, substance abuse and neuroses (Kendall, 1987). There are also data to support the conclusion that stress at work leads to psychosomatic complaints (Karasek et al., 1981; Frese, 1985).

Behavioral Outcomes of Stress

There is evidence that stress at work not only affects performance and productivity at the workplace, but adversely affects other aspects of the employee's life, such as relationships with family and friends (Barling and Rosenbaum, 1986). A stressful work environment may also prompt health-risk behaviors such as smoking, alcohol, and drug use (Fimian, et al., 1985; House, et al., 1986).
Although alcoholism is not generally considered to be an occupational disease, it is a common problem, based on estimates that at least 80% of the nation's 4 million alcoholics are employed (Wolf, 1986). Other behavioral stress outcomes which have been the foci of recent research include smoking (Westman, et al., 1985; Manning, et al., 1989); absenteeism (Brooke, 1989; Firth and Britton, 1989); and the decision to seek medical care (Berkanovic, et al., 1988; Sherbourne, 1988). Overall, employee stress outcomes have been associated with absenteeism, reduced productivity, disruption in the workplace (Pelletier, 1984), and with the rising costs of health care insurance.

Finally, according to the U.S. Clearing House for Mental Health Information, stress-related employee health problems in the United States account annually for a $17 billion decrease in industrial production capacity. Other estimates place the overall costs due to stress-related employee health problems at more than $60 billion annually (Matteson and Ivancevich, 1987). In sum, psychological, physiological, and behavioral outcomes of stress are posing a serious problem to our nation's workplaces.
OBJECTIVES OF THE RESEARCH

This research examined the association between leadership style and employee health. The study was designed to further explore how employee appraisal of the leadership style of their supervisors is linked to their own health, specifically in terms of stress outcomes. It is hoped that the findings of this study will be useful in the formulation and development of more "healthful" systems and practices, not only for the organization in which the research was conducted, but in other similar settings as well. In addition, the findings may contribute to the design and focus of training courses to enhance leadership and supervision, especially among lower-level supervisors.

Overall, the study may add to the body of knowledge about occupational health, and identify issues for further research on the relationship between leadership style and employee health.

Organizations are in a position to directly improve and enrich the quality of life for their employees and their families (Marrow, 1972). Research-based information on the association between leadership style and employee health may help spur organizations toward "preventive management," that is, an effort to deal with employee stress in a
proactive rather than reactive manner (Quick and Quick, 1984).

REVIEW OF THE LITERATURE

This literature review is presented in two parts. The first part is a review of research pertinent to the general topic of leadership. The second part is a review of the literature on stress outcomes.

Leadership

The preponderance of research on styles of leadership is concerned with upper- and middle-management, with scant attention paid to lower management or first-line supervision.

The First-Line Supervisor

There is evidence to indicate that there are some unique difficulties associated with managing at the first-line level (Schuler, 1975). One problem is that the first-line supervisor is usually promoted from within the ranks and is thrust into a position where former fellow-workers and peers are now subordinates. The result
may be dissonance between loyalty to, and identification with, the work group versus the expectations of his/her own superior. The result may be role conflict and/or role ambiguity (Kahn et al., 1964) leading to poor effectiveness as a leader.

Hamner and Tosi (1974) found that employees in the lower order of the organization are more likely to face conflicting demands from others, and because they lack the power to resolve the conflicts, may experience more problems and negative reactions as a result.

Winnubst (1984) contended that people in mediating positions, such as first-line supervisors, are caught in the center of a network of pressures and are forced to compromise, which could result in loss of trust from both their superior(s) and their subordinate(s).

In sum, the distinctive problems of first-line supervision are exacerbated by the apparent lack of attention given to the proper selection, preparation and training for such a position. Instead, it is technical expertise that is usually the basis for promotion to supervisor. At the same time, the cultivation of an effective leadership style, such as one that promotes group goal achievement and group processes, is often disregarded.
PM Leadership Theory

PM Leadership Theory (Misumi, 1988) was greatly influenced by the work of the Institute for Social Research (ISR) of the University of Michigan. However, PM Leadership Theory proposes an interactive hypothesis which has not been tested by the Michigan studies. PM theory is based on the premise that, although any leadership behavior may emphasize either P or M functions, every leadership behavior contains some degree of both P and M at the same time. Therefore, Misumi proposes four basic types of leadership behavior: 1) PM (high P, high M), 2) Pm (high P, low M), 3) pM (low p, high M), and 4) pm (low p, low M).

Both laboratory and field studies have been conducted in Japan over the last forty years to test the PM Leadership Theory. Field studies have been performed in a variety of workplaces including production, service and governmental organizations, mainly among first- and second-line supervisors. The evidence from these studies suggests that workers in Japan tend to respond more favorably to job responsibilities under a leader who motivates goal achievement and problem solving (high P) while at the same time maintaining constructive group processes and relationships (high M). In other words, the
research indicates that the "PM" leadership style (high PM), is superior with respect to employee outcomes such as job satisfaction, productivity, and mental health. Conversely, the "pm" leadership style (low pm; is related to lower levels of employee job satisfaction, productivity, and mental health (Misumi and Peterson, 1985).

Research derived from the PM Leadership Theory has also been conducted in Great Britain, the U.S., and Hong Kong, with similar findings regarding the P and M dimensions in each culture.

Supervisor Support as a Buffer Against Stress

Much of the recent literature on stress discusses social support as a buffer against stress, particularly in cases of burnout (Firth and Britton, 1989; Russell, et al., 1987; Davis-Sacks, et al., 1985). In the workplace, the two major potential sources of social support have been identified as, 1) support from fellow workers, and 2) support from superiors. Support from superiors is often described in ways which appear to overlap in part with the M dimension of the PM Leadership Theory.

Perceived lack of supervisor support, along with emotional exhaustion (one of the symptoms of burnout), was
directly correlated with absenteeism in a study among British nurses (Firth and Britton, 1989).

Russell, et al. (1987) found that teachers who reported having supervisors who were supportive and who positively acknowledged their skills and abilities, were less vulnerable to burnout. A study of social workers similarly suggested that social support, particularly from supervisors and spouses, was associated with low levels of burnout and mental health problems such as anxiety, depression and irritation (Davis-Sacks, et al., 1985).

An inverse relationship was also found between consideration behavior of the supervisor and burnout among employees. Employees who rated their supervisor high on consideration reported low burnout (Seltzer and Numerof, 1988).

Bordieri et al. (1988) devised a scale based on Herzberg's motivator and hygiene factors to measure job satisfaction. Their findings suggested that leadership behavior which emphasizes consideration is positively related to job satisfaction.

Abbey and Esposito (1985) used a model of leadership based on French and Raven's taxonomy of power. Respondents felt greater social support when they perceived their supervisor as relying on referent or expert power, and less social support when they perceived their supervisor as
using coercive power. The implication is that employees made a connection between social support and leadership style.

Evidence of reverse buffering, when social support interacts with job stressors to contribute to stress rather than alleviate it, was discovered by Kaufmann and Beehr (1989) in their study among police officers. A previous study by the same authors (1986) revealed similar findings among hospital nurses.

In sum, the evidence does appear to confirm supervisor support as a buffer to stress among employees, although Kaufmann and Beehr's (1986, 1989) investigations found contrary evidence. Findings across a variety of occupations seem to be consistent in indicating that, despite some organizational differences, the role of the supportive supervisor in alleviating stressful job conditions remains fairly constant.

**Stress Outcomes**

The type of stress which may result from the appraisal of leadership style is normally characterized by day-to-day "hassles" in contrast to the type of stress which evolves from major, episodic events, although such occurrences are
likely to affect the relationship between supervisor and employee as well (Ivancevich, 1985).

A wide variety of occupational stress outcomes has been investigated. The absence of a commonly shared definition of stress, however, makes it difficult to analyze and interpret the various outcomes in any cohesive fashion. In addition, any discussion of stress outcomes must recognize the potentiality of circularity in the stress process. The appraisal of a situation as being stressful may in turn accentuate the pressure of that situation, which may cause even more stress for the individual.

While recognizing the difficulties involved in specifying stress outcomes, the following outcomes were selected for investigation in this study: 1) Job Dissatisfaction, 2) Health Problems, 3) Health-Risk Behaviors, 4) Absenteeism, and 5) Health Care Visits. The selection of these outcomes was based on a popular framework of organizational stress (Matteson and Ivancevich, 1987) which categorizes outcomes as psychological, physiological or behavioral. The framework is presented in Appendix B.

Despite the attempt to organize the following discussion of each of the outcomes, the reader will note that the distinctions among the outcomes are far from clear. Inconsistencies in the definitions and
interpretations of stress outcomes abound in the literature. In some cases, outcomes which have the same name are interpreted quite differently. In other cases, outcomes which have different names appear to be conceptually redundant.

Job Dissatisfaction: a Psychological Stress Outcome

The simplest and most obvious psychological effect of job stressors is dissatisfaction with the job (Beehr and Newman, 1978).

Studies On Job Dissatisfaction and Stress

In Stout's (1984) study of rehabilitation supervisors and workers, job satisfaction was not regarded as an outcome of stress. Rather, job satisfaction was measured by how basic needs were being met, while stress measurements were similar to those of early stages of burnout (physical, emotional and mental exhaustion). Significantly higher levels of job satisfaction were found in workers whose supervisors rated high on consideration. Workers under supervisors who rated low on both structure and consideration reported higher levels of stress than
those workers who were under supervisors rated high on both structure and consideration.

Another study using consideration and structure to represent leadership styles achieved similar results. Of those expressing high dissatisfaction, 100% considered their supervisor to be low in both consideration and structure, whereas 82% of those reporting high satisfaction perceived their supervisor as high in both areas. In addition, higher levels of perceived stress (again measured separately from dissatisfaction, as in Stout's (1984) study) were associated with low consideration and low structure, and to a lesser extent, with mixed leadership styles (Blase, et al., 1986).

In Balshem's (1988) study, job satisfaction was included as one of three components of job stress. The other two components were somatic complaints and subjective job stress rating. Support from the supervisor was significantly correlated with all three components. The relationships were independent of race, age and respondent's income. Both survey data and respondent interviews used in this study point to the unsupportive supervisor as a major perpetrator of job stress.

Revicki and May (1989) found hospital organizational climate to be strongly associated with supervisor behavior and job satisfaction, and positively associated with work
group relations. Organizational climate was negatively associated with job stress. There was a positive relationship between supervisor behavior and work group relations, as well as job satisfaction.

Teas' (1983) study among salespeople indicated that a relationships-oriented supervisory style may have a direct positive correlation with job satisfaction, and an indirect relationship by reducing the stress of role conflict.

Newton (1989) argued that a wider conceptualization of psychological strain, beyond that of anxiety/satisfaction/depression should be employed in the study of job stress. In addition, he suggested the need to assess the effect of defense and repression, and the use of alternatives to questionnaire measures, including qualitative approaches.

Studies On Job Dissatisfaction and Burnout

Burnout could be considered one of the extreme forms of job dissatisfaction. As with stress in general and other particular stress outcomes, there are numerous definitions of burnout. Cummings and Nall (1983) defined it as "...a state of exhaustion brought about by excessive demands on the individual's energy, strength, or resources."

A description of burnout symptoms offered by Russell, et al. (1987), coincidentally corresponds to the three
major categories of stress outcomes investigated in this dissertation's research. However, the examples presented under each category in Russell et al.'s description differ, for the most part, from the specific stress outcomes investigated in this study. According to Russell, et al., burnout symptoms can be categorized as: 1) physical (e.g., headaches, peptic ulcers), 2) psychological (e.g., depression, anger), and 3) behavioral (e.g., deterioration in work performance, absenteeism).

In Maslach's (1982) definition, burnout includes lack of personal accomplishment, depersonalization, changes in behavior towards others, and depletion of motivation for work.

A number of studies examine burnout and job dissatisfaction as two separate and distinct constructs. For example, Ursprung (1986) found three burnout dimensions (emotional exhaustion, depersonalization and personal accomplishment), to be significantly correlated with job satisfaction. In a later study, Ursprung (1988) found a significant inverse correlation between satisfaction with supervisor and emotional exhaustion.

Firth and Britton (1989) also made a distinction between burnout and job dissatisfaction. They claimed that burnout is characterized as psychological strain resulting from job stress, and is not the same as job
dissatisfaction. Although both are regarded as internal, negative, psychological experiences, burnout usually refers to exhaustion or depletion of energy which includes changes in behavior and work performance.

Other studies make the distinction between burnout and job stress, such as one by Kyriacou and Pratt (1985). Psychoneurotic status (anxiety, phobic, obsessional, somatic, depressive and hysterical symptoms), which overlaps in part with some commonly accepted symptoms of burnout, was investigated in relation to job stress. The study indicated that the greatest associations were between job stress and anxiety, and somatic and depressive symptoms.

In sum, operational definitions of job dissatisfaction/satisfaction and the instruments used to measure it are varied and numerous. A major problem appears to be the frequent failure to distinguish between the recognition of conditions leading to dissatisfaction, and the evaluation of those conditions. The problem is exacerbated when attempts are made to compare job stress to job dissatisfaction as corresponding outcomes of some environmental condition, rather than regarding job dissatisfaction as one of the outcomes of stress.

