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THE EFFECTS OF SHIFT ROTATION ON POLICE JOB STRESS

By

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ABSTRACT

THE EFFECTS OF SHIFT ROTATION
ON POLICE JOB STRESS

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The effects of rotating shifts on police job stress were measured for 35 officers transferred from a rotating shift to a fixed shift schedule in a medium-sized midwestern police department. Participant scores were measured both before and after the shift change on 14 stress and strain variables using individually administered self-report questionnaires, supplemented by physical measurements. Comparison of change scores were made with a control group of 10 officers who remained on rotation. The results indicated there were no significant differences between the experimental and control groups for 11 of the tested variables. Two variables, participation and social support showed significant reductions in stress for persons transferred from rotating shifts. One strain variable, job dissatisfaction, decreased significantly for officers moving to fixed shifts. An analysis of correlations of the stress and strain variables and several demographic variables revealed a number of significant relationships among them. The results are discussed in terms of their implications for current theories of police job stress and the practical measures that might be taken to improve stress management. Suggestions are made for changes in the variables and other improvements which could enhance the value of future research into the stress effects of rotating shifts.

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It is a pleasant duty to acknowledge my indebtedness to those who helped and supported me in this research.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

Chapter 1

THE PROBLEM

Need

Stress at work has been the subject of much discussion and investigation in recent years.[1] Police job stress has likewise been a focus of interest for those concerned with police problems. A 1975 symposium on how to identify psychological stress factors and develop techniques for reducing them drew 20 participants, including psychologists, psychiatrists, criminologists, police chiefs and police officers. Contributors identified a large number of psychological stressors, of which negative public image, lack of court support, conflicting job demands, and varying shift routines are among the most prominent examples.[2]

These experienced professionals discussed a host of ideas about stress and suggested programs for reduction and elimination of stress and strain in policing. Recommendations ranged from techniques for the individual officer such as counseling and biofeedback to

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[1] For a comprehensive review of studies of mental and physical stress at work, see Stanislav Kasl, "Epidemiological Contributions to the Study of Work Stress," Stress at Work (New York: Wiley, 1978), pp. 3-48.

[2] National Institute for Occupational Safety and Health (NIOSH), Job Stress and the Police Officer: Identifying Stress Reduction Techniques (Washington, D.C.: U.S. Dept. of HEW, 1975) p. vii.

changes in organization policies and procedures, and even to efforts at modifying political influence and community attitudes. Although there are many references to overall stress research and how it can be applied in developing techniques to manage police job stress, there are few descriptions of actual field studies of police stress, and even fewer studies which appear to follow up-to-date procedures for experimental design and data collection and analysis.[3]

A psychiatrist who has treated a substantial number of disabled police officers states that the number of stress-related disabilities is increasing, but that the resultant effects in terms of decreased productivity, work days lost, and suffering, anxieties and depression of those disabled have not yet been measured accurately. He gives examples of a number of disorders produced by psychological stress, including emotional and psycho-physiological disturbances which often contribute to, or develop into, organic diseases. Common examples of stress-related diseases are high blood pressure, peptic ulcer, diabetes, and cardiovascular disease.[4]

A study of policemen in Tennessee revealed that their general hospital admission rates were significantly higher than for other occupations and that circulatory and digestive disorders accounted for a large proportion of the admissions. The suicide rate for police

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[3]Of these better designs, the best is briefly described in "A Comparative Look at Stress and Strain in Policemen," by John French, in Job Stress and the Police Officer, pp. 60-71. See also the HEW study of 23 occupations in Chapter 2.

[4]Jerome Jacobi, "Reducing Police Stress: A Psychiatrist's Point of View," Job Stress and the Police Officer, pp. 85-86.

in Tennessee was reported as the third highest out of 24 occupations in the state with significant numbers of suicides. A study of physical fitness in police personnel found that the blood pressure levels of middle-aged police officers average about 10% higher than levels for the same age group in other occupations.[5] There is no indication from available studies that police recruits have significant differences in either blood pressure or heart rate from those of the general population for the same age group.[6]

There is evidence through correlational studies that job stress is related to job strain, illness and disease, but little direct evidence that stress is caused by specific situations or conditions. This is the case with shift work, particularly rotating shift work, which is often cited as a contributing factor to police job stress:

> "Shift work characterizes law enforcement work scheduling. It is considered a significant stressor in that it has substantial adverse effects upon one's family life and possible health. Changing shifts every month, three months, or whatever is disruptive to one's personal and occupational styles. Adjustments become a demanding way of life."[7]

Only one study has been found which compares police stress effects from rotating shifts with those from fixed shift schedules.[8] In it

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[5]Michael Pollack and Larry Gettman, "Coronary Risk Factors and Level of Physical Fitness in Police Officers," Proceedings of the 83rd Annual Conference of the International Association of Chiefs of Police (1976).

[6]Wayne Richard and Ronald Fell, "Health Factors in Police Job Stress," Job Stress and the Police Officer, pp. 78-84.

[7]Terry Eisenberg, Job Stress and the Police Officer, p. 32.

[8]Robert Caplan, "Social-Psychological Dynamics in Shift Work," Shift Work and Health (Washington, D.C.: U.S. Dept. of HEW, 1976), pp. 206-209.

the rotaters reported higher levels of work load, role conflict, job dissatisfaction and somatic complaints than officers on fixed shifts. There are a number of studies which have been made of the effects of shift work on industrial workers. Probably the most thorough of these was made by Mott et al. in examining social, psychological, and physical consequences of shift work at five plants in the United States. They found that rotaters reported more trouble with time-oriented body functions than any other category of shift workers. Also, those on rotating shifts have more difficulty with home and social roles because the changing shift prevents them from giving enough attention to family and friends. In their conclusions, Mott et al. state that "Longitudinal studies among the concepts of the worker's shift, his ability to adjust his time-oriented body functions, and his subsequent health, would be especially valuable."[9]

This recommendation is also contained in Kasl's article reviewing job stress research:

> "First, we need to concentrate on longitudinal studies of the work setting, preferably those designed around 'natural experiments,' that is, significant events and transitions, which may better reveal the way the work environment affects health and well-being, and the way individuals adapt to this environment and to changes therein."[10]

Thus, the need for more research is evident to help determine the stress effects of rotating shifts on police personnel, particularly "natural experiments" designed to measure the impact of actual changes in working conditions.

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[9]Paul Mott, Floyd Mann, Owen McLaughlin and Donald Warwick, Shift Work (Ann Arbor: University of Michigan Press, 1965), p. 314.

[10]Kasl, Stress at Work, p. 35.

Purpose

The primary purpose of the study is to investigate the stress and strain of rotating work shifts on the life of police personnel. To accomplish this, measures of job stress and job strain variables will be made both before and after discontinuance of rotating shift work in a police department.

A secondary purpose is to find significant correlations among stress, strain, age, tenure, rank, and education variables. These correlations can help to identify the factors which are associated with the most important effects of stress and strain.

Propositions

1. Job stress will be reduced for police changing from a rotating shift to a fixed shift schedule.

2. Strain responses to job stress will be reduced for police changing from a rotating shift to a fixed shift schedule.

Theory

A number of theories have been advanced to explain the impact of job stress on physical and mental health. This study adapts a theoretical framework developed by researchers at the Institute for Social Research of the University of Michigan. It is shown in Figure 1-1, which depicts a model of stress together with the

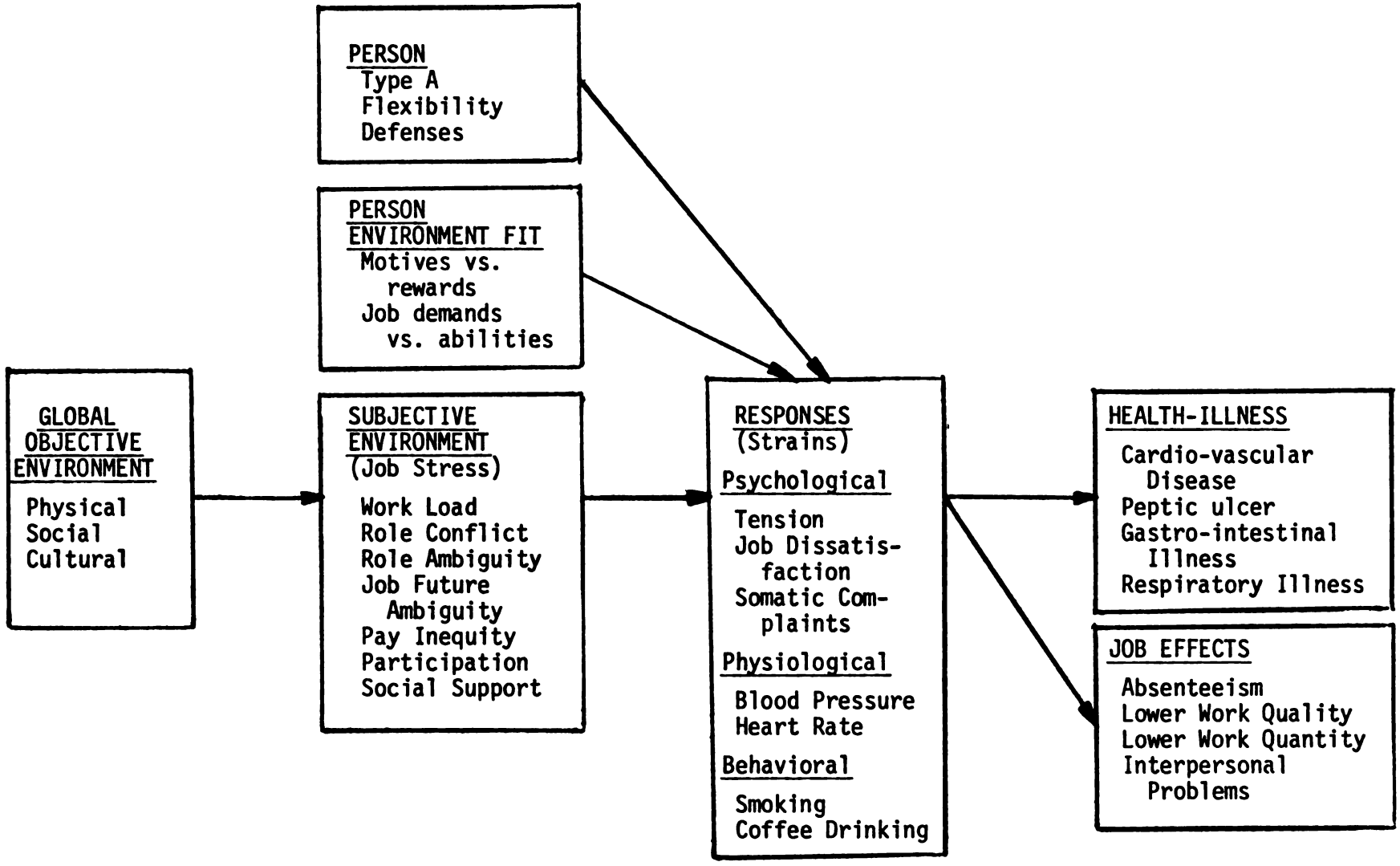

Figure 1-1. A theoretical model showing the sources and effects of job stress in organizations. Source: Adapted from Robert Caplan, Sidney Cobb, John French, R. Van Harrison, and S. R. Pinneau, Job Demands and Worker Health (Washington, D.C.: U.S. Government Printing Office, 1975).

resulting strains and the effects on individual job performance and health.[11]

Before the model is explained, the relevant terms should be defined:

Stress refers to any interaction of person and environment which is perceived as threatening by the individual concerned. Examples are work loads perceived as heavy, or a pay rate perceived as inequitable.

Strain refers to the effects of stress on the behavior of the individual as shown by deviation from normal responses. Examples are tension (psychological strain), high blood pressure (physiological strain), or increased smoking or drinking (behavioral strain).

Objective environment means the surroundings, circumstances, situation, or set of conditions which exist independently of the individual's perception of them. It includes not only the organizational or work environment, but also the physical, social and cultural environment which produce stimuli that may be perceived by the person.

Subjective environment is a construct denoting the private perceptions by the individual of stimuli which are received from the objective environment, particularly those perceived as stressful.

Person-environment fit is a term used to describe the relationship between the characteristics of the person and those of his environment. One main type of fit is the extent to which the person's needs

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[11] Robert Caplan, Sidney Cobb, John French, R. Van Harrison, and S. R. Pinneau, Job Demands and Worker Health (Washington, D.C.: U.S. Dept. of HEW, 1975), p. 5.

and expectations can be met in the job environment; another is the extent to which job requirements are met by relevant abilities and skills in the person.

Responses refer to the feelings, behaviors and actions of the person affected, as the effects of, or reactions to, the subjective environment. Examples are psychosomatic complaints, blood pressure changes and changes in smoking habits.

Health-Illness is the state of being of the individual with reference to wellness, fitness, illness, accidents and disease.