In this study, job dissatisfaction is considered to be an outcome of stress, and as such may, in some cases, be
manifested by some of the psychological symptoms of burnout.

Health Problems: a Physiological Stress Outcome

The most frequent health problems responsible for absence from work and visits to workplace dispensaries are, respiratory, gastrointestinal and musculoskeletal. Peptic ulcer was previously considered to be an occupational disease mainly among those in highly competitive, time-pressured jobs, but is no longer limited to such positions. Chronic diarrhea or other problems with an irritable colon are also commonly reported as reasons for sick leave. Allergies, muscular aches and stiffness, and muscle tension headaches are also common complaints of employees. Other health consequences such as cardiovascular disease and accidents have also been linked to occupational stress (Wolf and Finestone, 1986).

Any discussion which concurrently includes stress and physiological problems, invariably has to deal with the issue of psychosomatic illness. Frese (1985) concluded that the correlation between stress and psychosomatic complaints is not spurious. This conclusion was reached by ruling out four alternative and plausible hypotheses: 1) the correlation between subjective stress and
psychosomatic complaints is induced by a third set of variables such as income, job insecurity, age and socio-economic status, or methodological artifacts; 2) the correlation between objective stress and psychosomatic complaints can also be explained by a third set of variables; 3) psychosomatic complaints are the cause of stress rather than the reverse; and 4) the correlation between stress and psychosomatic complaints applies differentially to those who overrate stress in comparison to those who underrate their stress.

"Psychophysiological" symptoms such as headaches and poor appetite were directly related to job stress among university faculty and administrators, as was lack of supervisor support (Horowitz, et al., 1988). Likewise, the relationship between job demands and subsequent symptomatology was found to be significant by Bromet, et al. (1988).

A statistical study by Kemery, et al. (1987) reported results which suggested that role stressors at work directly influenced job satisfaction and physical health. Furthermore, job satisfaction and physical health appeared to be directly related. Similar results were obtained in a study by Tung (1980), with four dimensions of job stress strongly and significantly associated with self-reports of physical health.
Matteson and Ivancevich (1982) classified organizations as well as people according to Type A and Type B, and found that Type A people in Type A organizations reported the most negative health symptoms.

In Stout's (1984) study, findings indicated that workers with supervisors who were rated high on structure and high on consideration, reported significantly fewer health problems than workers with supervisors who were rated high on structure but low on consideration.

A study by Mazie (1985) reported that family practice residents experienced significantly more somatic symptoms when emotional support from supervisors and co-workers was low. Similar results were reported by Caplan, et al. (1980); Fusilier, et al. (1987); and Balshem (1988).

In sum, a variety of negative job conditions such as excessive job demands, role stressors, and non-supportive supervisors have been associated with psychosomatic complaints. Other studies, cited earlier in this paper, have linked job stress to other health problems such as cardiovascular disease (Karasek, 1981; Theorell, 1986), and poor mental health (Kyriacou and Pratt, 1985).
Health-Risk Behaviors: a Behavioral Stress Outcome

Studies on Drug and Alcohol Use

It is often assumed that there is an underlying relationship between job stress and the use of substances such as over-the-counter (OTC) and prescription (P) drugs, and alcohol (A). The notion is that such substances are used as buffers between the person and the stressful work conditions. Fimian et al. (1985) provided some empirical evidence that such a relationship may indeed exist. Their investigation demonstrated that OTC, P, and A substances were used by teachers in response to stressful conditions at work. Both the frequency and strength of need to use such substances were significantly related to the frequency and perceived strength of stressful work events.

Use of substances is similar to other employee responses such as absenteeism and turnover in that each might be regarded as an employee behavioral response to adverse organizational conditions. However, substance use can be further viewed as a way in which the employee seeks to change his/her psychological condition in order to cope with the pressures and demands of work. Absenteeism and turnover are aimed at changing one's physical presence or
condition, by removing oneself, physically, from the worksite.

The use of both drugs and alcohol has been associated with role stress at work, and with job characteristics (Gupta and Jenkins, 1984). The Tecumseh Community Health Study (House, et al., 1986) showed the strongest positive associations, irrespective of sex, between job pressures or demands, and health behavior (cigarette smoking, alcohol consumption, and relative weight) and morbidity. Margolis, et al. (1974) discovered relationships between several aspects of job stress and what was referred to as escapist drinking in the study. Bromet, et al. (1988) found one of those aspects of job stress, specifically limited decision latitude, to be related to alcohol-related problems.

In a research project designed to identify the familial and socio-environmental precursors of heavy drinking in a blue-collar population, it was discovered that the workplace (including the factors of job alienation, job stress, inconsistent social controls, and the evolution of a "drinking culture"), was implicated to be the primary vehicle for promoting high levels of alcohol use (Ames and Janes, 1987).
A number of studies have implicated job stress in smoking behavior (French and Caplan, 1972; Nesbitt, 1973; Westman, et al., 1985). A subsequent study by Caplan, et al. (1980) found the percentage of individuals who smoke to be highly and negatively correlated with social support from supervisors.

In contrast to the position taken by this paper, that smoking may be regarded as a one of the behavioral outcomes of stress, a study by Manning, et al. (1989) reported that recent ex-smokers reported higher depression, anxiety and negative affect, lower quality of life and job satisfaction, more job-related tension, and increased short-term absence, than current smokers. In addition, smoking cessation resulted in poorer eating habits, increase in weight, and lower appraisals of health. These findings could be interpreted by suggesting that the stress outcomes which accompanied smoking cessation were greater than the stress outcomes at the workplace.

Somewhat similarly, House (1980) concluded that no objective measure of job stress correlated significantly with smoking. These findings, along with the findings of Manning, et al. (1989), should sound a precautionary note in the analysis of smoking as a stress outcome.
In sum, health-risk behavior such as the use of substances and smoking has been identified, to some extent, as an attempt to mediate stressful work conditions. The association between such health-risk behavior and job stress, however, is far from clear and the evidence is thus far sketchy and inconclusive.

Absenteeism: a Behavioral Stress Outcome

A meta-analysis of 72 studies found that organization-wide measures and work-effectiveness factors such as job involvement, are better predictors of employee absence than are demographic (age, sex, tenure) and psychological (job satisfaction) factors (Farrell and Stamm, 1988).

Ivancevich (1985) found that the frequency and intensity of uplifts, as measured by Kenner et al.'s (1981) Hassles and Uplifts Scales, were positively associated with job performance and negatively correlated with absenteeism. Uplifts consist of positive experiences and conditions of daily living that are regarded as favorable to the person's well-being (Lazarus, 1980). Although the study was conducted in a corporation, the questionnaire included many items which were not directly related to work. However, implications may be drawn regarding the importance of
providing daily positive experiences at work to improve job performance and reduce absenteeism.

Firth and Britton (1989) found that absenteeism correlated with perceived impatience or defensiveness on the part of the immediate supervisor. Lack of perceived support from the supervisor influenced generalized motivation to attend work, as well as feelings of depression. These tended to account for longer periods of absence compared to absences due to avoidance of particular, rather than generalized situations.

Determinants of absenteeism were also studied among employees in a medical center (Brooke and Price, 1989). Positive associations were found between absenteeism and kinship responsibility (particularly those with young children living at home), role ambiguity, organizational permissiveness and alcohol involvement. There were negative associations with centralization (employees with less power were absent less frequently, net of their standing on job satisfaction), pay, and job satisfaction. An explanation offered for the finding on centralization is that members with low power may encounter less tolerance of absenteeism from their supervisors.

A study by Seamonds (1982) revealed that 47 percent of employees with absenteeism above the norm expressed difficulties in coping with work stress. Forty-six percent
of the same group had more psychological and physiological symptoms such as high blood pressure, chronic headaches, severe sleep disturbances, marked anxiety, and heavy smoking, than those with lower absenteeism.

On the other hand, a meta-analysis by Hackett and Guion (1985) cited an analysis by Terborg, et al. (1982) which showed a very low correlation between satisfaction with supervision and absenteeism. Similarly, another study by Nicholson, et al. (1976) reported weak findings between job satisfaction and absenteeism.

In sum, there appear to be relationships between certain organizational factors such as organizational permissiveness and absenteeism, as well as relationships with specific types of job stressors and absenteeism. However, studies linking supervision and absenteeism have been limited, and findings up to this point have been mixed.

Health Care Visits: a Behavioral Stress Outcome

In predicting the frequency of health care visits, and in particular the use of mental health services, Sherbourne (1988) found that chronic types of stressors such as prolonged interpersonal problems, are more important than acute life events. The study also found that women,
younger persons, the more highly educated and those who had more generous levels of health insurance coverage, were more likely to use the services. In addition, those who reported poor mental health status, physical limitations, and who rated their health in general as poor were significantly more likely to use mental health services than those without these characteristics.

"Triggers," or short-term predictors of physical symptoms and health care, were the focus of a study by Verbugge (1985). The results showed that bad moods consistently trigger physical problems and health actions such as seeking medical care. Physical malaise (feeling bad overall) was an especially strong trigger for symptomatic people to take health actions.

Berkanovic, et al. (1988), on the other hand, suggested that individuals suffering from psychological distress report more illnesses but are no more likely to initiate medical care per illness than non-distressed individuals.

In sum, literature is scant on the use of health care services as related to job stress. Obviously, a major obstacle has been the lack of accessibility to utilization data. Subjective data through self-report measures have been used, but the inaccessibility to objective data from medical records or health insurance claims has made investigation of this stress outcome problematic.
Conditioning Variables

The list of possible conditioning variables, or pre-existing conditions, in the relationship between supervision and stress is almost endless. This study attempted to deal with some of them by seeking to obtain information on self-efficacy as well as demographic information such as gender, age, ethnicity, language, education, income, marital status, number and ages of household members, length of time with the organization, length of time under current supervisor, previous position, citizenship, length of time in the U.S., and length of time in Hawaii.

Along with many of the possible conditioning variables mentioned above, other pre-conditions or confounders have been discussed in the literature, such as: negative affectivity, healthy worker effect, social support, Type A personality, life events, upward-influence style of employees, coping behavior and coping style, family life, religion, locus of control, gravitation to environment that fits the individual (or self-selection), health habits (including nutrition, exercise, relaxation), other work stressors and hassles, hardiness, life satisfaction, general health, effects of testing, need for achievement and power, occupational and industrial differences, unions,
tolerance for ambiguity, and the physical environment of work.

Practical considerations necessitated that a limited number of factors be accounted for in this study. Besides the variables which are used, any of the other factors listed above, or combinations thereof, would offer interesting possibilities as conditioning variables for future investigators.

RELEVANCE TO PUBLIC HEALTH

The study of leadership styles and employee health has relevance to the general field of Public Health from several perspectives. Following is a discussion of some of those perspectives.

From The Perspective Of Mission and Philosophy

Until recently, the traditional concept of health had been the absence of disease (or of indicators of disease). Within the last couple of decades, there has been a growing recognition that a broader concept of health is needed. This movement is evidenced by the World Health Organization's definition: "Health is a state of complete physical, mental and social well-being and not merely the
absence of disease or infirmity" (WHO, 1986). Moreover, there is little disagreement today that the etiology of poor health is multifactorial, and stress appears to be playing a growing part as one of those factors. The interaction of the mind and body in causing illness is now widely accepted. The broader concept of health also acknowledges that the social environment, the workplace for example, must be regarded as an important determinant of illness (Beehr and Newman, 1978).

According to the August 1988 Report of the Institute of Medicine on "The Future of Public Health," the mission of public health is defined as "...fulfilling society's interest in assuring conditions in which people can be healthy." And, it is a mission which should have serious implications for all workplaces, in terms of developing and maintaining healthful conditions which promote both the physical and mental health of employees.

This study's general focus on workplace leadership style and employee health is consistent with the broad mission of public health and the newer and more encompassing definition of health. The research was conducted among employees at a state agency which has normally been concerned with the physical health and safety of its employees. Recently, increased efforts have been made to improve morale and other aspects of mental and
emotional health at the agency. This study will be of some practical value in providing further direction for those efforts.

Towards an Open Society

The public's perception of the field of public health could probably be stated as, "...health services for those who can't afford any better." It is tempting to refute such a narrow interpretation. However, if health is to be achieved "in ways which have purpose and meaning for individuals as part of an open society" (Grossman, 1984), then public health should, legitimately, be most concerned with those who can least afford it because of lack of material, personal or social resources.

A specific focus of this study was on those who are at the very bottom of the workplace hierarchical structure. Those under first-line supervision are normally those who not only receive the lowest pay, but are accorded the least amount of respect and power within the organization. Ideally, this study's focus on the health of those rank-and-file workers will contribute to establishing and advancing the value and significance of line workers in the ultimate success or failure of all organizations.
From The Perspective Of Occupational Health

The discipline of Occupational Health is an important area of study within the field of Public Health. By some estimates, about 25 percent of an American adult's life is spent working, perhaps more time than in any other single human activity. Moreover, growing numbers of Americans are being employed by large, often impersonal organizations. Since our society expends so much time and personal investment in employment, the work environment is increasingly being targeted as a major factor in the health of America's working population. Obviously, work-related illnesses and injuries have important consequences, not only for the worker, but also for the worker's employer, family, and in some dramatic cases, for the general community as well.

This research, with its focus on workplace leadership, that is, on the "psychosocial work environment" created by the style of leadership, and its effect on employee health, has timely and significant indications for the field of Occupational Health.
From The Perspective Of Health Protection

In part, this study was driven by an interest in, and commitment to, health protection versus health promotion. Many approaches to occupational stress are based on the premise that it is too difficult to change the work environment, and therefore, interventions should be aimed at helping the individual worker cope with, and adapt to, stress-inducing work conditions (Baker, 1985). Thus, we have seen a proliferation of health promotion activities sponsored by workplaces, such as stress management courses, exercise classes, and counseling programs such as the EAPs (Employee Assistance Programs).

On the other hand, there is recent evidence that major corporations such as General Motors, AT&T, and Honeywell, have made large-scale organizational changes towards health protection, in the interest of employee health. In general, this type of health protection movement has been in the direction of more people-oriented, collaborative organizations, with leadership inviting greater participation in decision-making (Cohen, 1981), and with themes such as mutual respect among employees. Such organizational change is possible when attention is directed to altering those functions/structures which constrain and restrict employees from reaching their full
potential. For example, an authoritarian climate which limits individuals to think and act in certain prescribed ways, and provides little opportunity for growth and creativity, will often breed employees who are frustrated and/or apathetic. In other words, altering the organizational climate, including the leadership styles of supervisors, may be a key element in health protection.

This is in contrast to the health promotion movement which has the major disadvantage of diverting attention away from organizational climate and dysfunction, and toward individual inadequacies of employees (Handy, 1988). In other words, there appears to be an implicit bias towards "blaming the victim." It is the failure of the employee to cope, rather than the failure of the organization to provide a more healthful work environment. Therefore, employees are urged to get better at managing their stress, adopt better health habits, and seek counseling if conditions at work are stressful.

An article by Tesh (1981) quotes Veatch as one of the critics of the lifestyle hypothesis which, like health promotion, focuses on changing the individual: "If it is the case that for virtually every disease, those who are the poorest, those who are in the lowest socioeconomic classes, are at the greatest risk, then there is a piously evasive quality to proposals that insist on individuals
changing their life-styles to improve their positions and their health potential." According to Tesh, the point is not that individuals have no responsibility for maintaining their health. The point is that it is both immoral and ineffective to make "lifestyle intervention" the major focus of disease prevention programs.

Wallack (1983) discusses two fundamentally different types of approaches to public health problems. On one hand, there are the individual strategies (health promotion) that view problems as failures of individuals to adequately take care of themselves. On the other hand, environmental strategies (health protection) see problems as failures of the larger system to provide adequate safeguards for individuals. Again, there is recognition of the need for both strategies, but Wallack suggests that the field of public health has tended to emphasize individual strategies to the virtual exclusion of environmental considerations.

When research efforts have been made in business settings to adopt environmental strategies in dealing with employee stress, the emphasis has been on the effect of stress on organizational productivity and performance, rather than on the health of the employees. There is an apparent need for research which, while taking an environmental approach, looks beyond the relationship of
stress to productivity/performance to a concern for the overall issue of the well-being of employees.

This study is based on the belief that the workplace, even more than the worker, must be changed to reduce occupational stress. The idea is to avoid creating a work environment dependent upon coercion and authoritarianism to reach organizational goals at the expense of the individual. The need is to identify parameters of workplace leadership that can achieve organizational goals and at the same time foster and nurture employee participation, growth and self-actualization which will enhance the health of employees.

From The Perspective Of The Health Care System

Health Care Administration

Ironically, employees who work in the health care industry appear to be among those most adversely affected by occupational stress. In a number of studies, leadership style within the health care industry has been suggested as a source of job dissatisfaction and other stress outcomes in health care personnel (Firth and Britton, 1989; Revicki and May, 1989; Blau, 1986).
Although this study does not directly involve health care workers, the findings may have implications for health care administration in general.

Health Care Costs

Total medical care costs have risen from $26.9 billion in 1960 (5.3 percent of the GNP), to $75 billion in 1970 (7.6 percent of the GNP) and $243.4 billion in 1980 (9.4 percent of the GNP). It is estimated that annual health care costs will reach a trillion dollars in the early 1990s if the trend continues (Califano, 1986).

According to a 1986 report by the National Council on Compensation Insurance, stress claims alone (under states workers' compensation systems) jumped from 5.3 to 13.6 percent of all occupational disease claims between 1980 and 1983. The report stated that the average total cost of a stress-related claim in 1983 was $10,224 (up from $7,110 in 1979), compared to $6,476 for traumatic injury claims and $28,335 for all occupational disease claims (Kendall, 1987).

This study sought to clarify the relationship between a postulated workplace stressor (leadership style) and a number of stress outcomes. In so doing, some impetus may be provided for the development of more effective health
protection strategies in workplaces. Consequently, both the human resource costs and the financial costs related to stress may also be controlled.
CHAPTER 2

METHOD

The study's main research question was: What is the nature of the relationship between leadership style and employee stress-related outcomes? A particular focus was the relationship between the leadership style of first-line supervisors and the stress-related outcomes of the workers they supervise. The study used a cross-sectional, group comparison design.

SUBJECTS

The 256 subjects in the study were employees of a large public service agency. Their fields of work involved facilities operations, maintenance, safety-emergency services, and office services.

Of the agency's 470 employees, 359 were workers under first-line supervision. The participation of all 359 of these workers was solicited for the study.

The remaining 110 employees (not including the agency director) were supervisors under second-line supervision and above. The participation of all 110 supervisors was also solicited for the study.
Of the 256 employees who eventually participated in the study, 192 were under first-line supervision, and 64 under second-line supervision and above. The sample was 58% male, and 42% female, averaged 45.4 years in age, 12.4 years of education, and 9.0 years of service to the agency, and had lived in the United States an average of 40.2 years, and in Hawaii an average of 37.3 years. The ethnicity of the sample was Hawaiian/Part-Hawaiian, 28%, Japanese, 27%, Filipino, 13%, Chinese, 6%, Caucasian, 9%, and mixed, 9%. The remaining 8% of the sample consisted of ethnic groups with six or fewer employees.

PROCEDURE

A survey questionnaire (see Appendix C) developed for the study, was distributed by mail to all of the agency's 469 personnel. Each questionnaire was accompanied by a cover letter to employees from the agency's director explaining the survey's purpose, and emphasizing that employee participation was voluntary, and that all responses would be confidential. The respondents were asked to return the questionnaire directly to the researcher using the stamped and addressed envelope enclosed for that purpose.
A respondent code number was inserted at the bottom of each questionnaire along with an explanation of the code's purpose which was to identify respondents' work units. The code was also used to avoid unnecessary follow-up mailings. The questionnaire included brief instructions concerning the option for employees to remove the code section by tearing it off. In another part of the questionnaire, color-coded dots were used to identify the respondents' position within the organization; for example, worker, first-line supervisor, second-line supervisor, and so on.

In response to the initial mail out, 179 questionnaires were returned; 133 from workers, 46 from supervisory personnel, with 23 questionnaires returned to sender as non-deliverable.

In the follow-up mail out, 322 questionnaires, accompanied by a letter from the researcher, were sent to those who either did not respond to the initial mailing, or could not be identified because respondents had opted to remove their code numbers, and to all non-deliverables with corrected addresses. The follow-up mail out resulted in an additional 77 returns; 59 from workers and 18 from supervisory personnel.

Table 1 shows the number of questionnaires distributed and returned after both mailings. Of the 256 questionnaires returned; 192 were from workers (53%), and
64 were from supervisors (56%). The overall return rate was 54%.

Table 1
Questionnaire Distribution and Returns

<table>
<thead>
<tr>
<th>Category</th>
<th>Number Questionnaires mailed/returned (return percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Workers (under 1st-line supervision)</td>
<td>359/192&lt;sup&gt;a&lt;/sup&gt; (53%)</td>
</tr>
<tr>
<td>Total Supervisors (under 2nd-line supervision and above)</td>
<td>110/64&lt;sup&gt;b&lt;/sup&gt; (56%)</td>
</tr>
<tr>
<td>Total Organization (workers + supervisors)</td>
<td>469/256 (54%)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes additional 49 questionnaires returned with group codings removed
<sup>b</sup> Includes additional 2 questionnaires returned with group codings removed

Subject Groupings

To facilitate survey distribution and data analyses, six subject groupings or categories were created. The groupings by their designation and composition are shown in Table 2. Workers under first-line supervision were in the groupings designated 1W, 2W and 4W — 1W and 2W included workers from the Operations section; 3W, not shown in Table 2, was a sub-grouping composed of 1W plus 2W; and 4W included workers from Maintenance and Office Services. The
grouping labeled 5W, total workers, included all the subjects in groupings 1W, 2W, and 4W.

Supervisors under second-line supervision and above were in the groupings designated 6S, first-line supervisors, 7S, second-line supervisors, and 8S, third- and fourth-line supervisors. The grouping labeled 9S, total supervisors, included all subjects from groupings 6S, 7S, and 8S. These three supervisor groupings also included

Table 2
Subject Groupings

<table>
<thead>
<tr>
<th>Groupings</th>
<th>Composition: Sections, Units</th>
<th>Number Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workers (under 1st-line supervision)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1W Operations --- Custodial</td>
<td></td>
<td>79</td>
</tr>
<tr>
<td>2W Operations --- Safety-Emergency Services</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>4W Maintenance and Office Services</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td><strong>5W Total Workers</strong></td>
<td></td>
<td><strong>192</strong></td>
</tr>
<tr>
<td><strong>Supervisors (under 2nd-line supervision and above)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6S 1st-Line: Ops, Safety-Emerg., Maint.</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>7S 2nd-Line: Ops, Safety-Emerg., Maint.</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>8S 3rd/4th-Line: Ops Mgr's Office, Maint., Superintendent's Office, Director's Office</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>9S Total Supervisors</strong></td>
<td></td>
<td><strong>64</strong></td>
</tr>
<tr>
<td><strong>10 Total Organization (workers + supervisors)</strong></td>
<td></td>
<td><strong>256</strong></td>
</tr>
</tbody>
</table>
DESIGN OF THE QUESTIONNAIRE

The survey questionnaire included 98 items organized into six sections.

Section I. Leadership Style

Section I consisted of 20 items measuring leadership style based on Misumi's PM leadership theory (Misumi, 1988; Smith, et al., 1989). PM theory and the PM scale have been extensively studied and validated in Japan over the last forty years. In Section I, odd-numbered items were related to the P leadership dimension and even-numbered items to the M leadership dimension. In completing Section I, each employee rated the leadership style of his/her own supervisor.

Section II. Job Dissatisfaction

This section consisted of 10 items derived from the Gillespie-Numerof Burnout Inventory (GNBI) (Gillespie and Numerof, 1984) designed to measure job dissatisfaction.
The GNBI was selected from among a large number of scales purporting to measure job dissatisfaction/satisfaction. Unlike scales such as the popular Job Description Index and others which ask respondents to describe job situations as well as leadership, the GNBI assesses personal reactions to various job situations. Reliability as well as content and construct validity have been established for the GNBI.

Section III. Health Problems, Absenteeism and Health Visits

Section III included 21 items from the Psychosomatic Complaints Scale of Stress (PCSS) (Greller and Parsons, 1988) used to measure health problems. The PCSS was selected because of its comprehensive listing of health problems, including self-reports of heart problems, high blood pressure and ulcers in addition to psychosomatic symptoms. In the development of the PCSS scale, a panel of experts evaluated the extent of stress indicated by each symptom and the accuracy with which the symptom indicated stress as opposed to other causes. Only items with sufficiently high reliability or accuracy were retained. Validity was supported by significant relationships (p < .05) with five variables of stressful personal and job circumstances.
Section III also contained two items on frequency of absences from work. Many measures of absenteeism have been reported in the literature, but are basically derived from total time lost and frequency of absence (Smulders, 1980). Three principal indices have been used to summarize absenteeism data for research purposes: 1) Time Lost Index (the total number of days of employee absences); 2) Frequency Index (the total number of absence incidents, disregarding the length of each incident); and 3) Short-Term Index (the total number of one- and two-day absences). The Short-Term Index appears to be the most feasible for reflecting an underlying disposition toward one's job by eliminating any non-dispositional bias associated with long-term illness (Folger and Belew, 1985), and was therefore, the index used in this study.

Two items on frequency of health care visits were also included in Section III. One item measured visits to a medical doctor because of physical illness. The other item measured visits to mental health professionals.

Section IV. Health Risk Behaviors

Health risk behaviors were measured by seven items taken and modified from the Health Risk Appraisal form used by the Community Health Appraisal Program, State Department
of Health. The items solicited information regarding smoking, and alcohol and drug use.

Section V. Self-Efficacy

Self-efficacy was measured by 17 items from a scale devised by Sherer, et al. (1982). Confirmation of several predicted conceptual relationships between the scale and seven other personality measures provided evidence of construct validity. Criterion validity has also been established.

Section VI. Demographic and Other Personal Information

Section VI consisted of 18 items related to demographic and personal information. The data requested was fairly extensive. The questions were related to the assessment of possible conditioning factors affecting the relationship between leadership style and stress outcomes.