Job Effects refers to results, consequences or outcomes in the individual's job, particularly those which can be measured objectively, such as the quantity of work performed and the number of absences.

The Person as a concept comprises the inherited and acquired characteristics of the individual which affect job stress and strain.

The theory illustrated in the model consists of a group of general propositions which seek to explain causes and effects of job stress:

1) Stimuli from the objective environment impinge upon the person's subjective environment at work and are perceived by him.

2) Those stimuli perceived as threatening cause job stresses of various kinds to the person.

3) The job stresses elicit from the person strain responses which may be physiological, psychological or behavioral in nature.

4) The effects of job stresses are conditioned by personal characteristics and by the degree of individual person-environment fit.

5) Strain responses caused by traumatic stress or elicited over an extended period may result in various types of illness.

6) Strain responses tend to reduce the efficiency and effectiveness of overall job performance.

The theory illustrated by this model can be applied quite well to the conditions of rotating shifts. The objective environment of rotating shifts gives rise to differing physiological and social stimuli, which in turn cause varying perceptions by the individual of the demands on him. The characteristics of the individual are very important, particularly his flexibility and how well his psychological and biological rhythms fit the changing shift environment. One might expect rotation to cause disturbances in sleeping and eating habits and social life with increased strain showing up as irritability, job dissatisfaction, higher blood pressure and increased smoking and drinking. If the rotating shift schedule was prolonged, then strains would also tend to lead to illness and adverse effects on attendance and job performance. Thus, the theoretical model predicts that rotating shifts will cause increases in physiological and psychological stress which will in turn result in increases in strain responses, and eventually in adverse effects on health and job performance.

Overview

In Chapter 2, the literature review begins with early concepts of job stress in police organizations and two early studies of police job stress. Effects of shift work on employee health in industry both in the U.S. and overseas, are reviewed from results of several field studies. The chapter concludes with a report on a massive research project by HEW of stress and worker health in 23 occupations, including police.

In Chapter 3 the design and methodology of the study are presented. The sample and its demographic data will be discussed. The questionnaire to be employed and estimates of the reliability of its various measures are described. The methodology used for data collection and processing is explained. The hypotheses to be tested will be restated, and the analysis techniques given.

In Chapter 4 the results of the data gathering and analyses are set forth, including detailed presentation of the acceptance or rejection of the hypotheses.

In Chapter 5 the conclusions from this study are presented and explained. Implications of the results for the theoretical framework and for further research are discussed.

Chapter 2

REVIEW OF THE LITERATURE

In recent years a good deal has been written about stress, but comparatively little about job stress, and very little about the effects of shift work on police job stress. There is only one study which deals with the effects of rotating shifts on police job stress.[1] This study and a major investigation of 23 occupations including police[2] will be reviewed in some detail in this chapter. Before this is done, a general review will be made of other research and writings which have a bearing on this topic, including studies of other aspects of police job stress as well as research on shift work in police and other organizations. Concluding this chapter will be a discussion of the previous research reviewed and its implications in the planning of the present study which is described in Chapter 3.

The policeman's job has long been considered a stressful one and the tensions and riots arising from the civil rights movement of the 60's greatly increased the attention paid to police job problems. But it was not until the 1970's that the first serious attempts

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[1]Robert Caplan, Shift Work and Health, pp. 198-210.

[2]Caplan et al., Job Demands and Worker Health.

were made to write about police job stress. The first article dealt with organizational stresses affecting policemen by first describing the main stresses to which the policeman is subjected within the department. Then the sequence is outlined of how stress develops and is handled as the rookie policeman becomes more experienced and accepted by his peers.[3] Reiser points out that in addition to the violence and danger of work on the street, organizational and role stresses also contribute a great deal to the policeman's stress load. In a police department, the chief is the father figure, arousing feelings related to power, dependence, and independence in his officers. Typically in the past there has been authoritarian and even despotic control by the chief over younger men who strive and compete for recognition and acceptance. "This dynamic profoundly influences the organization in many significant areas such as communication, morale, discipline and professionalism."[4]

Reiser, however, emphasizes that the traditional pattern is changing:

> "More enlightened police management is aware that management by participation is necessary in order to move from the stifling effect of the pecking order to the energetic involvement and commitment of employees who are actively identified with management."[5]

But as police organizations move toward greater democracy and participation, "numerous internal pressures and stresses still

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[3]Martin Reiser, "Some Organizational Stresses on Policemen." Journal of Police Science and Administration, Vol. 2, No. 2 (1974), pp. 156-159.

[4]Ibid., p. 156.

[5]Ibid., p. 157.

exist that affect the individual policeman."[6] Reiser lists among these organizational stressors on the individual officer such items as how he is rated, what assignments he is given, the ways in which the promotion system is handled, and, especially, the handling of the internal discipline structure and internal investigations. It is here that "the officer often feels he is in double jeopardy in that he is not only liable criminally and civilly for a misdeed, but, in addition, faces punishment within the organization."[7] He may be subject to polygraph tests, lengthy interrogations, and a trial board hearing if the reputation of the department is involved. As a result of an internal investigation, the officer may develop hostile feelings toward his department's investigative unit:

> "It is interesting that the feelings of policemen toward the internal investigative branch are somewhat analogous to the feelings of certain citizens toward the police department. This is the assumption of an antagonistic stance and the expectation of unfair treatment and punishment."[8]

Training of policemen can help to manage stress. Simulation of critical field situations helps to reduce anxiety through familiarity and experience. Coping mechanisms are explained and practiced as aids in controlling stress. But the value of this training is often diminished by the negative attitudes of older policemen to whom the recruit is exposed in the field.

Peer pressure is one of the strongest influences in shaping values, attitudes, and role behaviors of impressionable recruits:

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[6] Ibid., p. 157.

[7] Ibid., p. 157.

[8] Ibid., p. 158.

> "Identification with the group as 'one of the boys' is a powerful, if not irresistible, force. One of the main reasons for this is that peer group identification serves a necessary defensive function. It bolsters and supports the individual officer's esteem and confidence, which then allows him to tolerate higher levels of anger, hostility and abuse from external sources.... Without the peer group effect, young policemen would find it much more stressful and difficult to survive the initial acculturation process."[9]

As long as group pressures act in a supportive manner, feelings of stress and strain can be handled. But if negative influences appear or if the individual's role is subject to rapid change, feelings of strain often develop:

> "When there is internal strife in the organization, with cliques and special interest groups pulling in different directions, feelings of depression, alienation and low morale tend to emerge."[10]

Reiser concludes his article by describing a common behavioral set of young officers which apparently helps to protect them from their own emotions while they are maturing, but often has adverse affects on family relationships:

> "During his recruit training period, [the young recruit] is relatively flexible, open and accepting. However, he very shortly begins to develop what has been called the 'John Wayne Syndrome.'
>
> The symptoms of this malady are cynicism, over-seriousness, emotional withdrawal and coldness, authoritarian attitudes and the development of tunnel vision.... Frequently part of this picture involves distancing from his family as the new policeman strongly identifies with his peer group and feels he must choose between the two. He may become emotionally cool and lose some of his 'love' for his wife. Consequently, she feels alienated and rejected and reacts

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[9] Ibid., p. 158.

[10] Ibid., p. 158.

> in ways that significantly influence their total relationship including communication, sex, and value systems."[11]

During their first several years of service, most officers gradually shake off these symptoms by developing a broader set of values and regaining a closer relationship with their families.

One of the earliest field studies of police job stress was conducted by Kroes, Margolis and Hurrell in Cincinnati to determine whether stress produced by police work created significant health problems.[12] Their approach was to conduct lengthy interviews with 100 male officers involved with patrol operations.

The sample was not random, but was based on policemen available when interviews could be scheduled. All three shifts in all police districts were represented. Each man was initially asked what things bothered him on his job, then what bothered others in the same work. Next, he was asked about the prevalence of five stressors: administration, crisis situations, changing shift routines, isolation/boredom, and relations with supervisors. The answers to the first two questions indicated that negative feelings about administration policies were by far the strongest causes of complaints. Grievances fell into two broad categories: (1) policies concerning work assignments, procedures and personal conduct, and (2) administration support, including relationships with superiors. There were strong feelings

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[11] Ibid., p. 158.

[12] William Kroes, Bruce Margolis and Joseph Hurrell. "Job Stress in Policemen," Journal of Police Science and Administration, June 1974, pp. 145-155.

that the respondents were required to spend too much time on paper work and demeaning or trivial duties such as acting as a taxi service or investigating weed complaints.

Very few officers mentioned crisis situations (holdups, family quarrels). The researchers speculate that the interviewees may consider them as dangerous instead of "bothersome," or may simply suppress any thoughts about them in the interests of their own peace of mind.

Changing shift routines were reported as affecting home and social life adversely. Non-police friendships were neglected; the men did not see enough of their children; and they missed the weekends and holidays with their families that were lost because shift changes made it difficult or impossible to plan ahead for them.

Kroes et al. summed up their findings from the survey by concluding that the policeman is more heavily stressed than most other occupations because the nature of his job sets him apart. He must learn to accept "prejudice, fear, suspicion and sometimes open hostility from a large segment of society.... The policeman's job affects his own personal social life, his family's social life and his children's perception of him as a father, etc. Finally, police work is among those very few occupations where the employee is asked to put his life on the line."[13] They suggest these unusual stressors make policemen more vulnerable to the other organizational stressors discussed.

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[13] Ibid., p. 155.

In a follow-up to the above study, Kroes et al. also interviewed 30 police administrators in Cincinnati (12 captains, and 18 lieutenants) using the same type of format. The responses indicated that their major perceived stressors resulted from their ambiguous role as "man in the middle" between superiors, subordinates, and the community. Shift changes were reported as bothersome by only four administrators, but probably contributed to the negative effects of the job on home life which were mentioned by 25 of the administrators.[14]

Shift Work

Enquiries into the effects of shift work began in the 19th Century although there are recorded complaints about adverse effects of night work on worker efficiency as far back as the European guilds of the thirteenth century. The early enquiries began after disclosure of shocking working conditions in British and European factories, and were chiefly concerned with health and social problems arising from night work, particularly for women and apprentices.[15]

During World War I, and again during World War II, the demand for full use of plant capacity provided a stimulus for investigation of the economic effects of shift work. Most studies to date have tended to be either organization-centered or worker-centered. The

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[14]William Kroes, Joseph Hurrell and Bruce Margolis. "Job Stress in Police Administrators." Journal of Police Science and Administration, 1974, 2 (4), pp. 381-387.

[15]Paul Mott, Floyd Mann, Owen McLaughlin, and Donald Warwick, Shift Work (Ann Arbor: University of Michigan Press, 1965) p. 4-7.

former usually focus on productivity, absences, turnover and work quality, while the latter have been primarily concerned with employee health, family and social effects. The psychological effects of shift work have been given only secondary consideration.[16]

The findings from industrial research are largely in agreement about physiological and social effects of shift work. Time-oriented body functions such as sleep, appetite, and elimination are affected, particularly for rotating shift workers. Rotating shifts were found in one study to be the most disadvantageous of all shift schedules for the physical well-being of the workers.[17] Loss of social life was also a major difficulty for one-half of the rotating shift workers. For single men, however, or married men with pre-school children, rotating shifts were less disruptive than fixed night or afternoon shifts, which interfered excessively with the association of workers with their wives and older children.[18]

An interesting study of the effects of a change in rotating shifts on absenteeism was made in a British food factory. Seven day rotation was changed to a 2 x 2 x 3 method of rapid rotation and it was found that absence rates increased more than 30% in the year after the change. Despite this adverse effect, the employees voted nearly 4 to 1 to continue the new system. The reasons for

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[16] Ibid., p. 8.

[17] Eileen Philipp and Stephen Griew, One Hundred Shift Workers, Research Paper No. 15 of the New Zealand Institute of Economic Research, Inc., 1970, pp. 87.

[18] Ibid., p. 88.

this seeming contradiction are not explained.[19] These absenteeism findings, however, were not confirmed by another study which compared the health records of 1219 nurses on fixed and rotating shifts. The rotaters did not have significantly higher sick days than fixed shift workers, but had a significantly higher rate of visits to the hospital clinic and developed more serious health problems.[20]

A study of the productivity of weavers in an Indian textile mill found the overall average production of the day shift to be significantly higher than that of swing shift workers, but noted that some weavers produced more on the swing shift.[21]

Another study by Taylor of oil refinery workers found that nearly half of them reported their health was affected by rotating shift work, yet the absence records showed they had consistently lower rates of sickness than day shift workers in similar positions.[22] It is possible that the higher sickness rates of day shift workers resulted from transfers of illness-prone workers from rotating to day shifts.

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[19] S. Pocock, R. Sergean and P. Taylor, "Absence of Continuous Three-Shift Workers." Occupational Psychology, 1972, 46, pp. 7-13.