Response Formats

To register their answers to the questionnaire items, survey respondents were presented with two response formats. The primary response format required respondents
to circle the number of their answer. In this format, answers to items were presented in a 5-point, forced-choice format as follows: 5 = Always, 4 = Often, 3 = Sometimes, 2 = Rarely, and 1 = Never. This same 5-point format was also used in conjunction with various other adverbs and/or more specific wordings, for example, 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree, and 5 = Extremely knowledgeable, 4 = Very knowledgeable, 3 = Fairly knowledgeable, 2 = Not so knowledgeable, and 1 = Not at all knowledgeable, and so on.

A second response format was used to obtain demographic and personal information. In this format, respondents were required to check the correct answer, and/or in some instances, to fill in their answers in a blank space provided for that purpose.

DATA ANALYSIS

The data from this study consisted of leadership style ratings, stress outcome scores, and self-efficacy scores.

PM Leadership Style Ratings

PM leadership style ratings for worker and supervisor groupings (1W-8S), total workers (5W), total supervisors
(9S), and total organization (10) were determined using procedures developed by Misumi. To determine PM leadership style, the grand mean scores for P and M were tabulated for the entire sample. For P and M, the grand mean scores were 29.6 and 29.3, respectively. The PM leadership style ratings were determined by comparing each grouping's P and M mean scores with the P and M grand mean scores. In the case where P and M mean scores exceeded the P and M grand mean scores, PM leadership style was judged to be "PM" (i.e., high P, high M). In the case where P and M mean scores were lower than the P and M grand mean scores, PM leadership style was judged as "pm" (i.e., low p, low m).

Two other leadership ratings, Pm and pM, were also possible although they were not obtained in this study. In the case where P mean scores are higher than the P grand mean score, and M mean scores lower, the leadership style is judged to be "Pm" (P-type, i.e., high p, low m). In the case where M mean scores are higher than the M grand mean score, and P lower, leadership style is judged to be "pM" (M-type, i.e., low p, high M).

The employees within each subject grouping or category reported respectively to a number of supervisors. For example, for the three worker groupings, 1W, 2W, and 4W, there were 20, 17, and 20 first-line supervisors, respectively. For the three supervisor groupings, 6S, 7S,
and 8S, there were 27, 13, and 13 second-line supervisors and above, respectively. In completing the questionnaire, each subject was asked to rate the leadership style of his/her respective supervisor. These ratings were then used, collectively, to determine the PM leadership style rating (PM, Pm, pM or pm) for each of the subject groupings. Since not every employee responded to the questionnaire and it is likely that those who did respond reported to the same supervisor, the actual number of supervisors that were rated by the subjects in each subject grouping is unknown although the total number of supervisors (maximum) for each grouping was noted above.

Stress Outcomes

Stress outcome mean scores were tabulated for the five stress outcome variables evaluated by the study -- employee job dissatisfaction, health problems, absenteeism, health care visits, and health risk behaviors -- for worker and supervisor groupings (1W-8S) and for total workers (5W), total supervisors (9S), and total organization (10). Statistical analyses were based on the stress outcome mean scores.

For discussion purposes, the stress outcome scores were also judged as "high," "medium," or "low" in relation to
norms established in prior studies. For example, for employee job dissatisfaction, mean scores below 45 were considered low, between 45-51 medium, and above 51 high. For employee health problems, mean scores below 31 were considered low, 31-37 medium, and above 37 high. For employee absenteeism, mean scores below 6 were considered low, 6-10 medium, and above 10 high. For employee health care visits, mean scores below 4 were considered low, 4-5 medium, and above 5 high. And, for employee health risk behaviors, mean scores below 32 were considered low, 32-34 medium, and above 34 high.

**Self-Efficacy Scores**

Self-efficacy mean scores were computed for workers and supervisor groupings (1W-8S), total workers (5W), total supervisors (9S), and total organization (10). Statistical analyses were based on these scores. Again, for discussion purposes, the self-efficacy scores were judged as "high," "medium," or "low" in relation to previously established norms. Self-efficacy mean scores below 59 were considered low, scores from 59-65 were considered medium, and scores above 65 were considered high.
**Statistical Analyses**

The questionnaire data were entered by keyboard to form a single data set. P and M mean scores, stress outcomes scores (job dissatisfaction, health problems, absenteeism, health care visits, health risk behaviors), and self-efficacy scores were tabulated and summarized for the six worker and supervisor groupings (1W-8S), total workers (5W), total supervisors (9S), and total organization (10). The demographic and personal data were tabulated and summarized for total workers (5W), total supervisors (9S), and total organization (10).

The overall relationship between leadership style and stress (all five stress outcome variables) was analyzed separately for workers (5W), supervisors (9S), and total organization (10) using multivariate analysis of variance.

Two-way analysis of variance was used to analyze the interaction between groupings (workers versus supervisors), and leadership style (PM, Pm, pM, pm) for each of the five stress-related variables separately, and for self-efficacy.

The relationship between leadership style (PM, Pm, pM, pm) and each of the five stress variables, as well as the relationship between leadership style and self-efficacy, were analyzed separately for workers, supervisors, and
total organization using one-way analysis of variance and Scheffe's test for differences.

The relationship between groupings (workers versus supervisors) and each of the five stress variables, and the relationship between groupings and self-efficacy were also analyzed using one-way analysis of variance and Scheffe's test for differences.

The relationship between the demographic variables and each of the five stress variables (possible conditioning effects) was analyzed separately for workers, supervisors, and total organization using one-way analysis of variance and Scheffe's test for differences.
CHAPTER 3
RESULTS

The survey results are based on analyses of PM leadership style scores, stress outcome scores, self-efficacy scores, and demographic data.

SUPERVISORS' LEADERSHIP STYLE

The subjects responded to 20 questionnaire items concerning their supervisors' PM leadership style. These data were analyzed to determine the composite PM leadership style ratings. The ratings that were obtained are presented in Table 3.

As shown in Table 3, under the column labeled "PM Leadership Style," total workers (5W) rated their first-line supervisors as pm or pm-type, that is, as "low p, low m," a leadership style shown in previous studies to be less effective in cultivating worker job productivity and morale. This pm rating was obtained by comparing the P and M means scores for 5W, 29.3 and 28.5, respectively, with the P and M grand mean scores for the total organization (10), 29.6 and 29.3, respectively. For 5W, since both P and M mean scores were below the P and M grand
mean scores, the leadership style of first-line supervisors was PM, as rated by workers they supervised.

Table 3
Employees' Ratings of Supervisors' PM Leadership Style

<table>
<thead>
<tr>
<th>Groupings</th>
<th>PM Leadership Style and (PM mean scores)</th>
<th>Percentage of Employees by PM Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PM</td>
<td>PM²</td>
</tr>
<tr>
<td><strong>Workers (under 1st-line supervision)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1W Operations</td>
<td>pm (28.2/26.8)</td>
<td>35.9</td>
</tr>
<tr>
<td>2W Safety-Emerg.</td>
<td>PM (31.3/31.5)</td>
<td>42.9</td>
</tr>
<tr>
<td>3W (1W + 2W)</td>
<td>pm (28.8/27.8)</td>
<td>37.4</td>
</tr>
<tr>
<td>4W Maint/Office</td>
<td>PM (32.1/32.5)</td>
<td>43.9</td>
</tr>
<tr>
<td>5W Total Wkrs</td>
<td>pm (29.3/28.5)</td>
<td>36.7</td>
</tr>
<tr>
<td><strong>Supervisors (under 2nd-line supervision and above)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6S 1st-Line</td>
<td>pm (27.8/28.4)</td>
<td>40.0</td>
</tr>
<tr>
<td>7S 2nd-Line</td>
<td>PM (34.1/33.6)</td>
<td>81.2</td>
</tr>
<tr>
<td>8S 3rd/4th-Line</td>
<td>PM (31.1/35.8)</td>
<td>62.5</td>
</tr>
<tr>
<td>9S Total Spvsrs</td>
<td>PM (30.2/31.4)</td>
<td>56.2</td>
</tr>
<tr>
<td>10 Total Org (5W + 9S)</td>
<td>(29.6/29.3)</td>
<td>41.9</td>
</tr>
</tbody>
</table>

1. Composite ratings of supervisors' leadership style
2. High PM style considered more effective in cultivating employee job productivity and morale
3. Low pm style considered less effective in cultivating employee job productivity and morale
4. Percentage of workers rating their supervisors in the high PM category
5. Percentage of workers rating their supervisors in the low pm category
In contrast, as seen in Table 3, total supervisors (9S) rated their own second-, third-, fourth- and fifth-line supervisors as PM, or PM-type (i.e., high P, high M), a leadership style found to be more effective in cultivating worker productivity and morale as based on previous research.

Again, the PM leadership style for total supervisors (9S) was determined by comparing their P and M mean scores (30.2 and 31.4, respectively) with the P and M grand mean scores. Since both P and M scores were higher than the P and M grand scores, the leadership style for second-line supervisors and above was PM.

Table 3 also shows the percentages of employees by the four PM leadership style categories -- PM, Pm, pM, and pm. For example, for total workers (5W), 36.7% rated their first-line supervisors as having a PM-type leadership style while 44.1% rated their supervisors as having a pm-type leadership style. For 5W, considerably fewer workers rated their first-line supervisors as P-type leaders (Pm - 12.2%) or M-type leaders (pM - 6.9%). As seen in Table 3, this was a general finding. For all groupings, the percentages of employees rating their supervisors as P-type or M-type leaders were relatively low.

In comparison with total workers (5W), the leadership style ratings for total supervisors (9S) were reversed: a
majority, 56.2% of the supervisors, rated their second-line supervisors and above as PM-type while only 29.7% rated them as pm-type leaders. Again, considerably fewer supervisors rated their own supervisors as P-type or M-type leaders, 4.7% and 9.4%, respectively.

Among the supervisor groupings, the first-line supervisors (6S) collectively rated their own second-line supervisors as pm-type. Of course, this was the very same rating they themselves received from their employees.

In effect, within this agency, the lower levels of management, the first- and second-line supervisors, were rated as pm-type which is considered a less effective leadership style. But, the higher levels of management, third-line supervisors and above, were rated as PM-type, considered to be a more effective leadership style with respect to enhancing job productivity and morale.

STRESS OUTCOMES

Stress outcome mean scores for job dissatisfaction, health problems, absenteeism, health care visits, and health risk behaviors are presented in Table 4.

Overall, levels of workplace stress were low "across the board" relative to previously established norms as shown by the stress outcome mean scores for the total
organization (10) which were uniformly low, except for absenteeism which was medium. The exact same pattern of low scores was also obtained for total workers (5W) and total supervisors (9S).

Table 4
Stress Outcomes

<table>
<thead>
<tr>
<th>Groupings</th>
<th>Stress Outcome Mean Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Job Dissatisfaction</td>
</tr>
<tr>
<td>Workers (under 1st-line supervision)</td>
<td></td>
</tr>
<tr>
<td>1W Operations</td>
<td>40.0</td>
</tr>
<tr>
<td>2W Safety-Emerg.</td>
<td>49.3</td>
</tr>
<tr>
<td>4W Maint/Office</td>
<td>40.2</td>
</tr>
<tr>
<td><strong>5W Total Wkrs</strong></td>
<td><strong>41.3</strong></td>
</tr>
<tr>
<td>Supervisors (under 2nd-line supervision and above)</td>
<td></td>
</tr>
<tr>
<td>6S 1st-Line</td>
<td>45.7</td>
</tr>
<tr>
<td>7S 2nd-Line</td>
<td>41.9</td>
</tr>
<tr>
<td>8S 3rd/4th-Line</td>
<td>39.6</td>
</tr>
<tr>
<td><strong>9S Total Spvrs</strong></td>
<td><strong>43.0</strong></td>
</tr>
<tr>
<td>10 Total Org</td>
<td><strong>41.7</strong></td>
</tr>
</tbody>
</table>

a: Job Dissatisfaction norms: Low = below 45, Medium = 45-51, High = above 51
b: Health Problems norms: Low = below 31, Medium = 31-37, High = above 37
c: Absenteeism norms: Low = below 6, Medium = 6-10, High = above 10
d: Health Care Visits norms: Low = below 4, Medium = 4-5, High = above 5
e: Health Risk Behaviors norms: Low = below 32, Medium = 32-34, High = above 34
Analysis of variance indicated no significant differences between workers and supervisors with respect to any of the five stress outcomes.