[20] M. Colligan and D. Tasto, "Frequency of Sickness Absence and Work-site Clinic Visits Among Nurses as a Function of Shift." Unpublished study, 1979.

[21] P. Malaviya and K. Ganesh, "Shift Work and Individual Differences in the Productivity of Weavers in an Indian Textile Mill." Journal of Applied Psychology, 1976, 61 (6), pp. 774-776.

[22] P. Taylor, "The Problems of Shift Work." Journal of the Royal College of Physicians, 3 (4), pp. 370-384.

R. Sergean reviews a number of British and European studies of shift work and sums up his findings as follows:

> "(1) Provision must be made for the highly individual differences of men and women. Some flexibility in shift arrangements to allow for differences in capacity to adapt is essential.
> (2) Shift strategy must be tailored to each particular organization with its particular human resources. Periodic reappraisal of shift arrangements to make sure they continue to meet current needs is also essential."[23]

These findings about the need to allow for individual differences in shift planning and for periodic reappraisals are similar to the conclusions reached by the New Zealand Research paper:

> "The data in this report lend further support to recommending that no worker be placed more especially on rotating, or on fixed night shift, without a medical examination for his suitability for such kind of work. There are considerable grounds for also suggesting that there should be regular medical check-ups for all men in shift work.... Management should be prepared for, and even encourage, greater movement on and off shifts, at those or any stages when interference with families and with home life is at a minimum, or when it becomes excessive."[24]

Another interesting study of the socio-psychological processes in worker adjustment to rotating shift work was made of 193 workers in three plants in India.[25] It was found that rotaters were significantly higher on anxiety, job dissatisfaction, and role conflict than permanent day shift workers. And yet it was also found that 30% of the respondents preferred the rotating shift system to day

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[23] R. Sergean, Managing Shiftwork, (London: Gower Press, 1971).

[24] Phillips and Griew, p. 93.

[25] Human Problems of Shift Work. Shri Ram Centre for Industrial Relations (New Delhi, 1970).

work. The researchers established that one reason for this was the extra pay earned on rotation. Another was to be found in personality differences between workers which caused some of them to perceive the interference caused by shift rotation in their social role performance as frustrating, while others did not. Older, more experienced rotating shift workers were more satisfied than younger workers who seemed a better choice for the day shift. With regard to productivity, the study established no strong relation between rotating shifts and productivity but found that those who liked rotating shifts produced more during the night phase while those who disliked rotation produced more during the day phase.

University of Michigan Study of Shift Work[26]

This study involved 500 men working in five plants in the eastern and mid-western United States. The social, psychological and physical consequences of shift work were carefully measured. The findings were extensive, but only those comparing rotating shifts will be dealt with here. They may be summarized as follows:

1) Rotating shifts present the most problems. Not only do workers have the problem of adjusting family and social roles and time-oriented body functions, but the adjustments must be made continually. Also, their pattern of days off is quite variable and they tend to be left out of social activities because their friends cannot keep track of their shift changes.

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[26]Mott, et al., Shift Work, 1965.

2) Rotating shifts are especially difficult for younger, better educated workers with small children. They are more interested in building and maintaining friendships, but because of low seniority, they are more often consigned to rotating shift work.

3) Rotating shift workers have a very high rate of upper respiratory infections. A higher proportion of night and rotating shift workers reported that they were fatigued a great deal, that their appetites were dulled, and that they were constipated much of the time.

4) Workers who have trouble adjusting to the rotating shift should be placed on a fixed shift protected from seniority rules by a union - management agreement.

5) Longitudinal studies on the relationships among the concepts of the worker's shift, his ability to adjust his time-oriented body functions, and his subsequent health, would be especially valuable.

HEW Study of Twenty-Three Occupations[27]

This study investigated occupational differences in psychological stresses on the job and the effect of stress on strains and illness of workers. (See model in Figure 1-1.) Four hypotheses were advanced.

1) Job stress produces strain in the worker.

2) Personal characteristics of the worker also affect job strain.

3) The fit between the worker's traits and abilities and the job requirements will also affect job strain.

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[27]Caplan et al., 1975.

4) Job strains affect rates of worker illness.

These hypotheses were tested by administering a self-report questionnaire to 2000 men in 23 occupations, including police. Additional tests for pulse rate, blood pressure and blood samples were made on 400 men from the sample. The results were as follows:

1) The hypothesis that job stress leads to strain was well supported by correlations between job stress measures and psychological strains, particularly by the job satisfaction indices.

2) The hypothesis that personality characteristics affected job strains was not supported.

3) The hypothesis that person-environment fit affects job strain was supported.

4) The hypothesis that job strains affect rates of worker illness was partly supported.

Other findings about stress and strain variables which are relevant to the present study are as follows:

Work Load. Dissatisfaction with work load was associated with underutilization of the person's skills and abilities, low participation, high job future ambiguity, and poor social support from the immediate superior and from others at work. The mean work load for policemen was slightly less than that for all occupations.

Role Conflict was found to cause irritation. The mean for the police sample was slightly lower than the average for all occupations.

Role Ambiguity regarding what others expected of an employee in his work was highest for computer programmers, scientists and

engineers. The level for police was in line with the mean for all occupations studied.

Job Future Ambiguity refers to uncertainty about one's future career. It is likely to vary with changing economic and other conditions. Assembly line workers were found high on this factor, while police had a relatively low score.

Pay Inequity measures showed that all occupations felt underpaid to some extent. The police mean, however, was almost 10% higher, indicating that their feelings of inequity are somewhat stronger than the other occupations tested.

Participation was highest for administrative professors, administrators and white collar supervisors. Police were found to be low in participation, measuring almost 10% less than the mean for all occupations, and over 30% less than the mean for administrative professors.

Social Support was measured three ways - from the immediate supervisor, from others at work, and from home. With regard to support from supervisors, police were 6% above the mean for all groups, although on the other two support measures they were only slightly above the means.

Anxiety is highest among machine tenders, machine paced assemblers and electronic technicians. Police levels are slightly less than average for the occupations tested.

Job Dissatisfaction. Police job dissatisfaction levels were measured at 11% less than the mean for all occupations and 27% below the highest mean (machine tenders). The study showed that boredom and dissatisfaction with work load tended to occur together with

job dissatisfaction. The researchers concluded that the major environmental characteristics contributing to dissatisfaction were: underutilization of skills and abilities, low participation, high uncertainty about the future (job insecurity) and poor social support from the immediate superior and from others at work.

Somatic Complaints. The police mean on somatic complaints was virtually the same as the all occupations mean and was 17% lower than the highest mean, reached by machine-paced assemblers.

Blood pressure was measured for a smaller group of seven occupations which did not include police. For ages 20-49, the average systolic pressure was 126.1 and the diastolic pressure was 76.5.

Heart Rate for the seven occupations measured (not including police) averaged 74.2 for ages 20-49.

NIOSH Police Survey Data[28]

This report is of particular interest because it is the only one found during this review which compares stress and strain among police on rotating and fixed shifts. It is a sub-set of the police sample reported in the HEW survey of 23 occupations.

Data were gathered on 75 police from two precincts in a metropolitan area on the West Coast by means of self-report questionnaires. All subjects were either on fixed or rotating shifts - the rotaters changed shifts on the average every 100 days. Levels of age, education and seniority were not significantly different in the two groups.

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[28] Shift Work and Health. Proceedings of a Symposium sponsored by the National Institute for Occupational Safety and Health (HEW, 1976), pp. 206-209.

Compared to police on fixed shifts, those on rotation reported significantly higher levels of work load, role conflict, under-utilization of skills and abilities, and lower levels of social support from supervisor and others at work. There were no differences in the amounts of social support from family and friends. Men on rotating shifts also had the highest scores on boredom, on dissatisfaction with work load, and on overall dissatisfaction with their jobs. They were also higher than men on fixed shifts on somatic complaints, and there were non-significant tendencies for rotaters to also be higher on anxiety, depression, and irritation.

Much of the stress reported on rotating shifts is interpersonal in nature, and it is suggested that part of the cause may stem from the way rotation is handled. "Line" positions were being rotated but staff positions were not. Furthermore, because not all the line was being rotated at the same time, there were changes in supervisors and co-workers when each rotation occurred. This procedure might weaken relations among men who did not get to know each other well. This interpretation was also borne out by a finding that low social support from the supervisor and others at work was correlated with dissatisfaction with work load.

The researchers conclude that some of the effects of rotating shifts may be due to psychological reactions to changes in the composition of the role set brought about by the shifting people. These effects appear to be independent of any changes in circadian rhythms caused by rotation.

Discussion of Previous Research

This review of previous research into stress in shift work and police work generally, indicates that there have been very few field studies in this area. The pioneer studies by Kroes et al. of job stress in the Cincinnati police force were valuable chiefly in drawing attention to the fact that most police job stress comes from inside, not outside the police organization. Changing shift routines, however, were mentioned not as a source of organizational stress but only because they interfered with the policeman's home and social life.

With regard to field investigations of shift work, the majority of these studies have dealt with industrial organizations. The important concerns have centered in most cases on the deleterious effects of shift work on productivity, both directly through reduced or poorer quality of output and indirectly through its effects on attendance and health of workers. One study by an Indian research institute which concentrated on the socio-psychological effects on worker attitudes and behavior of rotating shifts, found that rotaters had more anxiety, role conflict and job dissatisfaction than fixed shift workers. A New Zealand study which was also worker-oriented, concluded that shift work puts unusual, and at times severe stresses on workers and their families. For this reason there is a need to find the shift system that is least disruptive for each organization, and to carefully select and fit workers into shift arrangements that are best for them.

The University of Michigan study of shift work in five U.S. plants presented strong findings about the damage caused to worker

health and about the family and social effects of rotating shifts. Among the final study recommendations was one that longitudinal studies should be made in an attempt to establish a causal sequence running from the primary impact of shift work through the bodily adjustments stage to final effects on worker health.

The HEW study of 23 occupations was a massive attempt to study the impact of psychological job stress on the lives and welfare of American workers and contains a wealth of findings which can be considered for application. However, the researchers conclude that they raised more problems than they answered and make suggestions for further investigation including several that indicate the direction this study takes in Chapter 3. They are as follows:

1) There should be more research on how to change job stresses, and how to increase participation and social support.

2) Future studies should be broadened to include blacks and women.

3) There should be comparative evaluation of attempts to improve job design and humanize work.

4) Linkage of job stress and strain to disease should be attempted by use of medical examinations.

Chapter 3

DESIGN OF THE STUDY

The methods used to design and carry out the study are made clear in this chapter. The composition and certain demographics of the sample are given. The measures selected are explained and evidence is given about their reliability and validity. A model is presented of the experimental design used. The experimental hypotheses are stated here in order to link them with the study design. Data analysis methods used in the computer compilations are described.

Sample

The sample for this study consisted of the officers and other sworn personnel of the police department of Jackson, Michigan. The make-up of the force by rank and type of shift worked is shown in Table 3-1. Six sworn officers are missing from the sample in 1977 and eight in 1978 because of sick leave or refusal to cooperate in answering the questionnaire. Other department personnel comprising police cadets and administrative and clerical employees completed the first questionnaire but were excluded from the study because their role demands differ widely from those of police officers. A description of the Jackson police organization and its shift arrangements is given in Appendix D.

Table 3-1

Composition of Questionnaire Sample by Rank and Type of Shift Worked

Rank	First Questionnaire 1977		Second Questionnaire 1978	
	Rotating Shift	Fixed Shift	Rotating Shift	Fixed Shift
Officers	41	9	9	36
Detectives	--	11	--	12
Sergeants	8	3	1	9
Command Staff (Lieutenants, Captains and Chief)	1	6	1	6
	50	29	11	63
Total Sample	79		74	

Table 3-2

Demographic Characteristics of Sample July 1977

Rank	N	Age	Years of Service	Years of Education	Sex		Race		
					Male %	Female %	White %	Black %	Other %
Officers	50	30.7	7.5	14.8	94.0	6.0	86.0	8.0	6.0
Detectives	11	36.7	12.1	14.8	100.0		100.0		
Sergeants	11	39.3	14.3	14.6	90.9	9.1	90.9	9.1	
Command Staff*	7	41.3	18.6	14.3	100.0		100.0		
All Ranks	79	33.7	10.1	14.7	94.9	5.1	89.9	6.3	3.8

*Command Staff includes Lieutenants, Captains and Chief.

Table 3-2 gives demographic characteristics of the persons who completed questionnaires in 1977. Although the numbers of females and minority group members are too few to use sex or race as a reliable demographic variable, it was decided to include them. Their answers, when combined with those of the predominant white males in the sample, may help to improve knowledge of today's perceptions by police personnel of the variables under study.