LEADERSHIP STYLE AND EMPLOYEE STRESS

Table 5 presents the results of analyses to determine the overall relationship between PM leadership style and

Table 5
Leadership Style and Employee Stress

<table>
<thead>
<tr>
<th>Statistic</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workers (5W - under 1st-line supervision)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilks' Lambda</td>
<td>1.64</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>Pillai's Trace</td>
<td>1.61</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>Hotelling-Lawley Trace</td>
<td>1.67</td>
<td>p &lt; .04</td>
</tr>
<tr>
<td>Roy's Greatest Root</td>
<td>4.16</td>
<td>p &lt; .0006</td>
</tr>
<tr>
<td><strong>Supervisors (9S - under 2nd-line supervision and above)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilks' Lambda</td>
<td>1.18</td>
<td>p &lt; .28</td>
</tr>
<tr>
<td>Pillai's Trace</td>
<td>1.17</td>
<td>p &lt; .29</td>
</tr>
<tr>
<td>Hotelling-Lawley Trace</td>
<td>1.19</td>
<td>p &lt; .27</td>
</tr>
<tr>
<td>Roy's Greatest Root</td>
<td>2.75</td>
<td>p &lt; .02</td>
</tr>
<tr>
<td><strong>Total Organization (10)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilks' Lambda</td>
<td>2.64</td>
<td>p &lt; .0007</td>
</tr>
<tr>
<td>Pillai's Trace</td>
<td>2.57</td>
<td>p &lt; .0009</td>
</tr>
<tr>
<td>Hotelling-Lawley Trace</td>
<td>2.71</td>
<td>p &lt; .0005</td>
</tr>
<tr>
<td>Roy's Greatest Root</td>
<td>6.90</td>
<td>p &lt; .0001</td>
</tr>
</tbody>
</table>
employee stress outcomes. A significant relationship between leadership style and stress was found for the total organization and for workers, but not for supervisors.

In effect, the leadership style of first-line supervisors (5W) was found to be related to employee stress outcomes, but the same relationship was not obtained for second-line supervisors and above (9S).

To further analyze the relationship between leadership style and employee stress, the results of two-way analysis of variance of groupings (total workers versus total supervisors) and PM leadership style (PM, Pm, pM, pm) for employee job dissatisfaction and absenteeism are presented in Tables 6 and 7, respectively.

Table 6

Summary of Analysis of Variance of Groupings (workers versus supervisors) and PM Leadership Style for Job Dissatisfaction

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groupings</td>
<td>824.40</td>
<td>1</td>
<td>824.40</td>
<td>2.97ns</td>
</tr>
<tr>
<td>PM Leadership Style</td>
<td>5942.39</td>
<td>3</td>
<td>1980.80</td>
<td>7.14a</td>
</tr>
<tr>
<td>Error</td>
<td>67168.06</td>
<td>242</td>
<td>277.55</td>
<td></td>
</tr>
<tr>
<td>AB Interaction</td>
<td>227.33</td>
<td>3</td>
<td>75.78</td>
<td>.27ns</td>
</tr>
</tbody>
</table>

a p < .0001
As shown in Table 6, for job dissatisfaction there were significant main effects due to leadership style, but no effects due to groupings (workers versus supervisors) or the interaction between groupings and leadership style.

The same results were obtained for absenteeism. As shown in Table 7, there were significant main effects due to leadership style, but no effects were found for groupings (workers versus supervisors) or for the interaction between groupings and leadership style.

Table 7

Summary of Analysis of Variance of Groupings (workers versus supervisors) and PM Leadership Style for Absenteeism

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groupings</td>
<td>1.12</td>
<td>1</td>
<td>1.12</td>
<td>.90ns</td>
</tr>
<tr>
<td>PM Leadership Style</td>
<td>900.62</td>
<td>3</td>
<td>300.21</td>
<td>4.39a</td>
</tr>
<tr>
<td>Error</td>
<td>15250.47</td>
<td>223</td>
<td>68.39</td>
<td></td>
</tr>
<tr>
<td>AB Interaction</td>
<td>70.73</td>
<td>3</td>
<td>23.58</td>
<td>.34ns</td>
</tr>
</tbody>
</table>

\[ a \quad p < .005 \]

Finally, there were no significant effects due to groupings or leadership style in relation to the three remaining stress outcome variables -- health problems, health care visits, or health risk behaviors.
Additional analyses of the relationship between leadership style and the stress outcome variables are presented in Table 8. As seen in Table 8, for total

### Table 8

PM Leadership Style and Stress Outcomes

<table>
<thead>
<tr>
<th>PM Leadership Style</th>
<th>Job Dissatisfaction</th>
<th>Health Problems</th>
<th>Absenteeism</th>
<th>Health Care Visits</th>
<th>Health Risk Beh</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>35.3</td>
<td>29.1</td>
<td>8.1</td>
<td>3.4</td>
<td>31.9</td>
</tr>
<tr>
<td>Pm</td>
<td>42.2</td>
<td>32.2</td>
<td>9.6</td>
<td>3.3</td>
<td>29.4</td>
</tr>
<tr>
<td>pM</td>
<td>37.2</td>
<td>28.9</td>
<td>5.2</td>
<td>2.2</td>
<td>27.4</td>
</tr>
<tr>
<td>pm</td>
<td>46.6</td>
<td>31.3</td>
<td>10.8</td>
<td>3.7</td>
<td>29.1</td>
</tr>
</tbody>
</table>

**Workers (5W - under 1st-line supervision)**

- PM: 35.3, P = .002
- Pm: 42.2, P = .03
- pM: 37.2, P = .0001
- pm: 46.6, P = .05

**Supervisors (9S - under 2nd-line supervision and above)**

- PM: 37.9, P = .005
- Pm: 53.3, P = .01
- pM: 43.0, P = .05
- pm: 51.2, P = .05

**Total Organization (10)**

- PM: 36.3, P = .002
- Pm: 43.5, P = .001
- pM: 39.1, P = .005
- pm: 47.5, P = .005

---

a. Job Dissatisfaction, F = 5.07, P < .002, PM > Pm (see Appendix D, analysis of variance summary Table D1)
b. Job Dissatisfaction, F = 3.11, P < .03, PM > Pm (see Appendix D, analysis of variance summary Table D2)
c. Job Dissatisfaction, F = 8.03, P < .0001, PM > Pm (see Appendix D, analysis of variance summary Table D3)
d. Absenteeism, F = 4.39, P < .005, PM > Pm (see Appendix D, analysis of variance summary Table D4)
workers, total supervisors, and total organization analyzed separately, leadership style was again found to be significantly related to job dissatisfaction and to absenteeism, but not to health problems, health care visits, or health risk behaviors.

For workers (5W), the PM-type leadership style was associated with significantly lower job dissatisfaction as compared with the pm-type leadership style. This same finding was also obtained for supervisors (9S), and total organization (10). The summary analysis of variance tables are presented in Appendix D.

With respect to absenteeism, as shown in Table 8, the only significant finding was for total organization (10). The M-type leadership style (pM) was associated with significantly lower employee absenteeism than the pm-type leadership style. For workers (5W), the difference between absenteeism mean scores for M-type leadership (5.2) versus pm-type leadership (10.8) was found to approach significance (F = 2.37, p < .07). The summary analysis of variance table is presented in Appendix D.

SELF-EFFICACY

Self-efficacy, defined essentially as self-confidence, personal mastery, or the belief in one's own ability to
perform successfully, is presumed to have conditioning qualities that may affect the perception of leadership style and/or the management of workplace stress.

Table 9 presents the self-efficacy mean scores for the worker groupings (1W, 2W, 4W), the supervisor groupings (6S, 7S, 8S), total workers (5W), total supervisors (9S), and total organization (10). The self-efficacy scores for all employees were uniformly high (i.e., above 65).

**Table 9**

**Self-Efficacy**

<table>
<thead>
<tr>
<th>Groupings</th>
<th>Self-Efficacy Scores&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workers (under 1st-line supervision)</strong></td>
<td></td>
</tr>
<tr>
<td>1W Facilities Operations</td>
<td>78.0</td>
</tr>
<tr>
<td>2W Safety-Emergency Services</td>
<td>81.0</td>
</tr>
<tr>
<td>4W Maintenance and Office Services</td>
<td>78.9</td>
</tr>
<tr>
<td>5W Total Workers</td>
<td>79.2</td>
</tr>
<tr>
<td><strong>Supervisors (under 2nd-line supervision and above)</strong></td>
<td></td>
</tr>
<tr>
<td>6S Facil. Oper. and Maint. (1st-line)</td>
<td>82.6</td>
</tr>
<tr>
<td>7S Facil. Oper. and Maint. (2nd-line)</td>
<td>79.5</td>
</tr>
<tr>
<td>8S Oper, Mgr.'s Off., Maint. Supt.'s Off., Director's Off. (3rd- and 4th-line)</td>
<td>89.6</td>
</tr>
<tr>
<td>9S Total Supervisors</td>
<td>83.7</td>
</tr>
<tr>
<td><strong>10 Total Organization</strong></td>
<td>80.3</td>
</tr>
</tbody>
</table>

<sup>1</sup> Self-Efficacy norms: Low score = below 59, Medium = 59-65, High = above 65
As one might expect, the mean self-efficacy score for 9S, total supervisors (83.7), was higher than for 5W, total workers (79.2). Two-way analysis of variance of groupings (total workers versus total supervisors) and PM leadership style (PM, Pm, pM, pm) for self-efficacy showed that the difference between workers (5W) and supervisors (9S) approached significance (F = 3.71, p <.055). One-way analysis of variance of groupings (total workers versus total supervisors) and self-efficacy resulted in a significant difference (F = 7.29, p <.007). It would appear that all employees in this sample generally have confidence in their abilities to deal with problems, and believe they have things well under control, but perhaps more so for supervisors than for workers.

DEMOGRAPHIC INFORMATION

The purpose of the study was to explore the relationship between supervisory leadership style and employee stress outcomes. As noted in the introduction, certain background or demographic variables have been shown to serve as pre-existing conditions or "conditioners." These conditioners are thought to function as factors which may affect employees' perception of their supervisors' leadership style, or the manner in which employees cope
with workplace stress. For this study, various demographic and personal data were obtained to assess their possible

Table 10
Demographic Variables with Conditioning Qualities

<table>
<thead>
<tr>
<th>Groupings and Demographic Variables</th>
<th>Stress Outcome Mean Scores¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workers (SW - under 1st-line supervision)</strong></td>
<td></td>
</tr>
<tr>
<td>Gender²</td>
<td>Health Problems</td>
</tr>
<tr>
<td></td>
<td>Absenteeism</td>
</tr>
<tr>
<td></td>
<td>Health Risk Beh</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Health Risk Beh</td>
</tr>
<tr>
<td>Medical Plan</td>
<td>Health Risk Beh</td>
</tr>
<tr>
<td><strong>Supervisor (9S - under 2nd-line supervision and above)</strong></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Absenteeism</td>
</tr>
<tr>
<td><strong>Total Organization (10)</strong></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Health Problems</td>
</tr>
<tr>
<td></td>
<td>Absenteeism</td>
</tr>
<tr>
<td></td>
<td>Health Risk Beh</td>
</tr>
<tr>
<td>Supervisory Experience</td>
<td>Self-Efficacy</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Health Risk Beh</td>
</tr>
</tbody>
</table>

¹ All mean differences, p < .05
² See Appendix E for analysis of variance summary Tables EI-EI4
conditioning effects. Table 10 presents the demographic and personal variables that were found to have significant conditioning qualities based on separate analysis of data from workers, supervisors, and total organization. For the analysis of variance summary tables, see Appendix E.

As shown in Table 10, gender was the most prominent conditioning variable. For workers (5W), gender was related to three of the five stress outcome variables — health problems, absenteeism, and health risk behaviors. There were no effects in relation to job dissatisfaction or health care visits.

Female workers reported more health problems, higher rates of absenteeism, and fewer health risk behaviors (e.g., smoking, alcohol, drugs, etc.) as compared to male workers. In addition, the data in Table 10 show that workers who were married reported fewer health risk behaviors than workers who had never been married.

An unexpected finding was the relationship between choice of medical health plan and health risk behaviors. For reasons that are not clear from the study, workers who selected the HMSA medical health plan reported themselves as engaged in significantly fewer health risk behaviors than the workers who selected the Kaiser medical health plan.
For supervisors (98), gender was the only variable to have any significant differential effect; female supervisors reported higher rates of absenteeism than their male counterparts.

For the total organization (10 - workers and supervisors combined), the demographic variables that seemed to possess some conditioning qualities included gender, previous supervisory experience, and marital status. With respect employee gender, female employees reported significantly a higher frequency of health problems and absenteeism than males. Female employees also reported themselves as engaged in fewer health risk behaviors (e.g., smoking, alcohol, drugs, etc.) than males.

Employees with previous supervisory experience, as might be expected, had significantly higher self-efficacy scores, reflecting a greater sense of personal mastery, than those without such previous work experience. And, finally, with respect to marital status, respondents never married reported themselves as engaged in more health risk behaviors (e.g., smoking, alcohol, drugs, etc.) than married employees.

None of the other demographic variables appeared to have mediating or conditioning effects on the stress outcomes, or self-efficacy.
The data concerning demographic and personal information are presented in Table 11 for total workers, total supervisors, and total organization.