The decision to use this police department for the study was in part fortuitous. The original intention had been to survey police job stress in Jackson and two other Michigan cities of comparable size. By chance, it was learned after the 1977 questionnaires were completed, that the Jackson police department had decided to make basic changes in shift arrangements. The new policy provided for discontinuance of most rotating shifts in favor of fixed shifts, a change which has been made in recent years in a number of police forces in Michigan and elsewhere. The new shift schedules were to take effect at the beginning of 1978. This presented a rare, if not unique, opportunity to obtain "before" and "after" samples of stress perceptions which could be used to measure the effects of rotating shifts on a treatment group compared with a control group (see model on p. 36).

Measures

The measures used in this research were chosen in order to obtain reliable and valid information about psycho-social and physiological job stress and strain variables. The chief instrument is a questionnaire prepared by the U.S. Department of Health, Education and Welfare

for use in surveying police job stress.[1] Most of its questions were taken from an earlier questionnaire prepared for HEW by researchers at the Institute for Social Research at the University of Michigan. HEW conducted a large scale project to investigate work stress and strain in 23 occupations, including police.

Reliability

Reliability estimates were computed by the HEW researchers for most of the questionnaire measures they employed. Using the Kuder-Richardson Formula 20 (KR-20) for the reliability of a test based on internal consistency, they obtained reliabilities ranging from .71 to .85 for the psychological variables utilized in the present questionnaire. This is not complete assurance that the same results would have been obtained from the group studied here because some questionnaire items were dropped and others added. However, since the changes were minor, it is considered that reliabilities would likewise change very little.

The reliability of physiological measures and health-related behaviors were tested or confirmed as follows:

Blood pressure and heart rate. The measurement sessions were conducted by two trained technicians under the auspices of the American Heart Association. Blood pressures were measured twice for each person and the results averaged. When questions arose about a measurement, it was checked independently by the other technician.

Smoking and coffee drinking. These were reported by each

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[1]The first questionnaire (1977) is reproduced as Appendix A.

individual on his questionnaire. The researcher tested about 10% of the behaviors reported by observation during patrol car "ride-along" tours and meetings in police headquarters. No discrepancies were observed.

Validity

According to Nunnally a measuring instrument is valid if it does what it is intended to do. As a check on validity of questionnaire items, definitions were prepared for each stress and strain variable and used to verify how well the items seemed to represent the "specified universe of content" of the variable.[2,3] The relatively high internal consistencies reported above under reliability also furnish evidence that the items for each variable "hang together" in the sense that some construct accounts for the data. Further assurance is given in the HEW report from which the basic questionnaire was obtained, that the stress and strain measures used in many cases had "demonstrated validities."[4] This, of course, is not complete assurance of validity, which is a matter of degree, rather than an all-or-none process. Some of the stress constructs employed in the HEW study were uncovered on the basis of field interviews and had no previously developed satisfactory measures. In the construction of indices, the researchers eliminated all items which were not significantly correlated with other items measuring the same concept for a random stratified sample of responses. Evidence of discriminant validity among items was provided

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[2]These definitions and the questionnaire items covering each variable are given in Appendix B.

[3]Jim Nunnally, Psychometric Theory, (New York: McGraw-Hill, 1967), 75-76.

[4]Caplan et al., Job Demands and Worker Health, p. 42.

by including only items in an index which had higher average correlation with other items in the same index than with items from other indices.[5]

The measures used were selected as likely to be the psycho-social and physiological variables most affected by such an important organization change as the discontinuance of most rotating shift work. The stress variables chosen covered the individual's perceptions of his work load, ambiguity and conflict in his role relationships, equity in his pay, participation in decision-making, his future with the organization and the support he received from his superior, his associates, and his family. The strain variables were chosen as behavioral or physiological factors most likely to show the effects of the changes in stress. Tension and job dissatisfaction are psychological strains often linked with rotating shift work, as are the psycho-somatic complaints used in that index. Increased smoking and coffee drinking are thought to be related to the fatigue and disturbance in personal habits associated with rotating shift work. The blood pressure and heart rate measures were included because chronic stress is suspected as a contributing cause to hypertension and coronary disease. Although experimental confirmation of the role of stress in hypertension is lacking, there is strong evidence supporting it. It is known that the body reacts to trauma or to threats by preparing for "fight or flight," and that part of that preparation consists of the release of powerful hormones into the circulatory system which in turn increase blood pressure.

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[5] Ibid, p. 42-43.

The questionnaire was administered on an individual basis to most of the respondents and questions about any aspects of the information sought were answered as they came up. Permission was obtained for the questionnaires to be completed during working hours to ensure that adequate time and attention was given to the task.

The chief complaint about the first questionnaire concerned its length. To meet this objection which it was felt might lead to loss of subjects in the next round, it was decided to eliminate from the questionnaire most questions not required for the research design.[6] This reduced the average time required to complete it from approximately 45 to 30 minutes.

Design

The form of this design accommodates the change from rotating to fixed shifts which took place for most of the patrol operations in the Jackson Police Department on January 1, 1978. Before the shift change, each individual on a rotating shift was asked to designate the fixed shift that he/she would prefer. Actual shift assignments were then made partly on seniority, partly on the need to retain some experienced personnel on each shift, and partly in order to train new officers. The following model shows how the sequence of pre-test, treatment, and post-test phases for the treatment and control groups fit into the design.

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[6]The second questionnaire (1978) is reproduced as Appendix C.

	Pre-test (August, 1977)	Treatment	Post-test (July, 1978)
Treatment Group (personnel changing from rotating to fixed shift)	1st questionnaire	shift change (January, 1978)	2nd questionnaire
Control Group (personnel remaining on rotating shift)	1st questionnaire		2nd questionnaire

Differences in stress and strain effects for the treatment group are compared with the corresponding differences for the control group. This comparison allows for the potentially confounding effects of specific events occurring between pre-test and post-test, for maturation changes in the subjects, and for changes in the content and administering of the questionnaire.

The model is known as the nonequivalent control group design because the experimental and control groups do not have pre-experimental sampling equivalence.[7] It is an incomplete design because the subjects are not assigned randomly to the experimental and control groups.

Testable Hypotheses

The two propositions which express the main thrust of this research are presented again here for convenience, followed by

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[7]Donald Campbell and Julian Stanley, Experimental and Quasi-experimental Design for Research, (Chicago: Rand-McNally, 1966), p. 47.

the experimental hypotheses to be tested.

Proposition 1 states that job stress will be reduced for police changing from a rotating to a fixed shift schedule. This proposition will be tested by means of the following hypotheses:

Hypothesis 1: A change from a rotating to a fixed shift schedule will result in a relative reduction in job stress.

The following variables are to be tested:

Hypothesis 1A: The perceived work load will be relatively less for police transferred from a rotating to a fixed shift than for those remaining on rotation.

Hypothesis 1B: The perceived role conflict will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 1C: The perceived role ambiguity will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 1D: The perceived job future ambiguity will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 1E: The perceived pay inequity will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 1F: The perceived participation will be relatively greater for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 1G: The perceived social support will be relatively greater for police transferred from a rotating shift than for those remaining on rotation.

Proposition 2 states that job strain will be reduced for police changing from a rotating to a fixed shift schedule. This proposition will be tested by means of the following hypotheses:

Hypothesis 2: A change from a rotating to a fixed shift schedule will result in a relative reduction in job strain.

The following variables are to be tested:

Hypothesis 2A: The perceived tension will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2B: The perceived job dissatisfaction will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2C: The perceived somatic complaints will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2D: The recorded blood pressure levels will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2E: The recorded heart rate will be relatively lower for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2F: The reported numbers of cigarettes smoked will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Hypothesis 2G: The reported numbers of cups of coffee consumed will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Analysis

The data is to be analyzed for effects using a one-way analysis of variance test of the difference scores for the experimental and control groups. The computer program, Statistical Package for the Social Sciences (SPSS), Version 7.0, will be used. Since the hypotheses predict changes in specified directions, the one-tailed test of significance is implied and will give greater power to the test.[8] But as SPSS shows two-tailed values for computed probability, it will

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[8] William Hays, Statistics (New York: Holt, Rinehart and Winston, 1963), pp. 282, 285.

be necessary to divide by two to convert it to the appropriate one-tailed value.[9] An additional precaution must be taken in interpreting results of a directional test of a hypothesis to ensure that the difference in means is in the predicted direction. A difference not in the direction of the hypothesis causes its rejection regardless of the probability statistic.

Summary

This study uses the sworn officers of the Jackson, Michigan police department for the sample. A change being made from rotating to fixed shifts was utilized to measure the effects of rotating shifts on stress and on behavioral and physiological strains. A questionnaire developed by HEW for the study of police stress was adapted for this study. Reliability estimates for the stress and strain variables ranged from .71 to .85. Validity was checked by a measure of internal consistency, and by comparing item wordings with definitions of variables. Blood pressure and heart rate data for the group was obtained through the cooperation of American Heart Association personnel. Stress variables included were work load, role conflict, role ambiguity, job future ambiguity, pay inequity, participation and social support. Strain variables comprised tension, job dissatisfaction, somatic complaints, blood pressure, heart rate, number of cigarettes smoked and number of cups of coffee consumed. Questionnaires were administered individually to 79 police

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[9] Norman Nie, Hadlai Hull, Jean Jenkins, Karin Steinbrenner, and Dale Bent, Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975), p. 271.

personnel in 1977 and 74 in 1978. The experimental design provided for pre-test, treatment and post-test phases for the experimental and control groups, with analysis of variance and product-moment correlation used for data analysis.

Chapter 4

ANALYSIS OF RESULTS

The results of the data analysis made to test the hypotheses given in Chapter 3 are shown below. Each hypothesis is restated before presenting the mean differences in scores between the two years for the treatment and control groups, followed by the F ratio, degrees of freedom, and F probability for the one-way analysis of variance between the difference scores. Finally, the overall results of all the hypothesis tests will be summarized for comparative purposes.

Next, the results of the correlation analyses of stress, strain, and demographic variables will be presented in tabular form followed by a summary of those correlations found to be significant.

All discussion and interpretations of results will be reserved for Chapter 5.

Hypothesis 1: A change from a rotating to a fixed shift will result in a relative reduction in job stress.

The hypothesis is accepted in part - for participation and social support. The hypothesis is rejected in part - for work load, role conflict, role ambiguity, job future ambiguity, and pay inequity. See details below.

Hypothesis 1A: The perceived work load will be relatively less for the police transferred to a fixed shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Work Load	.49	(.10)	.19	44	.836

The hypothesis is rejected. There is no reduction in work load for the treatment group.

Hypothesis 1B: The perceived role conflict will be relatively less for police transferred from a fixed shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Role Conflict	.14	(.04)	.80	44	.189

The hypothesis is rejected. There is no reduction in role conflict for the treatment group.

Hypothesis 1C: The perceived role ambiguity will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Role Ambiguity	.005	.05	.10	44	.375

The hypothesis is rejected. There is no reduction in role ambiguity for the treatment group.

Hypothesis 1D: The perceived job future ambiguity will be relatively less for police transferred from a rotation shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Job Future Ambiguity	(.17)	(.18)	.0002	44	.495

The hypothesis is rejected. There is no reduction in job future ambiguity for the treatment group.

Hypothesis 1E: The perceived pay inequity will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Pay Inequity	.01	.22	2.10	37	.078

The hypothesis is rejected. There is no reduction in pay inequity for the treatment group.

Hypothesis 1F: The perceived participation will be relatively greater for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Participation	.36	(.83)	15.51	44	.0002

The hypothesis is accepted. There is greater participation for the treatment group.

Hypothesis 1G: The perceived social support will be relatively greater for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Social Support	.01	(.22)	4.29	43	.023

The hypothesis is accepted. There is greater social support for the treatment group.

Hypothesis 2: A change from a rotating to a fixed shift will result in a relative reduction in job strain.

The hypothesis is accepted for job dissatisfaction but rejected for tension, somatic complaints, blood pressure, heart rate, smoking, and coffee drinking. See details below.

Hypothesis 2A: The perceived tension will be relatively less for the police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Tension	.05	(.05)	1.02	39	.159

The hypothesis is rejected. There is no reduction in tension for the treatment group.

Hypothesis 2B: The perceived job dissatisfaction will be relatively less for the police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Job Dissatisfaction	.02	.25	7.51	43	.005

The hypothesis is accepted. There is a reduction in job dissatisfaction for the treatment group.

Hypothesis 2C: The perceived somatic complaints will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Somatic Complaints	.00	(.20)	.95	44	.167

The hypothesis is rejected. There is no reduction in somatic complaints for the treatment group.

Hypothesis 2D: The recorded blood pressure levels will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

		Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Blood Pressure	Systolic	(10.72)	(2.57)	2.76	38	.052
	Diastolic	2.38	.50	.10	39	.377

The hypothesis is rejected. There is no reduction in blood pressure for the treatment group.

Hypothesis 2E: The recorded heart rate will be relatively lower for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Heart Rate	(1.28)	(3.50)	.36	39	.275

The hypothesis is rejected. There is no reduction in heart rate for the treatment group.

Hypothesis 2F: The reported numbers of cigarettes smoked will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Cigarettes Smoked	(1.30)	2.75	.83	17	.185

The hypothesis is rejected. There is no reduction in cigarette smoking for the treatment group.

Hypothesis 2G: The reported numbers of cups of coffee consumed will be relatively less for police transferred from a rotating shift than for those remaining on rotation.

Increase or (Decrease) in Mean Scores from 1977 to 1978

	Treatment Group	Control Group	F Ratio	Total d.f.	F Prob.
Cups of Coffee Consumed	.38	1.00	.86	38	.180

The hypothesis is rejected. There is no reduction in coffee consumption for the treatment group.

The results of all the hypotheses tested are summarized for comparative purposes in Table 4-1. Two of the testable hypotheses concerning stress were confirmed and five were not confirmed. With regard to the testable strain hypotheses, one of the three concerning psychological strains was confirmed, but all four physiological and behavioral hypotheses were rejected.

Table 4-1. Summary of results of hypothesis testing.

Hypothesis	Variable	Increase or (Decrease) in Mean Scores from 1977 to 1978		F Ratio	Total d.f.	F Prob-ability	Hypothesis Accepted or Rejected
		Treatment Group	Control Group				
Stress							
1A	Work Load	.49	(.10)	.19	44	.836	Rejected
1B	Role Conflict	.14	(.04)	.80	44	.189	Rejected
1C	Role Ambiguity	.005	.05	.10	44	.375	Rejected
1D	Job Future Ambiguity	(.17)	(.18)	.0002	44	.495	Rejected
1E	Pay Inequity	.01	.22	2.10	37	.078	Rejected
1F	Participation	.36	(.83)	15.51	44	.0002	Accepted
1G	Social Support	.01	(.22)	4.29	43	.023	Accepted
Strain							
2A	Tension	.05	(.05)	1.02	39	.159	Rejected
2B	Job Dissatisfaction	.02	.25	7.51	43	.005	Accepted
2C	Somatic Complaints	.00	(.20)	.95	44	.167	Rejected
2D	Blood Pressure						
	Systolic	(10.72)	(2.57)	2.76	38	.052	Rejected
	Diastolic	2.38	.50	.10	39	.377	Rejected
2E	Heart Rate	(1.28)	(3.50)	.36	39	.275	Rejected
2F	Cigarettes Smoked	(1.30)	2.75	.83	17	.185	Rejected
2G	Coffee Consumed	.38	1.00	.86	38	.180	Rejected

Results of the Correlation Analyses

The results of the correlation analyses made for the purpose of finding significant associations among the stress and strain variables and the demographic variables of age, years of service, and years of education are given in Tables 4-2 to 4-5. The number of correlations for each variable which were statistically significant at the .05 level or less are summarized in Table 4-6. The results of the summary indicate that among the stress variables, 24 correlations or 57% of the total, were significant in 1977 and 1978. Among the strain variables, 16 correlations, or 29%, were significant in the two years. (Blood pressure results are shown for both systolic and diastolic readings, which increase the total correlations among strain variables to 56.) Of the correlations between stress and strain variables, 28 out of the total of 112, or 25% were significant. For the three demographic variables, intercorrelations with the stress and strain variables were computed for 1977 data only. Of the 45 correlations in this analysis, the number of significant results was 9, or 20% of the total.

Summary

The analysis of results from stress and strain hypothesis testing shows that two out of seven of the stress hypotheses were accepted, and one out of seven of the strain hypotheses was accepted.

The overall results of the correlation analysis were that out of a grand total of 255 correlations among stress and strain variables,

Table 4-2. Correlations among stress variables.

		Work Load		Role Conflict		Role Ambiguity		Job Future Ambiguity		Pay Inequity		Participation	
		1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978
Role Conflict	1977	.35*											
	1978		.42**										
Role Ambiguity	1977	.04		.41**									
	1978		.19		.08								
Job Future Ambiguity	1977	.18		.31**		.23*							
	1978		.13		-.07		.33**						
Pay Inequity	1977	.27*		.24*		.11		.14					
	1978		.25*		.11		.09		.10				
Partici-pation	1977	-.29**		-.25*		-.22*		-.24*		-.22*			
	1978		-.34**		-.17		-.28**		-.11		-.27*		
Social Support	1977	-.31**		-.30**		-.17		-.24*		-.05		.43**	
	1978		-.04		.10		-.51**		-.25*		-.16		.32**

* $p < .05$
** $p < .01$

Table 4-3. Correlations among strain variables.

		Tension		Job Dissatisfaction		Somatic Complaints		Blood Pressure: Systolic		Blood Pressure: Diastolic		Heart Rate		Cigarettes Smoked	
		1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978
Job Dissatisfaction	1977	-.04													
	1978		-.01												
Somatic Complaints	1977	.00		.35**											
	1978		.08		.44**										
Blood Pressure															
Systolic	1977	-.07		-.20*		-.09									
	1978		-.16		-.11		-.10								
Diastolic	1977	-.11		.04		.16		.48**							
	1978		-.05		-.02		-.07		.77**						
Heart Rate	1977	-.22*		-.14		-.08		.23*		.35**					
	1978		-.22*		-.17		-.12		.23*		.10				
Cigarettes Smoked	1977	.08		.36*		.22		-.29*		-.14		.05			
	1978		.34*		.40**		.09		-.15		-.08		.19		
Coffee Consumed	1977	-.03		-.06		.21		.14		.25*		-.12		.15	
	1978		.18		-.08		.14		.03		.06		.01		.38*

* $p < .05$
** $p < .01$

Table 4-4. Correlations between stress and strain variables.

		Tension		Job Dissatisfaction		Somatic Complaints		Blood Pressure Systolic		Blood Pressure Diastolic		Heart Rate		Cigarettes Smoked		Coffee Consumed	
		1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978
Work Load	1977	.01		.30**		.15		-.18		-.13		-.01		.43**		.05	
	1978		.02		.29*		.14		.14		.09		.01		.32*		-.03
Role Conflict	1977	-.07		.44**		.45**		-.06		.11		.01		.20		.01	
	1978		-.12		.17		.28**		.17		.27*		.19		-.07		-.04
Role Ambiguity	1977	.16		.39**		.10		-.14		.01		-.06		.06		-.09	
	1978		.23*		.32**		.09		-.22*		-.09		-.22*		.28		.02
Job Future Ambiguity	1977	-.02		.19		.34**		-.05		-.13		-.01		.21		.10	
	1978		.16		.34**		.09		-.01		-.15		-.09		.33		-.10
Pay Inequity	1977	-.20*		.37**		.11		.08		.10		-.19		.36*		.23*	
	1978		.09		.24*		.12		.19		.10		-.10		.19		.21
Participation	1977	.05		-.34**		-.19		.26*		.15		.05		-.21		-.01	
	1978		-.10		-.31**		-.27*		.05		.07		.17		-.14		-.12
Social Support	1977	.05		-.34**		-.37**		.24*		.11		-.02		-.25		.14	
	1978		.00		-.24*		-.17		.12		.10		.14		-.25		-.02

*p < .05
**p < .01

Table 4-5. Correlations of age, years of service, and years of education with stress and strain variables, August 1977.

	Number	Age r	Years of Service r	Years of Education r
STRESS				
Work Load	78	.00	-.05	-.07
Role Conflict	79	.04	.05	-.16
Role Ambiguity	79	-.16	-.15	.07
Job Future Ambiguity	78	-.08	-.03	-.11
Pay Inequity	73	-.04	.00	-.17
Participation	79	.04	.18	.23*
Social Support	78	.09	.13	.03
STRAIN				
Tension	75	-.30**	-.27*	-.15
Job Dissatisfaction	76	-.09	-.22	.05
Somatic Complaints	74	.08	.11	-.14
Blood Pressure				
Systolic	75	.20*	.24*	-.23*
Diastolic	76	.17	.09	-.11
Heart Rate	75	.00	.01	.00
Cigarettes Smoked	40	.16	.03	.03
Coffee Consumed	63	.27*	.23*	-.35**

*p < .05
**p < .01

Table 4-6. Summary of significant correlations, 1977 and 1978.

Variables	Number of Correlations with Stress Variables 1977	Stress Variables 1978	Strain Variables 1977	Strain Variables 1978	Demographic Variables 1977	Total
STRESS						
Work Load	4	3	2	2		11
Role Conflict	6	1	2	2		11
Role Ambiguity	3	3	1	4		11
Job Future Ambiguity	4	2	1	1		8
Pay Inequity	3	2	4	1		10
Participation	6	4	2	2	1	15
Social Support	4	3	3	1		11
	30	18	15	13	1	77
STRAIN						
Tension	1	1	1	2	2	7
Job Dissatisfaction	6	6	3	2		17
Somatic Complaints	3	2	1	1		7
Blood Pressure						
Systolic	2	1	4	2	3	12
Diastolic	0	1	3	1		5
Heart Rate	0	1	3	2		6
Cigarettes Smoked	2	1	2	3		8
Coffee Consumed	1	0	1	1	3	6
	15	13	18	14	8	68
DEMOGRAPHICS						
Age	0	--	3	--		3
Years of Service	0	--	3	--		3
Years of Education	1	--	2	--		3
	1		8			9
TOTAL	46	31	41	27	9	154

and between stress, strain and demographic variables, a total of 77, or 30%, were found to be significant.

The interpretation and discussion of the foregoing results, together with conclusions, recommendations, and implications for future research will be the subject of Chapter 5.

Chapter 5

SUMMARY AND CONCLUSIONS

In this chapter, the stages which were reached in earlier sections of this research will be reviewed and the salient points of the journey recalled. The main findings will be summarized and the background of earlier research described briefly. The research methods employed will be presented again in condensed form. Attention will be given to how the findings might be put to use in coping with police stress and strain, and in improving the effectiveness of police organizations. The lessons which have been learned regarding field research in a police organization will be discussed and possible implications for future studies indicated. Finally, some of the more important research problems remaining in this area will be pointed out, together with suggestions as to how they might be tackled.

The Research Problem

The need for research into police job stress to identify and reduce psychological stressors and their resulting strain effects has been recognized in recent years. Although many ideas have been discussed, there have been few field studies designed to identify and measure stress and strain variables. It is recognized that police are often subject to heavy stress in patrol operations, but there is a lack of accurate knowledge of organizational stressors.

One factor, however, which is under the control of police management is shift work. Evidence from industrial studies and from the scant research involving police suggests that rotating shifts, which are in effect in most police departments, are responsible for more stress and strain than other shift arrangements. Several of these studies recommend longitudinal studies to identify the working conditions responsible for stress effects and to measure the way the work environment affects individual health and well-being.

The main purpose of this study was to investigate the effects of rotating shifts by comparing measures of stress and strain made before and after discontinuance of rotating shift work with measures of the same variables for police who continued to work on rotating shifts. An additional aim was to find significant correlations among stress and strain variables which might throw light on the relation of stress and strain to demographic factors.

The main propositions of this research were first that changing police schedules to eliminate rotating shifts would reduce job stress, and second that this change would result in a reduction of strain responses to job stress. The theory on which these propositions are based is a model which depicts job stress as arising from environmental stimuli perceived as threatening. Personality factors and the degree of person-job fit condition the effects of these stimuli in producing strain responses. Strains may include job dissatisfaction, increased blood pressure and increased stress coping behaviors such as cigarette smoking and coffee drinking. Prolonged strain may result in absenteeism and lowered productivity and hasten the onset of stress illnesses such as peptic ulcer and cardio-vascular disease.

Review of Previous Research

There are few research studies on police job stress, although the literature abounds with articles about adverse effects of the policeman's job on his health, family and social life. Most police stress literature has emphasized stress sources in dangerous or disagreeable police operations, but increasingly the stress arising from within the organization is being considered. Authoritarian control through a para-military type of organization may lead to role conflict, anxiety and even hostility on the part of subordinates. Strong peer pressures on the individual may lead to adverse effects on family and social relationships. An early field study of a large police department indicated that administration policies, including rotating shifts, were responsible for much stress; and the researchers concluded that the nature of the policeman's job made him more vulnerable than other workers to stressors from inside the organization.

Research on effects of shift work has been confined almost entirely to industrial studies until recent years. It has been found that time-oriented body functions, such as sleep, appetite and elimination are affected by shift work, particularly by rotating shift work. Rotating shifts were found in several overseas studies to cause adverse effects on productivity, attendance, family and social life, and rates of illness. Recommended changes included periodic reappraisal of the need for rotating shifts, recognition of individual differences in planning shift arrangements, and encouragement of greater movement of workers off shift work when health or family requirements make this desirable.

A study of 500 shift workers in five U.S. plants also yielded findings that rotating shifts caused the most serious problems. Continual adjustment of family and social roles as well as body functions had stressful consequences in fatigue and high rates of respiratory infections. The study recommended a special union-management agreement to move rotating shift workers with adjustment problems over to a fixed shift.