Table 11
Demographic Information

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Workers</th>
<th>Supervisors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Age</td>
<td>44.7</td>
<td>47.6</td>
<td>45.4</td>
</tr>
<tr>
<td>Avg Yrs of Education</td>
<td>12.3</td>
<td>12.8</td>
<td>12.4</td>
</tr>
<tr>
<td>Avg Yrs in Organization</td>
<td>7.6</td>
<td>13.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Avg Yrs in US</td>
<td>38.1</td>
<td>46.3</td>
<td>37.3</td>
</tr>
<tr>
<td>Avg Yrs in Hawaii</td>
<td>35.0</td>
<td>44.1</td>
<td>37.3</td>
</tr>
<tr>
<td>Avg Persons in Household:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 yrs and below</td>
<td>.63</td>
<td>.71</td>
<td>.64</td>
</tr>
<tr>
<td>13 yrs - 21 yrs</td>
<td>.40</td>
<td>.35</td>
<td>.38</td>
</tr>
<tr>
<td>22 yrs - 64 yrs</td>
<td>1.35</td>
<td>1.29</td>
<td>1.32</td>
</tr>
<tr>
<td>65 yrs and above</td>
<td>.21</td>
<td>.19</td>
<td>.20</td>
</tr>
<tr>
<td>Gender:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>113</td>
<td>32</td>
<td>145</td>
</tr>
<tr>
<td>Female</td>
<td>75 (30%)</td>
<td>30 (48%)</td>
<td>105</td>
</tr>
<tr>
<td>Ethnicity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Caucasian</td>
<td>16</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Chinese</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Filipino</td>
<td>28 (11%)</td>
<td>4 (6%)</td>
<td>32</td>
</tr>
<tr>
<td>Haw., Part-Haw</td>
<td>41 (17%)</td>
<td>27 (44%)</td>
<td>68</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Japanese</td>
<td>52 (21%)</td>
<td>15 (24%)</td>
<td>67</td>
</tr>
</tbody>
</table>
Table 11 (Continued)

Demographic Information

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Workers</th>
<th>Supervisors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity (con't):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korean</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Portuguese</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Mixed</td>
<td>21</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td><strong>Supervisor Gender:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>87</td>
<td>37</td>
<td>124</td>
</tr>
<tr>
<td>Female</td>
<td>77</td>
<td>23</td>
<td>101</td>
</tr>
<tr>
<td><strong>Supervisor Ethnicity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Caucasian</td>
<td>20</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Filipino</td>
<td>13</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Haw., Part-Haw</td>
<td>52</td>
<td>17</td>
<td>69</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Japanese</td>
<td>22</td>
<td>16</td>
<td>38</td>
</tr>
<tr>
<td>Korean</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Portuguese</td>
<td>19</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mixed</td>
<td>43</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td><strong>Supervisor in Past Jobs:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>74 (40%)</td>
<td>37 (61%)</td>
<td>111</td>
</tr>
<tr>
<td>No</td>
<td>111</td>
<td>24</td>
<td>135</td>
</tr>
<tr>
<td><strong>Language Other Than English:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>56</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>No</td>
<td>130</td>
<td>52</td>
<td>182</td>
</tr>
</tbody>
</table>
Table 11 (Continued)
Demographic Information

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Workes</th>
<th>Supervisors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>50</td>
<td>5</td>
<td>55</td>
</tr>
<tr>
<td>Married</td>
<td>111</td>
<td>38</td>
<td>149</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Divorced</td>
<td>19</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>Widowed</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td><strong>Supplementary Income:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33 (18%)</td>
<td>16 (26%)</td>
<td>49</td>
</tr>
<tr>
<td>No</td>
<td>150</td>
<td>46</td>
<td>196</td>
</tr>
<tr>
<td><strong>Gross Income:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10k</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>$10k - $19.99k</td>
<td>87</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>$20k - $29.99k</td>
<td>52</td>
<td>21</td>
<td>73</td>
</tr>
<tr>
<td>$30k - $39.99k</td>
<td>17</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>$40k and over</td>
<td>9</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td><strong>Citizenship:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>186</td>
<td>60</td>
<td>246</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Health Plan:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMSA</td>
<td>120</td>
<td>33</td>
<td>153</td>
</tr>
<tr>
<td>Island Care</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Kaiser</td>
<td>54</td>
<td>21</td>
<td>75</td>
</tr>
<tr>
<td>Straub</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Some of the more interesting demographic findings included the following percentages: females constituted 30% of workers, but 48% of supervisors; 48% of the workers in the sample were from three ethnic categories -- Filipino, Hawaiian/Part-Hawaiian, and Japanese, and 74% of the supervisors were from the same three ethnic categories; 40% of the workers and 61% of the supervisors have had past supervisory experience; and finally, 18% of the worker respondents and 26% of the supervisor respondents reported having supplementary incomes.
The study's fundamental hypothesis was that in the workplace, the leadership style of supervisors is linked to stress outcomes of employees they supervise.

Research on Misumi's PM leadership theory has shown PM leadership style to be related to employee productivity and morale. One of the goals of the present study was to extend this line of research by investigating the relationship between PM leadership style and employee health, specifically, employee stress outcomes. Another goal was to call attention to first-line supervision, which more often than not has been overlooked in studies of leadership and occupational stress.

LEADERSHIP AND STRESS

In this study, PM leadership style ratings were used as measures of supervisor leadership style. In Misumi's PM Leadership Theory, P leadership behavior emphasizes group performance and goal achievement while M leadership behavior is associated with the promotion of group cohesion, stability, and survival. The P and M dimensions
of leadership are considered separate, interactive, and present to varying degrees in all leadership styles.

The five employee stress outcomes investigated included assessments of (1) job dissatisfaction -- a psychological index of workplace stress, (2) health problems -- a physiological index of workplace stress, and (3) absenteeism, (4) health care visits, and (5) health risk behaviors -- all considered to be behavioral indices of workplace stress.

Overall, the data obtained by the study found a significant relationship between PM leadership style and employee stress. Specifically, PM-type leadership style (associated in previous studies with the most positive criterion levels) was related to lower employee stress. Conversely, pm-type leadership style (in previous studies associated with the most negative criterion levels) was related to higher employee stress.

The relationship between leadership style and employee stress outcomes was more prominent for workers under first-line supervision than it was for supervisors under second-line supervision and above.

However, the relationship between PM leadership style and employee stress was significant only with respect to the stress outcomes of job dissatisfaction and absenteeism.
There were no differential effects related to the three other stress variables -- health problems, health care visits, or health risk behaviors.

For job dissatisfaction, supervisors rated as PM-type leaders had employees who reported lower job dissatisfaction as compared with the employees of supervisors rated as pm-type leaders. In theory, it is the ability of the PM-type leader to enhance both workgroup performance (P -- for group productivity and goal achievement), as well as workgroup maintenance (M -- for group stability and relationships) that results in lower levels of employee job dissatisfaction.

Conversely, we presume that it is the pm-type leaders' more laissez-faire approach and poorer skills in facilitating group productivity and group processes that resulted in their employees reporting higher levels of job dissatisfaction.

This general rationale also seemed to apply to employee absenteeism. In this study, M-type leadership style (pM) was found to be associated with significantly lower rates of employee absenteeism as compared with the absenteeism rates reported by employees working under supervisors who were judged to be pm-type leaders.

The M-type leadership style (pM) emphasizes group maintenance more so than group performance. M-type leaders
have been shown to engage in more maintenance activities such as dispelling tension, resolving conflicts, giving encouragement and support, allowing for self-expression, and promoting the acceptance of interdependence among group members as compared with pm-type or P-type (Pm) leaders.

Again, presumably, the M-type supervisor's success in maintaining positive group relations results in lower employee absenteeism. On the other hand, the pm-type supervisor, less skilled at facilitating group performance and maintenance inadvertently creates a more stressful workplace. The result is higher employee absenteeism.

In general, these findings that link PM leadership style with employee stress are consistent with the findings from studies conducted in other work settings that have found PM leadership style to be related with other employee variables such as job performance, morale, and job satisfaction.

"SPLIT-LEVEL" MANAGEMENT

It was interesting to find a "split" in the leadership style of supervisors rated by the subjects in this study. Workers rated their first-line supervisors, and first-line supervisors rated their second-line supervisors, as pm-type leaders while third-, fourth-, and fifth-line supervisors
were rated as PM-type leaders. In other words, lower level supervisors were judged to have poor leadership skills while more senior level supervisors were perceived to have superior leadership skills, with respect to facilitating group performance and group maintenance.

Although the hypothesis of the study conjectured that the "split" would be between first-line supervisors and all others, the study's findings are consistent with previous studies done in other workplaces in which first- and second-line supervisors were similar enough to combine them into one group (Misumi and Peterson, 1985). A similar distinction between lower first- and second-line supervisors and more senior supervisors is also found in the common references to "blue-collar" versus "white-collar" managers (Axelrod and Gavin, 1980).

The finding of a "split" between the pm-type ratings accorded lower level supervisors versus the PM-type ratings accorded higher level supervisors is again consistent with the findings reported by PM leadership studies conducted in other work settings on other work variables.

One interpretation of the discrepancy between ratings of lower versus higher level supervisors is that, as supervisors advance up the corporate ladder to higher levels of management, the experience and knowledge they gain along the way, plus various selection factors, result
in senior managers who are indeed better managers, that is, superior in terms of facilitating goal achievement (high P) and nurturing employees (high M).

At the same time, first- and second-line supervisors, who may carry a greater burden due to lack of experience, lack of training, or both, are likely to be less skilled at guiding and nurturing their employees. The employees who work under them may perceive day-to-day interactions with these lower level supervisors as a source of frustration and stress, and a threat to their well-being. If so, they are more likely to appraise the quality of supervision they receive as being in conflict with their own needs for guidance and nurturance.

In theory, this situation can produce stress outcomes that are psychologically, physiologically, and behaviorally detrimental to employee health, and cause the employees who must contend with this situation to rate their supervisors as pm-type leaders.

Another interpretation of the "split" in leadership style between lower level and higher level supervisors is that the first- and second-line supervisor may be, himself or herself, under greater stress. For example, having been recently promoted from within the ranks to supervisor status, the new supervisor may be faced with unsettling conditions (e.g., internal unit conflicts, animosities,
etc.), and feel inadequately equipped to deal with them. This interpretation is supported to a degree by data in Table 4 showing that both first-line supervisors (6S) and second-line supervisors (7S) had generally higher stress outcome mean scores than did the more senior third- and fourth-line supervisors (8S).

In sum, the need to cope with their own higher levels of stress may negatively impact the leadership effectiveness of lower level supervisors in much the same way that stress seems to impede the effectiveness of workers.

Finally, with respect to the apparent "split" in leadership style, quality of supervision was shown to be "better" at higher levels of organizational management as compared with lower levels of management. The implication is that quality of supervision is not necessarily static in a corporate culture, but dynamic. In this case, improvement in the quality of leadership or supervision seems to increase as supervisors advance up the management ladder. The improvement in leadership appears to be both positive and logical. However, we cannot say from the data obtained in this study whether the improvement in leadership is due to experience, training, corporate culture, selection, or any other factor(s).
FIRST-LINE SUPERVISORS

The results from the study highlight the problems associated with the first-line supervisor position. Past studies have indicated some of the unique difficulties associated with managing at the first-line level. One difficulty mentioned above, is that the first-line supervisor is usually promoted from within the ranks. For example, in Table 11 which shows the demographic data, 24 out of 61 (39%) supervisors reported having no previous supervisory experience at the present agency or in any other workplace.

Workers thrust into first-line supervisory positions where former fellow-workers and peers are now their subordinates may face a certain degree of conflict between their previous loyalty to, and identification with, the workgroup versus the different expectations imposed on them by a new superior.

The first-line supervisor in this situation may experience role conflict or role ambiguity leading to ineffectiveness as a leader. Such a hypothesis is consistent with other research indicating that persons in mediating positions, like first-line supervisors, are caught in the center of a network of pressures and are thus forced to compromise. For new first-line supervisors, it
may be a no-win situation in which they can lose the trust of both their superior(s) and subordinate(s).

The distinctive problems of first-line supervisors, who were judged in this study to be pm-type leaders, also seem to be exacerbated by what is often a lack of attention in many corporate settings to proper selection, preparation, and training for the position. It is usually technical expertise and/or seniority rather than management skill and proficiency in working with people that are the bases for promotions of workers to first-line supervisor status.

At the same time, the systematic cultivation of an effective leadership style, a style that would likely incorporate skills in facilitating group goal achievement and group maintenance, is often disregarded or by-passed.

**LEADERSHIP DYNAMICS IN THE LOW-STRESS WORKPLACE**

Although this study found a link between leadership style and employee stress, it is important to remember that the absolute levels of stress reported by subjects in this study were uniformly low relative to norms established by previous studies.

The stress outcome data on job dissatisfaction, and frequency of health problems, health care visits, and health risk behaviors were low for workers and supervisors
(see Table 4). Absenteeism was determined to be medium. These near-uniformly low stress outcomes indicated that the subjects of this study, employees of a large public service agency, may very well enjoy a "low-stress" workplace.

However, within this low-stress workplace, supervisors at the first- and second-line levels of management, that is, those supervisors closest to the workers, were rated as PM-type leaders while the agency's more senior supervisors, those at the third-line level and above, were rated as PM-type leaders. And, although the absolute levels of workplace stress were found to be uniformly low across the board, PM-type leadership style was still associated with significantly higher employee job dissatisfaction when compared with PM-type leadership style.

In sum, even in this so-called "low-stress workplace," the study found differential effects between style of leadership and employee stress, with a more positive style of leadership associated with lower employee stress and a more negative style of leadership associated with higher employee stress.

One interpretation of this finding is that the more senior supervisors at the higher levels of management (i.e., third-, fourth- and fifth-line supervision), who were judged to have a more positive style of leadership (PM-type), may be in a position and have the necessary
wherewithal to influence overall organizational climate, including the level of overall workplace stress. The argument is that senior management plays an important part in setting overall workplace tone and atmosphere. Thus, in this study, the positive leadership skills of senior management may have "produced" an overall low-stress work environment.