The largest field study of job stress and worker health to date involved over 2000 men in 23 occupations, including police, and was based on the theoretical model of job stress and strain shown in Figure 1-1. The hypothesis that job stress leads to strain was supported by correlational measures, particularly of job satisfaction. The study offered support for the theory that job strains affect worker illness and that person-job fit affects job strain, but did not support any relationship between personality characteristics and job strain. The results for police compared with other occupations were somewhat mixed. Police were higher than average on feelings of pay inequity and social support, but lower on job future ambiguity, participation and job dissatisfaction. Except for the pay inequity measures, these results indicate lower levels of stress and strain for police than for other occupations generally. A sub-set of this police sample was used by NIOSH to survey several stress and strain variables for police on rotating versus fixed shifts. The rotaters reported higher levels of work load, role conflict, boredom, job dissatisfaction, and somatic complaints, and lower levels of social support from others at work. It was noted that much of the stress was interpersonal in

nature and perhaps caused by psychological reactions to the shift changes and from the way the rotation schedules are handled.

Study Design

The study uses the police force of Jackson, Michigan as a sample and measures 14 stress and strain variables before and after a change from a rotating to a fixed shift schedule. A self-report questionnaire developed and tested by HEW was administered in 1977 and 1978 and measurements were also made of heart rate and blood pressure before and after the change. The main hypotheses state that both job stress and job strain will be reduced by discontinuance of rotating shifts. The design uses analysis of variance to measure the significance of the differences in means for the treatment group who changed versus the control group who remained on rotation.

Findings on Rotating Shift Effects

Five of the stress variables were not supported - work load, role conflict, role ambiguity, job future ambiguity and pay inequity; while two were supported - participation and social support. Detailed comments on these results follow:

Hypothesis 1A. The treatment group perceived a greater increase in work load than the control group, the opposite of the hypothesized result, although the difference was not significant. Analysis of the questionnaires indicates that the increase was perceived on all the fixed shifts. Comments about the new schedule are almost all positive and create the strong impression that the men like it despite the extra work involved. For example, one person on afternoon and

one on night shift said that the workload was heavier, but could be handled better in lighter traffic and with few of the higher ranks on duty. It would seem that the extra work may be more than offset by being able to choose the shift wanted and avoid conflict with superiors. See findings on role conflict and participation.

Hypothesis 1B. Not only was the hypothesis of less role conflict for the treatment group rejected, but a non-significant increase occurred in role conflict for this group. This result is opposite to the NIOSH survey finding that rotaters were significantly higher on role conflict than fixed shift personnel. An analysis of the questionnaire responses disclosed that over 80% of the role conflict increase came from two questions about feelings of pressure and conflicting demands from too many bosses. It was also found that the increases on role conflict came from police on day shift, and, to a lesser extent, on afternoon shift, while role conflict decreased for those assigned to night shift. Comments about the afternoon and night shifts included "No captains working," and "Less brass around," while some on the day shift complained about being interfered with and made to run too many errands.

Several others who perceived increased role conflict complained that they had not been assigned to the shift of their choice, or had been reassigned to another shift later. There were no complaints of this nature made by officers still on rotating shifts.

It is apparent that the amount of role conflict may vary considerably between the different fixed shifts depending on the work volume and quality and degree of supervision.

Hypothesis 1C. The hypothesis of less role ambiguity was rejected. The reduction in role ambiguity for the treatment group was matched by the control group. The questionnaire responses show that rotaters who moved to a fixed night shift had a reduction in role ambiguity amounting to almost 25% of their scores in the previous year. Most of them felt they knew more about how their supervisor evaluated their performance, saw more of the results of their work, and had a better idea of how they had done at the end of the day. Those moving to a day shift perceived an increase in role ambiguity, spread over all items in the index. Those transferring to an afternoon shift had virtually no change in role ambiguity. As in the case of role conflict, it would seem that role ambiguity tends to decrease on the night shift where the patrolmen are more completely in charge of their jobs and may be better able to see the results of their work.

Hypothesis 1D. The hypothesis of reduced job future ambiguity for the treatment group was rejected. Future ambiguity seems less affected by the shift changes than any of the other variables tested. Variances in the treatment and control group were almost identical and there is no indication in the individual questionnaires that the choice of fixed shift has any perceived effect on job future. Police were found to have a relatively low score on this factor in the HEW survey, perhaps because they enjoy more job security than most of the other occoupations studied.

Hypothesis 1E. The hypothesis was rejected, although there was a slight tendency toward a lower level of pay inequity in the treatment group. The HEW survey reported that police felt they earned

only 81% of the income they should earn but there is no indication from the present responses that this feeling is related to shift work. Most opinions voiced about pay rates during this study were to the effect that present rates were fair, although several senior officers stated that this had not been true until recent years.

Hypothesis 1F. The hypothesis that participation will be greater among those who have transferred off rotation is confirmed. Analysis of the responses disclosed that the largest improvement occurred in perceptions of the way things are done on the respondents' jobs, with lesser gains in deciding what part of tasks they will do, and in participating with others in making decisions that will affect them. For those left on rotation there was a perceived reduction in participative decision-making.

The relative improvement in this stress variable was so strong compared to most of the others tested that it invited some further inquiry. As a comparative measure of a group whose jobs were not directly affected by the shift changes, the responses of the ten detectives who had completed questionnaires were examined for participation effects. It was found that their level of participation had also increased significantly on the 1978 questionnaire ($p < .01$). There had been some management changes in the detective division but no changes in shift schedules. This result suggested that perhaps the relative improvement in participation might owe more to feelings of lower participation by the control group than previously thought since the gains by the treatment group were matched by another group not directly affected by the shift change. Another feeling which was mentioned by several patrolmen in the treatment group during the administering

of the second questionnaire may have modified their positive feelings to some extent. They said they liked the new shift arrangements but were not sure they would be permanent because so many changes and reversals of changes had been occurring in the department recently. It seemed evident that the patrolmen liked being asked what fixed shift they preferred and appreciated being assigned to the one they had chosen.

Hypothesis 1G. This hypothesis was confirmed. Comparative levels of social support increased significantly for the treatment group. Further analysis of responses disclosed that the support level for the treatment group increased only slightly, the relative increase being attributable to drops in the levels of support reported by the control group, both from immediate supervisors and others at work. It seemed somewhat surprising that the increase in social support at home reported by the treatment group was very small (less than 3%), because there were many comments on the second questionnaire about the advantages of having evenings at home, more time for the children, more weekends and holidays free for the family, etc. This result may be partly due to the maximum score having already been used for support from the spouse in nearly half of the first questionnaire, leaving no way to indicate further improvement in the scores. It must also be remembered that there may be other unmeasured influences affecting social support for both groups, and that it is only the relative increase which can be attributed to the shift change.

Hypothesis 2A. The hypothesis was rejected. There was no evidence of relaxation of tension in the treatment group data. This finding is similar to that reported in the NIOSH police survey results for anxiety, a variable which is thought to measure much the same factors. NIOSH did report, however, that there were nonsignificant tendencies for police on rotating shifts to have more anxiety, depression, and irritation than those on fixed shifts.

Hypothesis 2B. The hypothesis was confirmed. The relative decrease in job dissatisfaction shows up in several areas. The most important of these are overtime pay, relations with fellow officers and with top administration. Other important improvements are in equipment maintenance, and relations with the immediate supervisor. Examination of the comments by the treatment group about their new work schedule showed that all of them expressed satisfaction with it and dwelt on the increased time they had available in evenings, weekends and holidays to spend with their families.

Hypothesis 2C. The failure of this hypothesis seemed to be attributable to a lack of any reduction in somatic complaints for the treatment group. It was found, however, that officers on afternoon and night shifts tend to have increases in somatic complaints which are offset by reductions among those on day shift. This is contrary to the shift effects reported for role conflict and role ambiguity, but is in line with the strain effects reported for night work in other shift work studies.[1] The NIOSH survey found a significant increase in somatic

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[1]Mott et al., Shift Work, 1965, p. 306.

complaints for police on rotation over those on fixed shifts, but their fixed shift sample was made up entirely of day workers, and the responses to the questionnaires in the present research show that a similar reduction took place in somatic complaints for persons transferring to a day shift.

Hypothesis 2D. The hypothesis that blood pressure would be lower on fixed shifts was not confirmed. Because blood pressures were not measured for police in the NIOSH survey or the HEW study, a comparison was made of diastolic blood pressure by rank and age group in 1977 with a group of seven occupations measured in the HEW study. The Jackson police diastolic blood pressure levels are only slightly higher by age groups than the HEW groups, except for 40-49 year olds where the level is 3.8 millimeters higher, owing to the average of 85.0 recorded by the patrolmen in that age group. That finding is interesting in the light of a study evaluating physical fitness programs for police officers which found that middle-aged officers had an average diastolic blood pressure before exercise training about 10% higher than the average for middle-aged men in other occupations.[2]

Hypothesis 2E. A closer look at the heart rate data did not reveal any consistent pattern of changes by shift. It is worthy of note, however, that comparison with HEW figures shows that the average heart rate for Jackson police at 78.3 beats per minute is significantly

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[2]Michael Pollack and Larry Gettman, "Coronary Risk Factors and Level of Physical Fitness in Police Officers," Proceedings of the 83rd Annual Conference of the International Association of Chiefs of Police, 1976.

higher than the figure of 74.0 recorded for the seven occupations tested in that project.

Hypothesis 2F; Hypothesis 2G. The predictions that cigarette smoking and coffee drinking would be lower on fixed shifts could not be confirmed. The large numbers of policemen who are non-smokers reduced the sample size for that variable considerably below that for the other variables tested. Careful examination of the reported details did not reveal any significant pattern or trend in either of these behavioral strain variables.

Findings on Stress, Strain and Demographic Correlations

The purpose of the correlation data analyses is to supplement the findings from the comparative analyses of fixed and rotating shifts. As mentioned earlier, very few field studies seem to have been made to date of police job stress and the review of prior research did not reveal any separate correlation data for police stress and strain variables. And yet, it is only by careful measurement of behavioral changes under field conditions that the important variables may be determined and possible patterns of cause and effect identified. By this means a sound foundation may be provided for the remedial measures to cope with and eventually reduce and eliminate much of the occupational stress in the life of police personnel.

A cautionary word is in order at this point. A correlation measures the association between two variables, but it cannot determine whether A causes B, or vice versa, or whether the variances of A and B may be caused by C. Correlations are usually most useful in

uncovering associations which indicate the need for more direct investigation.

The correlation results in Chapter 4 point to a number of interesting relationships:

Participation is shown to be positively related to social support and negatively related to work load, role conflict, role ambiguity, job future ambiguity and pay inequity. In brief, it seems that those who have less share in making job related decisions tend to have higher levels of those five stressors. A field experiment found that participation did seem to influence other stresses, and in particular was associated with later improvement in person-environment fit.[3] The HEW occupational study also found significant correlations between participation and work load, role ambiguity, and job future ambiguity, but no relationship between participation and role conflict or pay inequity.

Participation was found to be negatively related to two strain variables - job dissatisfaction and somatic complaints, and positively related to years of education. Using the theoretical model as a guide one might predict:

Objective Environment		Subjective Environment		Responses
More Education	→	Higher Participation	→	Lower Job Dissatisfaction Lower Somatic Complaints

[3]Caplan et al., Job Demands, p. 67.

A relationship between low participation and job dissatisfaction has also been reported in a review of several studies which concluded as follows:

> "To summarize, the research above seems to indicate that greater participation leads to lower staff turnover, higher productivity, and that when participation is absent, lower job satisfaction and higher levels of physical and mental health risks may result."[4]

Social Support is also associated with lower levels of stress from work load, role conflict, role ambiguity, and job future ambiguity, but does not have a significant correlation with pay inequity. The HEW social support correlations are shown separately for support from supervisor, others at work, and support from home. As one might expect, role conflict, role ambiguity, and job future ambiguity correlate more highly with low support from those at work but less with low support from those at home.

Turning to the relationship with strain responses, social support is correlated with low levels of job dissatisfaction and somatic complaints, also with a low level of cigarette smoking, although the last relationship is not significant. The numbers of cigarette smokers in the sample are considerably fewer than the numbers available for other questionnaire items.

Of all the possible cause and effect relationships between stress and strain, social support may well be one of the most important, because it is one organizational variable that seems to be highly controllable:

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[4]Cary Cooper and Roy Payne (Eds.), Stress at Work (New York: John Wiley), 1978, p. 93.

> "Social support appears to be another variable of major importance to the psychological well-being of the workers in our sample. Low support from supervisors and from others at work is associated not only with job dissatisfaction but also with depression.... Social support is a variable of especial significance because a program for primary prevention of job-related strains may often be able to increase the supportiveness of interpersonal relations in technologies where the job tasks themselves are not easily changed."[5]

In terms of the model, the prediction from these correlations would be:

Objective Environment		Subjective Environment		Responses
More training of supervisors and others in supportiveness	→	Greater social support	→	Lower job dissatisfaction Lower somatic complaints Lower cigarette smoking

Job Dissatisfaction is correlated with the strain variables of somatic complaints and cigarettes smoked. By comparison, the correlation with somatic complaints in the HEW study is only half as great, and there is no correlation with cigarette smoking. Because job dissatisfaction is a catch-all for negative job responses, one expects that many job stress factors may contribute to the responses obtained for this variable. This may explain what happens when job dissatisfaction is correlated with the stress variables. Virtually all of the correlations are significant, more than half of them at the 1% level. The results parallel those obtained from the HEW study with the exception that pay inequity for the HEW sample is not correlated with job dissatisfaction. This deviation may have resulted from the differences

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[5]Caplan et al., Job Demands, p. 84.

in the measures - the present study asks 21 questions about separate job elements, including pay, whereas the HEW study asks only four questions designed to measure overall feelings of satisfaction or dissatisfaction with the job.

Somatic Complaints. With the exception of the association with job dissatisfaction referred to above, somatic complaints do not correlate significantly with any of the other strain variables. They do, however, have significant positive correlations with the stress variables of role conflict and job future ambiguity, and significant negative correlations with participation and social support. In that way they tend to verify the basic assumption of the theoretical model that stress causes strain which may show up in the form of involuntary reactions of our bodies to job demands. Hans Selye listed more than 30 "immediately useful signs of stress which the average person can follow throughout his working day."[6] The leading somatic complaints marked among the dozen listed in the questionnaire, in order of importance were insomnia, headache, feeling nervous or shaky, backache, and stomach ache. Selye states that each person tends to respond with an individual set of signs and suggests that when these signs appear, the individual should stop or change whatever he is doing and find a diversion.

Blood Pressure. The correlations of blood pressure with other stress and strain variables are for the most part weak and inconsistent. It is thought that correlational data may have to be gathered over a longer period if job stress effects are to be reflected significantly

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[6]Hans Selye, The Stress of Life (New York: McGraw-Hill, 1978), p. 173.

in blood pressure readings. This feeling was strengthened by an analysis of blood pressure changes over the years from each person's hiring date up to the 1977 questionnaire date. The average increase of 7.24 in diastolic blood pressure was found to be significant ($p < .001$), but the systolic changes were not.

Heart Rate. The correlations for this variable are reasonably consistent between 1977 and 1978, but are low with other stress and strain variables. It would seem that stress, at least at the levels found in this research, may not be a good predictor of changes in heart rate. The HEW occupational study in effect confirms this by finding no significant differences whatever in heart rate among seven occupations and four age groups with a total sample of 361 persons.

Cigarettes Smoked; Coffee Consumed. The results from correlating these two variables with other stress and strain variables tend to be inconsistent and weak for the two years with two exceptions. Cigarette smoking correlates moderately well with work load and with job dissatisfaction. Likewise in the HEW study, the highest correlation found for cigarette smoking is with a factor called work load dissatisfaction. Caplan refers to research findings that the nicotine level in cigarettes may increase the ability to withstand stress and suggests smoking may be rewarding for persons undergoing increased job stress.[7]

Demographic Correlations. With the sole exception of participation, which has a weak correlation ($r = .23$) with years of education, none of the stress variables have significant correlations with age,

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[7]Caplan, et al., Job Demands, p. 142.

years of service, or education. The findings for strain variables are somewhat better. Increases in age and seniority are associated with lower levels of tension. This may partly reflect better training and also experience with situations which are tension provoking for younger persons. It may also reflect the fact that older policemen are not as often thrust into dangerous and tense situations.

Higher systolic blood pressure is associated with increased age and years of service as it is in other occupations. More years of education are correlated with lower blood pressure, perhaps because the younger police personnel have, on the average, more years of education than the older and more senior personnel. Finally, coffee consumption is associated with greater age and seniority and with lower education levels. This may result from the older and more senior personnel having more opportunity to drink coffee during working hours.

Summary of Main Findings

Rotating Shift Data

1. The propositions that job stress and job strain will be reduced for police changing from a rotating shift to a fixed shift schedule were not confirmed. The question of whether and to what extent rotating shifts cause police job stress remains to be answered by future studies. Physiological stress effects may be more evident when shifts are rotated more rapidly than over the 120 day interval studied in this case. Psychological effects of shift changes may vary with organizational climate - the behavioral processes reflecting the

values, attitudes, and beliefs of organization members -- and climate in turn is affected by organization size and structure and the quality and nature of leadership. Behavioral effects should be tested using a larger group to obtain adequate samples of such behaviors as smoking and coffee drinking.

2. Participation is higher for police transferred to fixed shifts than for those left on rotation. The largest gain by respondents was in determining the way things are done on their jobs. Those left on rotation felt they had less participation in decision-making.
3. Social support levels are higher for police transferred to fixed shifts. Those left on rotation reported lower levels of support from supervisors and others at work.
4. Job dissatisfaction is relatively lower for police transferred from rotating shifts. Those left on rotation showed increased dissatisfaction with overtime pay, relations with fellow officers, top administration of the department, equipment maintenance and their immediate supervisor, in that order.
5. There was a non-significant increase in role conflict for police transferred to fixed day and afternoon shifts. This was reported as the result of increased pressure and conflicting demands from too many bosses, interference in their work, and having to run too many errands.
6. Role conflict decreased for those transferred to the night shift. They seemed to feel that they could do their jobs

better when there were fewer superiors around.

7. Role ambiguity decreases for those transferred to the night shift when police report that they see more of the results of their work and know better how their supervisors evaluate their performance. It increases for those transferred to the day shift and is unchanged for those transferring to the afternoon shift.
8. Police transferring off rotating shifts report that their major benefits are in the areas of more weekends, holidays and evenings to spend with their families.
9. Police transferred from rotating shifts to fixed afternoon and night shifts tend to have increases in somatic complaints such as insomnia, headache, backache, and stomach ache, while those transferred to day shifts report reductions in somatic complaints.

Stress and Strain Correlations

1. High participation by police is associated with high social support and years of education and with lower levels of work load, role conflict, role ambiguity, job future ambiguity and pay inequity. Low participation is associated with job dissatisfaction and somatic complaints.
2. Increased social support is associated with lower job dissatisfaction, lower somatic complaints, and less cigarette smoking.
3. Job dissatisfaction is most strongly related to the stress variables of participation and role ambiguity, but also

has significant associations with pay inequity, work load, social support, role conflict, and job future ambiguity, in that order.

4. Blood pressure and heart rate do not seem to correlate well or consistently with most stress and strain variables.
5. Average diastolic blood pressure for the Jackson police force increased significantly for the periods from the individual hiring dates up to August, 1977.
6. Cigarette smoking and coffee drinking do not seem to correlate well with most stress and strain variables.

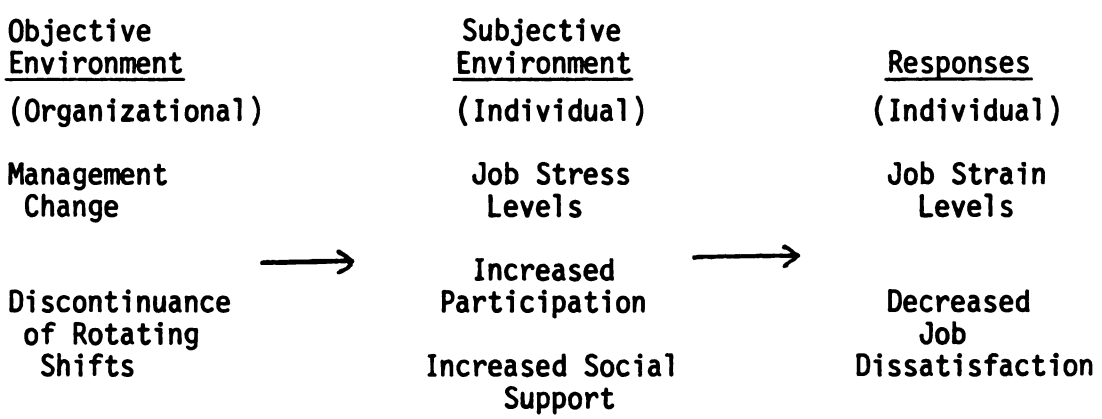
Implications for Further Research

The study had two purposes: (1) to investigate job stress effects on rotating shifts in police work, and (2) to identify factors associated with stress and strain effects through examination of a correlation analysis of stress, strain and demographic variables. The discussion of implications which the findings might have will for the most part be directed to ways in which those purposes may be attained in the future.

This study has had the advantage of experimental and control groups both being given pretest and posttest measures. It also has the disadvantage, inherent in a first small field study, of limited generalizability of results. For this reason it is necessary to speak of results as suggestive rather than definitive, to consider recommendations as tentative, provisional and interim rather than firm and permanent. Another limitation is that most of the data came from self-reports by police personnel whose jobs and working

conditions may be affected by the results and conclusions arrived at. It seemed evident from the reasons given for several refusals to complete the questionnaire that some respondents felt there was a possibility their names might become associated with their answers and could do them harm. Although this feeling did not seem to be widespread, it probably affects the frankness and, therefore, the usefulness of some of the responses. Finally, when only a modest proportion of the variables tested and relationships examined yielded significant data, it is fitting that any suggestions derived from this study should also be modest.

The strongest implications of the research findings may lie in the meanings of the relationships confirmed among three major variables - participation, social support, and job dissatisfaction. In terms of the theoretical model, the relationships could be pictured as follows:



The management change in work schedules from rotating to fixed shifts was found to produce significant improvement in participation, social support and job dissatisfaction in one police department with less than 100 sworn officers. There are many more police departments

which may be considering this change in the future. But better ways of using some of the variables employed in this research would be helpful, and some new variables should be considered to replace some that have not proved adequate. The following suggestions are made for consideration by future researchers in the area of rotating shift changes.

Role Conflict - Role Ambiguity. There is evidence from questionnaire analysis that improvement in these variables may only take place when individuals are transferred to an afternoon, or, preferably, an evening shift where there are fewer superiors to conflict with or cause role ambiguity. It is recommended that the next study examine the differential effects when transfer are made to more than one fixed shift.

Job Future Ambiguity. The shift change had no measurable effect here at all, and as job security does not seem to be a strong issue for policemen, this variable might well be dropped from future studies unless police layoffs are a factor in the department being studied.

Pay Inequity. Analysis of responses indicate this is not an important stress factor in shift changes at this police department at this time. But overtime pay is the most important single item contributing to increased job dissatisfaction in the control group, so that it might be advisable to revise the question on pay inequity to include coverage of overtime pay. The number of hours worked versus how many each individual wants to work may also furnish useful information about pay needs and job fit, and should also be considered for inclusion.

Tension. The results from this study and the NIOSH police survey indicate that the relaxation in tension or anxiety from discontinuance of rotating shifts probably cannot be measured adequately by the self-report method. There is another method of measuring tension by use of the electromyograph (EMG) machine which is now used extensively in biofeedback procedures to record the electrical activity of muscles. The method is based on evidence that chronic muscle tension results from an acquired habit of blocking signals from muscle sensors, and that the degree of tension or relaxation is proportionate to the electrical activity of muscle groups.[8] But most people are not aware of the extent of their own muscle tension:

> "If someone is apprehensive, say about meeting someone new, his heart rate and blood pressure may increase, and his muscles will tense. The physiologic changes can be recorded bio-medically although the person himself often may not be aware of the changes.
>
> Most people do respond to social pressure with increased muscle tension. This kind of muscle set is called "bracing," the muscle is in the act of preparing to defend or freeze or to avoid unpleasantness by having the important action muscles ready to move or stand by."[9]

Police in many situations may do a lot of "bracing," and EMG is a possible way of measuring tension more sensitively and accurately than by self-reports. The equipment is now generally available and the technique should be considered for use in further study of the stress effects of shift changes.

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[8]Barbara Brown, New Mind, New Body (New York: Bantam Books, 1974), p. 160.

[9]Barbara Brown, Stress and the Art of Biofeedback (New York: Harper and Row, 1977), pp. 28-29.

Somatic Complaints. There is little doubt from previous research that somatic complaints seem to be a good measure of strain. The HEW occupational study used similar questionnaire items and found good correlations with other strain measures such as anxiety ($r = .47$) and depression ($r = .35$), although correlations with stress measures were weaker. The NIOSH survey found significant differences ($p = .019$) between somatic complaints on fixed and rotating shifts. However, in the present study, it seemed that reduction in somatic complaints for those transferred to day shifts was offset by increases in somatic complaints for evening and night shift transfers. It is probable that there are confounding effects here caused by different fixed shifts, and, as suggested above, future studies should arrange to separate them so that the main effects can be measured accurately for each shift.