At the same time, the more negative style of supervision (pm-type) on the part of lower level managers (i.e., first-line supervisors) was differentially related to higher worker stress outcomes (see Table 5). However, the effect was not of sufficient magnitude to influence (i.e., increase) the low, overall levels of workplace stress for the total organization.

This effect is consistent with a common phenomenon where overall workplace climate is judged to be positive, but may not be so positive in one or more units of the organization. These units are usually described as "pockets of conflict" where conditions are known to be less than desirable with regard to quality of unit supervision (leadership) and levels of stress experienced by unit employees.

The same line of reasoning applies to the reverse situation where overall workplace climate is negative, but within one or more units of the organization, the climate
is positive. Such units are often referred to as "pockets of quality." These units are normally blessed with a high quality of leadership, and have a reputation for excellence, with respect to performance and morale.

MAINTENANCE VERSUS PERMISSIVENESS

The finding that M-type leadership style, with its emphasis on group maintenance, was associated with lower employee absenteeism differs from other studies that have found organizational "permissiveness" to be related to higher levels of absenteeism (Brooke & Price, 1989). The implication is that the PM leadership construct "M - for group maintenance" is not the same as permissiveness.

In contrast to M-type leadership, pm-type leaders in this study had employees who reported higher absenteeism. The pm-type leaders' laissez-faire style and lack of ability to press performance goals and manage psychosocial issues are qualities that seem closer to the concept of permissiveness. Furthermore, organizational permissiveness tends to allow absenteeism without much accountability, which seems consistent with the laissez-faire mode.

This issue is worthy of note primarily because the idea of facilitating group processes (i.e., M-type leaders who encourage and support employees) is often mistaken for
permissiveness, that is, laxity in maintaining compliance with organizational rules and procedures. For example, in a cross-cultural study, Smith, et al (1989), found that American, M-type supervisors were noted for not showing disapproval of latecomers to work.

There is a degree of confusion that surrounds the issue of group maintenance versus permissiveness. Perhaps one illustration of this confusion is the popular phrase, "focus on results, not on process" which implies that "results" and "process" are unrelated. To the contrary, data from studies on PM leadership indicate that managers who emphasize group processes (M-types) also produce better results, that is, have more productive and satisfied employees as compared to P-type managers who only press for performance (i.e., results). Thus, if higher group productivity is an express goal, then a more valid assertion would be, "focus on process, not on results (M-type leadership)," or, even better, "focus on process and results (PM-type leadership)." In short, a focus on group processes seems to be a key to superior leadership and management. Based on these data, discouraging such a focus would not seem to be in the best interests of the organization or its employees.
CONDITIONING VARIABLES

Several of the demographic variables evaluated for "conditioning" qualities, that is, the power to influence the perception of leadership style, or stress outcomes, or self-efficacy, were shown to be statistically significant. However, the variable with the greatest prominence was gender and its relationship to absenteeism. The influence of gender on the absenteeism stress variable was found for workers, supervisors, and for the total organization. In each case, females reported significantly higher levels of absenteeism than males. In effect, gender effects may account for the significant but weak relationship between M-type leadership style and absenteeism that was found for the total organization, but not for workers or supervisors analyzed separately.

The second most prominent demographic variable with conditioning qualities was the relationship between marital status and health risk behaviors (e.g., smoking, alcohol, drugs). For workers and for the total organization, married employees reported significantly higher levels of health risk behaviors than employees who had never married.

Overall, the data from this study on demographic variables with conditioning qualities produced results that are not particularly surprising and are consistent with
outcomes that have been reported generally in the literature.

EMPLOYEE STRESS

The results from this study affirm the fact that the assessment of employee stress, or workplace stress, is a complex undertaking. In this study, the overall analysis of leadership style versus employee stress outcomes (all five stress variables) revealed a definite, statistically significant relationship between these two major workplace factors. However, the relationship was not a simple one. For example, low PM leadership style was related to higher levels of employee job dissatisfaction and PM leadership style to higher levels of employee absenteeism. But, PM leadership style was not related to the frequency of employee health problems, health care visits, and health risk behaviors.

Certainly, the possibility exists that the scales/items used in the survey questionnaire may not have been the most appropriate for the organization surveyed. It may also be that methods other than self-report (asking employees to complete a questionnaire) would have produced different results. For example, given proper access, employee absenteeism rates could be retrieved from personnel
records, and data on employee health problems and health care visits extracted from medical insurance records. In sum, the collection of these types of data in future studies may help to substantiate the veracity of self-report measures of employee stress.

As noted in the introduction to this report, there is little agreement among investigators as to the best indices of workplace stress. The cumulative impact of stress makes it difficult to isolate specific outcomes. And, the circular nature of stress and stress-related outcomes creates problems in tracing causes and effects. In short, perfect measures of stress are unattainable due not only to constitutional differences, but to the complexity of human interactions with others and their environments.

Given the complexity of the construct of stress in general and employee stress in particular, qualitative information from systematic, in-depth employee interviews, might provide additional, substantive, and perhaps illuminating information. Also, more longitudinal research is needed to provide the kind of dynamic perspective that cross-sectional studies alone cannot provide.

Cooper and Marshall (1976) sum up the shortcomings in occupational stress research as: 1) use of correlational analysis, 2) confusion of independent and dependent
variables, 3) definition and measurement of variables, 4) sampling, and 4) retrospective studies.

Rather than viewing this study as one which is replete with such shortcomings, another perspective is suggested. That perspective would view this study as representing one step towards action research. Although admittedly lacking in some of the major components of action research, the study was conducted in a real-to-life setting, dealt with a practical problem which the organization faced, included some collaborative effort, is future-oriented, and makes a case for organizational change and development.

COGNITIVE STRESS THEORY

A final question arises as to why job dissatisfaction was the particular stress outcome variable to be affected by differential PM leadership styles. In this study, job dissatisfaction was lower for employees working under PM-type supervision than it was for employees working under pm-type supervision. This same difference was found to hold for workers, for supervisors, and for workers and supervisors combined (total organization).

The only other stress-related variable to be associated with PM leadership style was employee absenteeism. But, relative to job dissatisfaction, the linkage between
leadership style and absenteeism was weak. Absenteeism was found to be lower for employees working under M-type supervision as compared to employees working under pm-type supervision. However, this finding was obtained only for the total organization, and not for workers and supervisors analyzed separately ($F = 2.37, p < .07; F = 2.05, p < .12$, respectively).

In this study, leadership was not found to influence any of the remaining three stress-related variables that were investigated -- health problems, health care visits, and health risk behaviors.

In sum, leadership style was found to be related to one psychological stress outcome, i.e., job dissatisfaction, and to a much lesser degree to one behavioral stress outcome, i.e., absenteeism, and not at all to the frequency of health problems, a physiological stress outcome, or the frequency of health care visits and health risk behaviors, both behavioral stress outcomes.

One interpretation of these findings comes from cognitive stress theory (Lasarus & Folkman, 1984). In brief, the theory defines stress as the relationship or interaction between the individual and the environment. Psychological stress reactions are, on the one hand, influenced by person-related variables (needs, commitments, beliefs, etc.) that interact, on the other hand, with
reality or situational factors such as imminence, duration, uncertainty, and ambiguity that tend to define events, that is, the person's environment.

In addition to the interaction between person-related variables and situational factors, the psychological stress reactions are mediated by cognitive appraisal mechanisms. In "primary appraisal," the main question is, "What is it?" which involves judgments as to whether an encounter is either irrelevant, benign, or stressful.

If the event is judged stressful, then "secondary appraisal" asks the question, "What can be done about it?" which involves judgments about the possible consequences of various strategies.

Finally, coping is defined as the process for managing negative appraisals, a process that may involve cognitive and/or behavior change.

Applying this theory to the data obtained on PM leadership styles and employee stress, one answer to the question, "Why only job dissatisfaction?" uses the cognitive stress ideas concerning primary and secondary appraisal. The subjects of this study, both workers and supervisors, were in general agreement as to their appraisal of the leadership styles of their respective supervisors -- largely, PM-type and pm-type. Employees (both workers and supervisors) under PM-type leaders
reported lower job dissatisfaction scores than employees (again both workers and supervisors) under pm-type leaders.

However, in response to the next question, "What can be done about it?" the data indicated that for these employees, again both workers and supervisors, nothing much happens. A very weak difference was found for absenteeism rates, and nothing at all for health problems, health care visits, and health risk behaviors.

The suggestion is that their collective judgments about the degree of "stressfulness" due to the poor leadership styles of their supervisors is low "across the board," as reflected in their overall low stress outcome scores.

And, although the reasoning here tends to be circular, the overall low level of workplace stress may account for the observed differences in subjects' psychological coping as reflected in differential job dissatisfaction scores. That is, the level of workplace stress was not appraised to be of sufficient intensity to trigger any behavioral coping mechanisms as in uniformly higher rates of absenteeism, more visits to the doctor, and higher rates of smoking, and alcohol and drug usage. Neither was the level workplace stress high enough to affect physiological problems.

Consistent with cognitive stress theory, psychological stress reactions by those working in the "low-stress workplace," i.e., the agency that hosted this research,
would be expected to follow the patterns found by this study. Conversely, in the "high-stress workplace" one would expect to find clearer indices of stress as reflected by not only psychological measures (i.e., job dissatisfaction), but behavioral and physiological indices as well.

The fact that even in a low-stress workplace, significant differences were found for leadership style versus employee stress is enlightening. In effect, it may be that leadership style is a far more salient feature of high-productive, stable, high morale, and healthy workplaces than is generally acknowledged among American managers and corporate executives. In particular, leadership style among lower level supervisors may be integral to the success of an organization.

Research on leadership and employee health is often driven by increased competition, the need to retain skilled workers, and the search for solutions to control skyrocketing health care costs. At the same time, there is a built-in factor that can seriously impede the study of how leadership factors affect employees and workplaces. That factor is the control the leadership at the top of the organization has over the ideas and concepts that will be given attention, the directions that will be followed, the strategies and procedures that will be implemented, and so
on. It is the rare executive who is ready to say, "Let's look at ourselves and our leadership styles as a way to ensure better health among our employees."

Ultimately, however, it is precisely this kind of awareness and understanding that is needed to provide the impetus and opportunities for more research in the area of leadership style and employee health.
### APPENDIX A

#### RESEARCH PARADIGM

**Sources of Stress**

**Organizational**
- Leadership: *Low goal achievement, Low group maintenance*

**Intrinsic To Job:**
- Physical hazards
- Work overload
- Time pressures

**Career Development:**
- Underpromotion
- Job insecurity
- Lack of training

**Organizational Structure:**
- Red tape
- Politics
- Rigid policies

**Extraorganizational**
- Family relations
- Economic problems
- Legal problems

**Stress**

*Appraisal by the Individual*  
*(Cognitive Stress Theory)*

**Individual Differences**

**Physical:**
- Biochemical indicators
- Self-report symptoms
- Diseases

**Psychological:**
- Job dissatisfaction
- Lowered morale
- Depression
- Suicide

**Behavioral:**
- Smoking
- Escapist drinking
- Absenteeism
- Health care visits
- Accidents

**Outcomes**

**Demographic:**
- Age
- Sex
- Education
- Tenure
- Marital status
- Other

**Cognitive/Affective:**
- Self-efficacy
- Cultural orientation
- Locus of control
- Type A/B
- Hardiness
- Social support
PLEASE NOTE

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

Organizational Stress Framework
106

University Microfilms International
APPENDIX C
SURVEY QUESTIONNAIRE

Please read these instructions. This questionnaire is designed to obtain your views on organizational climate, supervision, and employee stress. Please answer every item. Circle only one answer for each item. If you are not sure about an item, just give the best possible answer. Your responses are confidential. After you have finished, use the pre-addressed/stamped envelope to return the questionnaire directly to the project investigator. Thank you very much for your help and cooperation. Please return the questionnaire no later than

SECTION I

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of Your Answer</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does your supervisor let you know about plans and tasks for your day to day work?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. When you ask your supervisor to improve the facilities needed for your work, does she/he try to do so?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To what extent does your supervisor give you instructions and orders?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Does your supervisor try to understand your viewpoint?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When your supervisor gives you assignments, does she/he set clear deadlines for completing the work?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. When a problem arises in your workplace, does your supervisor ask your opinion about how to solve it?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Does your supervisor require you to report on the progress of your work?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Does your supervisor treat you fairly?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. How knowledgeable is your supervisor about the machinery or equipment for which you are responsible?</td>
<td>0 No Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Not at all knowledgeable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Not so knowledgeable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Can you talk easily with your supervisor regarding your work?</td>
<td>1 Not easily at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Not so easily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Fairly easily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. How clearly does your supervisor work out plans for goal achievement on a regular basis?</td>
<td>1 Not at all clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Not so clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Fairly clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Is your supervisor concerned about your personal problems?</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[PLEASE GO ON TO REVERSE SIDE OF THIS PAGE]
<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Does your supervisor urge you to complete your work within a set amount of time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>14. Does your supervisor trust you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>15. Is your supervisor strict about following regulations?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>16. Is your supervisor concerned about your future career success?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>17. Is your working time ever wasted because of inadequate planning and organization on the part of your supervisor?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>18. When you do your job well, does your supervisor give you recognition?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>19. Does your supervisor try to make you work to the best of your ability?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>20. Does your supervisor generally support you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
</tbody>
</table>

**SECTION II**

**CIRCLE THE NUMBER OF YOUR ANSWER**

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I'm fed up with my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>2. I feel crabby at work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>3. I feel that everything is caving in at work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>4. I feel unable to get out from under my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>5. I'm discouraged about my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>6. I feel buried in my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>7. I feel like giving up on the job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>8. I'm disillusioned with my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
<tr>
<td>9. My job makes me angry.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Never Rarely Sometimes Often Always</td>
</tr>
</tbody>
</table>

*(PLEASE GO ON TO NEXT PAGE)*
10. My job has me at the end of my rope.

11. I have difficulty dealing with my co-workers.

12. I have difficulty dealing with the public.

13. I have difficulty dealing with the amount of work required of me.

SECTION III

CIRCLE THE NUMBER WHICH BEST DESCRIBES YOU

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
<tr>
<td>3</td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

SECTION III

1. Difficulty falling asleep.

2. Wake up a lot and have trouble falling back to sleep.

3. Stomach bothers me.

4. Have headaches.

5. Racing pulse.


7. Find it difficult to sit still.

8. Heart problems.

9. Have no appetite.

10. Feel tired a lot.

11. Hands tremble.

[PLEASE GO ON TO REVERSE SIDE OF THIS PAGE]
12. Have itchy rashes.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Have periods of uncontrollable crying.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. High blood pressure.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Difficulty with bowel movements.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Ulcer.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Have bad dreams.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. Lower back pains.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Palms sweat.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. Jump whenever I hear a loud noise.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. Difficulty focusing my attention.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does Not Describe</td>
<td>A Little</td>
<td>Somewhat</td>
<td>Fairly Well</td>
<td>Describes Me Well</td>
</tr>
<tr>
<td>2</td>
<td>Me At All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. Within the last year, I have taken one-day sick leaves:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zero to One Time</td>
<td>Two to Three Times</td>
<td>Four to Five Times</td>
<td>Six to Seven Times</td>
<td>Eight or More Times</td>
</tr>
</tbody>
</table>

23. Within the last year, I have taken two-day sick leaves:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zero to One Time</td>
<td>Two to Three Times</td>
<td>Four to Five Times</td>
<td>Six to Seven Times</td>
<td>Eight or More Times</td>
</tr>
</tbody>
</table>

24. Within the last year, I have been to a medical doctor because of illness:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zero to One Time</td>
<td>Two to Three Times</td>
<td>Four to Five Times</td>
<td>Six to Seven Times</td>
<td>Eight or More Times</td>
</tr>
</tbody>
</table>

25. Within the last year, I have been to a psychologist, clergy, or counselor because of personal problems:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zero to One Time</td>
<td>Two to Three Times</td>
<td>Four to Five Times</td>
<td>Six to Seven Times</td>
<td>Eight or More Times</td>
</tr>
</tbody>
</table>

(PLEASE GO ON TO NEXT PAGE)
SECTION IV

CIRCLE HOW OFTEN YOU USE THE FOLLOWING TO HELP YOU RELAX OR CHANGE YOUR MOOD

1. Cigarettes or Cigars.

2. Beer or Wine.

3. Mixed drinks or shots of liquor.

4. Prescription drugs (for example, tranquilizers).

5. Non-prescription drugs (for example, marijuana, cocaine).

SECTION V

CIRCLE THE NUMBER OF YOUR ANSWER

1. When I make plans, I am sure I can make them work.

2. One of my problems is that I cannot get down to work when I should.

3. If I can't do a job the first time, I keep trying until I can.

4. When I set important goals for myself, I rarely achieve them.

5. I give up on things before completing them.

6. I avoid facing difficulties.

7. If something looks too complicated I will not even bother to try it.

8. When I have something unpleasant to do, I stick to it until I finish it.

9. When I decide to do something, I go right to work on it.
10. When trying to learn something new, I soon give up if I am not successful in the beginning.

11. When unexpected problems occur, I don't handle them well.

12. I avoid trying to learn new things when they look too difficult for me.

13. Failure just makes me try harder.

14. I feel unsure about my ability to do things.

15. I am a self-reliant person.

16. I give up easily.

17. I do not seem capable of dealing with most problems that come up in life.

SECTION VI

CHECK YOUR ANSWER OR FILL IN THE BLANK

1. Your sex: ___ Male ___ Female

2. Your age: _____ years old

3. Your ethnicity (check the one which you most closely identify with):
   ___ Black
   ___ Caucasian
   ___ Chinese
   ___ Filipino
   ___ Hawaiian or Part Hawaiian
   ___ Hispanic
   ___ Indo-Chinese
   ___ Japanese
   ___ Korean
   ___ Pacific Islander (other than Hawaiian)
   ___ Portuguese
   ___ Other ___ fill in ethnicity

4. Your supervisor's sex: ___ Male ___ Female

5. As far as you can tell, is your supervisor's ethnicity:
   ___ Black
   ___ Caucasian
   ___ Chinese
   ___ Filipino
   ___ Hawaiian or Part Hawaiian
   ___ Hispanic
   ___ Indo-Chinese
   ___ Japanese
   ___ Korean
   ___ Pacific Islander (other than Hawaiian)
   ___ Portuguese
   ___ Other ___ fill in ethnicity

6. How long have you worked under your current supervisor? ____ years ____ months

(PLEASE GO ON TO NEXT PAGE)
7. Were you a supervisor in any of your past jobs?  ___ Yes  ___ No

8. Do you speak a language other than English?  ___ Yes  ___ No

9. How many years of formal education have you had? ____ years

10. Your marital status:
    ___ Never married  ___ Married  ___ Separated  ___ Divorced  ___ Widowed

11. Persons living with you:
    ___ Number of children aged 12 and below
    ___ Number of persons aged 13 - 21
    ___ Number of persons aged 22 - 64
    ___ Number of persons aged 65 and above

12. How long have you worked for this organization? ____ years

13. Do you have another job to supplement your income from this job?  ___ Yes  ___ No

14. What is your total annual gross income, from all of the jobs you currently hold?
    ___ Less than $10,000  ___ $10,000 - $19,999  ___ $20,000 - $29,999
    ___ $30,000 - $39,999  ___ $40,000 - or more

15. Your citizenship:  ___ United States  ___ Other  ___ fill in citizenship

16. How long have you been in the United States? ____ years

17. How long have you lived in Hawaii? ____ years

18. Which medical health plan(s) are you enrolled in?  ___ HMSA  ___ Island Care
    ___ Kaiser  ___ Straub  ___ Other  ___ fill in health plan

Thank you very much for taking the time to complete this questionnaire. Please use the attached pre-addressed envelope to mail the completed questionnaire directly to the investigator.

Respondent Code ________

In order to ensure the success of this project, we would like to match your responses to this survey with others in your organization. For this reason, we have written a code number at the bottom of this section. After matching is completed, all identification will be destroyed. We would like to emphasize the strict confidentiality with which your answers will be treated. However, if you prefer, you may tear off this section.

Respondent Code ____________________
## APPENDIX D

### SUMMARY ANALYSIS VARIANCE TABLES:
**PM LEADERSHIP STYLE AND STRESS OUTCOME VARIABLES**

### Table D1

**Summary of Analysis of Variance of PM Leadership Style and Job Dissatisfaction for Workers**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Leadership Style</td>
<td>4571.97</td>
<td>3</td>
<td>1523.99</td>
<td>5.07a</td>
</tr>
<tr>
<td>Error</td>
<td>50498.08</td>
<td>168</td>
<td>300.58</td>
<td></td>
</tr>
</tbody>
</table>

*a*  p < .002

### Table D2

**Summary of Analysis of Variance of PM Leadership Style and Job Dissatisfaction for Supervisors**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Leadership Style</td>
<td>2317.54</td>
<td>3</td>
<td>772.51</td>
<td>3.11a</td>
</tr>
<tr>
<td>Error</td>
<td>13669.17</td>
<td>55</td>
<td>248.53</td>
<td></td>
</tr>
</tbody>
</table>

*a*  p < .03
Table D3
Summary of Analysis of Variance of PM Leadership Style and Job Dissatisfaction for the Total Organization

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Leadership Style</td>
<td>6654.05</td>
<td>3</td>
<td>2218.02</td>
<td>8.03a</td>
</tr>
<tr>
<td>Error</td>
<td>68817.76</td>
<td>249</td>
<td>271.38</td>
<td></td>
</tr>
</tbody>
</table>

a  p < .0001

Table D4
Summary of Analysis of Variance of PM Leadership Style and Absenteeism for the Total Organization

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Leadership Style</td>
<td>883.09</td>
<td>3</td>
<td>294.36</td>
<td>4.39a</td>
</tr>
<tr>
<td>Error</td>
<td>15422.90</td>
<td>230</td>
<td>67.06</td>
<td></td>
</tr>
</tbody>
</table>

a  p < .005

Table D5
Summary of Analysis of Variance of PM Leadership Style and Absenteeism for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Leadership Style</td>
<td>480.19</td>
<td>3</td>
<td>160.06</td>
<td>2.37a</td>
</tr>
<tr>
<td>Error</td>
<td>11331.41</td>
<td>168</td>
<td>67.45</td>
<td></td>
</tr>
</tbody>
</table>

a  p < .07
APPENDIX E

SUMMARY ANALYSIS VARIANCE TABLES:
DEMOGRAPHIC VARIABLES AND STRESS OUTCOME/SELF-EFFICACY

Table E1
Summary of Analysis of Variance of Worker Gender
and Health Problems for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>542.57</td>
<td>1</td>
<td>542.57</td>
<td>5.36a</td>
</tr>
<tr>
<td>Error</td>
<td>18827.26</td>
<td>186</td>
<td>102.22</td>
<td></td>
</tr>
</tbody>
</table>

a p < .02

Table E2
Summary of Analysis of Variance of Worker Gender
and Absenteeism for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>324.16</td>
<td>1</td>
<td>324.16</td>
<td>4.78a</td>
</tr>
<tr>
<td>Error</td>
<td>11520.51</td>
<td>170</td>
<td>67.77</td>
<td></td>
</tr>
</tbody>
</table>

a p < .03
Table E3

Summary of Analysis of Variance of Worker Gender and Health Risk Behaviors for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>977.87</td>
<td>1</td>
<td>977.87</td>
<td>8.11a</td>
</tr>
<tr>
<td>Error</td>
<td>22421.62</td>
<td>186</td>
<td>120.55</td>
<td></td>
</tr>
</tbody>
</table>

\( ^a p < .004 \)

Table E4

Summary of Analysis of Variance of Marital Status and Health Risk Behaviors for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>2050.44</td>
<td>5</td>
<td>410.09</td>
<td>3.50a</td>
</tr>
<tr>
<td>Error</td>
<td>21349.05</td>
<td>182</td>
<td>117.30</td>
<td></td>
</tr>
</tbody>
</table>

\( ^a p < .004 \)

Table E5

Summary of Analysis of Variance of Medical Health Plan and Health Risk Behaviors for Workers

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Plan</td>
<td>2916.82</td>
<td>8</td>
<td>364.60</td>
<td>3.19a</td>
</tr>
<tr>
<td>Error</td>
<td>20482.67</td>
<td>179</td>
<td>114.43</td>
<td></td>
</tr>
</tbody>
</table>

\( ^a p < .002 \)
### Table E6

**Summary of Analysis of Variance of Supervisor Gender and Absenteeism for Supervisors**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor Gender</td>
<td>346.42</td>
<td>1</td>
<td>346.42</td>
<td>4.88&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>4045.82</td>
<td>57</td>
<td>70.98</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .03

### Table E7

**Summary of Analysis of Variance of Worker Gender and Health Problems for the Total Organization**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>778.02</td>
<td>1</td>
<td>778.02</td>
<td>7.84&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>24617.12</td>
<td>248</td>
<td>99.26</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .005

### Table E8

**Summary of Analysis of Variance of Worker Gender and Absenteeism for the Total Organization**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>607.29</td>
<td>1</td>
<td>607.29</td>
<td>8.89&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>15645.36</td>
<td>229</td>
<td>68.32</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .003
### Table E9

**Summary of Analysis of Variance of Worker Gender and Health Risk Behaviors for the Total Organization**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Gender</td>
<td>1182.90</td>
<td>1</td>
<td>1182.90</td>
<td>9.42&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>31151.50</td>
<td>248</td>
<td>125.61</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .002

### Table E10

**Summary of Analysis of Variance of Supervisory Experience and Self-Efficacy for the Total Organization**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Experience</td>
<td>1112.85</td>
<td>1</td>
<td>1112.85</td>
<td>8.75&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>31416.03</td>
<td>247</td>
<td>127.19</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .01

### Table E11

**Summary of Analysis of Variance of Marital Status and Health Risk Behaviors for the Total Organization**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>2745.87</td>
<td>5</td>
<td>549.17</td>
<td>4.53&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>29588.53</td>
<td>244</td>
<td>121.26</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .0006


---


Sherbourne, C.D. 1988. The role of social support and life stress events in use of mental health services. Social Science and Medicine. 27, 12, 1393-1400.