Blood Pressure - Heart Rate. The findings for these physical measures were disappointing. It seems evident from the comparisons of the 1977 readings with those made at hiring dates that changes in group means for these two variables take a number of years to become significant, if, indeed, they ever do so. In addition, variations in instruments, measuring techniques and pulse and blood pressure fluctuations at different times of day tend to make accurate comparisons very difficult to obtain. And yet blood pressure and pulse measures are valuable indicators of health status. They may furnish useful data for decisions about which individuals should be moved to which shifts when changes are being considered. Probably they should be retained for this purpose but not to measure short-term change effects.

Cigarettes Smoked - Coffee Consumed. Neither of these variables gave significant findings in this study or in the HEW and NIOSH studies. Only about half of the police in this study were cigarette smokers and this percentage is likely to decline further in line with trends in the population at large. Coffee drinking habits are also changing and present measures may be subject to error unless allowance is made for decaffeinated coffee and other beverages with caffeine content, such as tea and cola drinks. It may be advisable to discontinue this measure in subsequent studies unless it can be expanded to include a broader selection of beverage stimulants.

There are several measures not used in this research which should be considered for future police job stress studies. They are listed and discussed briefly in order of importance.

Person - Environment Fit.[10] This is a measure of the discrepancy between the rewards and demands in the environment and the motives and abilities of the person. The degree of discrepancy is measured by asking the person such questions as "How much are you paid?" and "How much do you want to be paid?", and using the differences to obtain scores on a number of stress indices such as responsibility for persons, work load, and job complexity.[11] Caplan et al. correlated six measures of goodness of job fit with three measures of job dissatisfaction and obtained eight correlations averaging .45. They

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[10]For an excellent description of job stress in terms of person-environment fit, see R. Van Harrison, "Person-Environment Fit and Job Stress" in Stress at Work, pp. 175-205.

[11]Caplan et al., Job Demands, pp. 220-231.

concluded that the effects of goodness of fit on these three strains were stronger than the effects of any other job stresses.

Some goodness of fit items were included in the first questionnaires, but the respondents had difficulty in answering them correctly and they were not included in the stress variables to be tested. It is recommended that the questions be reworded to overcome response difficulties and included in subsequent studies.

Depression - Boredom. These are psychological states to which police may be subject, and which correlated well with job dissatisfaction in the HEW occupational study. However, they do not correlate highly with one another, indicating that they tend to measure different constructs. They should be considered as possible additions to the psychological variables used in future police job stress research.

Obesity. Overeating has become generally recognized as a behavior sometimes resorted to by individuals under stress. Selye feels that obesity may be a response to stress, especially in people who do not get enough satisfaction from work or from relations with others. He states that it increases the likelihood of contracting other diseases of adaptation, particularly hypertension and diabetes.[12] Obesity is a more reliable variable than those obtained by self-report because it can be verified by independent measurement.

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[12]Hans Selye, The Stress of Life, pp. 265-266.

Conclusion

This research involved fewer than 80 sworn officers in one police department of modest size. The main findings do not support the propositions that job stress and strain will be reduced by changes from a rotating to a fixed shift. But the results do indicate two avenues for possible innovation by progressive police managements. One important issue in the field of organizational leadership concerns participation by subordinates in decision-making. Traditional leaderships have been autocratic; the leader decides, issues orders, monitors compliance with his directives, penalizes non-compliance, and thus discourages subordinates from becomes involved or showing real initiative. Behavioral scientists have recommended more involvement and participation by lower echelons, pointing to restrictions in output and other inefficiencies under traditional leadership methods. They argue that on matters affecting his entire organization, the leader should not decide autocratically, but should meet with subordinates, share problems with them and encourage them to arrive at consensual solutions, or at least encourage their participation and give serious consideration to their suggestions and feelings about problems affecting them.[13]

The present research has confirmed a possible linkage between the involvement of police personnel in the shift changes, the increased feelings of participation, and the improvement in job satisfaction. By so doing, it suggests that participation may contribute to improved morale and better management.

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[13]Victor Vroom. "Leadership," in Handbook of Industrial and Organizational Psychology, (Chicago: Rand - McNally, 1976), p. 1538.

The study results also tend to confirm another theory with potentially important applications for police management. Social support is the type of environmental change which can be encouraged in police organizations to promote psychological well-being. All ranks of management can encourage social support by supervisors and co-workers, and yet it is easier to convince a supervisor in a training program that supportive practices are worthwhile than to change his behavior back on the job. The supervisor may lose interest in this type of change when he finds his own boss does not share it. One solution would be to have several management levels undertake training at the same time so that they may work together to achieve lasting improvements in support practices when they return to work. This approach may also provide impetus in difficult introductory periods or later lagging stages of equal employment and affirmative action programs.

In conclusion, it seems apparent that police job stress is a complex subject and will require a great deal of field research followed by careful, persistent training effort before enduring improvements in stress management can be achieved.

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APPENDICES

APPENDIX A

THE 1977 QUESTIONNAIRE

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THE 1977 QUESTIONNAIRE

TO ALL SWORN PERSONNEL
JACKSON POLICE DEPARTMENT

You are being requested to complete the accompanying questionnaire in order to furnish information for the following purposes:

1. To discover and measure the various sources of stress on sworn personnel of the department.

2. To isolate factors associated with stressful conditions so that remedial actions may be devised in order to eliminate or reduce such conditions wherever possible.

3. To yield data for use in criminal justice research into the effects of job stress on the police officer.

With the above purposes in mind I have met with a number of you over the past several months and have listened to your expressions of your feelings and opinions about your jobs. The questionnaire is designed to allow you to express these feelings frankly and freely in a form which will permit them to be quantified and combined with data from other police departments.

I give you my assurance that, as in the case of interview data, all individual information will be held in strict confidence and used for report findings only when grouped with like data from other questionnaires.

Syd White

1. How long have you worked for this department? _____years ___months

2. Have you ever worked in another police dept.? ___No ___ Yes

   a. If yes, for how long? ____years ____months

3. What is your present rank?

   _____ Patrol officer _____ Captain

   _____ Sergeant _____ Detective

   _____ Lieutenant _____ Other (Name rank) _____

   a. How long have you served in each of the following ranks in your present department?

	Years	Months		Years	Months
Patrol officer	_____	_____	Other (Name rank)	_____	_____
Sergeant	_____	_____	_____	_____	_____
Lieutenant	_____	_____	_____	_____	_____
Captain	_____	_____	_____	_____	_____
Detective	_____	_____	_____	_____	_____

4. In an average week, how many hours do you normally work on the following types of assignments?

   In a marked police car _____ Hours

   In an unmarked police care _____ Hours

   In a police station or office _____ Hours

   Other (describe assignment)

   _____ _____ Hours

   _____ _____ Hours

   a. In an average week, how many hours do you usually work:

      Alone _____ Hours With more than one other person ____ Hours

      With one other person _____ Hours

5. Does your work call for you to supervise other persons?

   _____No _____Yes If yes, how many persons? _____Persons

6. In your job, what percentage of the time do you get weekends off?

   ___ Less than 25%; ___25-50%; ___ 50-75%; ___75-100%.

7. In your job, do you usually:

   ___ Work the same hours each day. If so, what are those hours?

   _____ a.m. p.m. to _____ a.m. p.m.

___ Work on a changing shift basis. If so, what are the shifts?

Shift I ___ a.m. p.m. to ___ a.m. p.m. Shift II ___ a.m. p.m. to ___ a.m. p.m.

Shift III ___ a.m. p.m. to ___ a.m. p.m.

8. During the past month, about how many hours of overtime did you average per week? ____ Overtime hours per week

   a. How many hours of overtime would you <u>like</u> to work per week?
      ____ Overtime hours <u>desired</u> per week

9. In addition to your job with the police department do you now:

   a. Attend school or university? ____No ____Yes
      If yes, how many hours per week? _____Hours per week

   b. Hold an off-duty job (including self-imployment)?
      If yes, how many hours per week? _____Hours per week

10. How tense or relaxed do you feel in handling the following situations? Answer using the following code:
    1 = Very Tense 2 = Tense 3 = Relaxed 4 = Very Relaxed

___ Family quarrel
___ Person with gun
___ Auto accident
___ Prowler
___ Shooting
___ Routine Patrol
___ Car check
___ Building check
___ Possible homicide
___ Child beating
___ Robbery in progress
___ Burgler alarm
___ Fight in a bar
___ Burglary in progress
___ Animal complaint
___ Routine department paperwork
___ Another officer needs assistance
___ Call of unknown nature
___ High speed auto chase
___ Mentally disturbed person
___ Staying alert to police radio

11. In the next set of questions, <u>assume you have the job you would most like to have</u>. Answer using the following code:

    1 = Not often; 2 = Fairly often; 3 = Very often

    How often would you like to:

___ Have a chance to develop new talents
___ Remain seated

___ Experience a sharp increase in work load

___ Have the opportunity to be creative

___ Be certain about what your job responsibilities were

___ Do different things each day

___ Work in the same location

___ Know how well you did at the end of each day

___ Be certain about what others expect of you on the job

___ Repeat the same activities over and over

___ See the results of your work

12. For the following questions, use this code:

1 = Very little 2 = Little 3 = A moderate amount
4 = Much 5 = Very much

If you could have the job you would most like to have, how much:

___ Would you like to decide with others what part of a task you will do

___ Responsibility would you like to have for the morale of other officers

___ Time would you like to have to do all your work

___ Time would you like to have to plan and schedule your work

___ Time would you like to have to contemplate and consider the results of your work

___ Would you like to participate with others in making decisions that affect you

___ Free time between heavy work load periods would you like to have

___ Would you like to participate with others in determining the way things are done on your job

___ Freedom would you like to have in setting your own work hours and days off

13. How satisfied or dissatisfied are you with the following elements of your job as a police officer? Using the following code:

1 = Very dissatisfied; 2 = Dissatisfied; 3 = Satisfied;
4 = Very satisfied

___Job security

___Fellow officers

___Promotion system

___Academy training

___Overtime pay

___ System of arranging work schedules

___ Personal appearance code

___ Method of determining days-off

___ Performance evaluation system

___ Disciplinary system

___ Excitement
___ Salary
___ Equipment maintenance
___ Top administration
___ Immediate supervisor
___ Middle management
___ Method of determining assignments
___ Freedom to make decisions
___ Recognition from supervisors
___ In-service training
___ Amount of overtime

14. Below are some questions about the future of your job as a police officer. Use the following code:

1 = Very uncertain
2 = Moderately uncertain
3 = Moderately certain
4 = Very certain

How certain are you about:

___ What your future career picture looks like

___ The opportunities for advancement which will occur in the next few years

___ Whether your job skills will be of use five years from now

___ What your responsibilities will be six months from now

15. Please read the pairs of descriptions below. Then describe your present job and the job you would most like to have.

JOB A	JOB B
In this job, you are required to work on many different tasks which are all in difference stages of completion. Some things are just being started while others are halfway finished, and others may be finished by someone else.	In this job, you are required to work on one job at a time. When that task is completed, you start work on another. Two or more tasks are never worked on at the same time. You always finish one task before starting another.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB A
2 = Somewhat like JOB A
3 = Very little like JOB A
4 = Very little like JOB B
5 = Somewhat like JOB B
6 = Very much like JOB B

Your present job is _____

The job you would most like to have would be _____

16.

JOB C	JOB D
In this job, you have changes in work load. Every once in a while you have to work to your absolute maximum. When that happens, you have to concentrate very hard, work very fast and as carefully as you can.	In this job, you go along evenly from hour to hour and from day to day. The pace of the work stays about the same. You rarely if ever have to change pace and work faster and harder.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB C	4 = Very little like JOB D
2 = Somewhat like JOB C	5 = Somewhat like JOB D
3 = Very little like JOB C	6 = Very much like JOB D

Your present job is _____

The job you would most like to have would be _____

17.

JOB E	JOB F
In this job you work is defined and described in almost every detail. Nothing is left to chance. There is a procedure for every type of task.	In this job you have some idea of the purpose of the job, but no exact instructions are given on how to do the work. There is often no set procedure.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB E	4 = Very little like JOB F
2 = Somewhat like JOB E	5 = Somewhat like JOB F
3 = Very little like JOB E	6 = Very much like JOB F

Your present job is _____

The job you would most like to have would be _____

18.

JOB G	JOB H
In this job things change almost every day. Each task is rarely the same as the previous one. You are likely to use different procedures from task to task.	In this job you work on the same tasks every day. You use the same procedures or equipment all of the time. Each task is like the one you just finished.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB G	4 = Very little like JOB H
2 = Somewhat like JOB G	5 = Somewhat like JOB H
3 = Very little like JOB G	6 = Very much like JOB H

Your present job is _____

The job you would most like to have would be _____

19. Now think about your present job. Use the following code to describe your job:

1 = not often 2 = fairly often 3 = very often

How often do you feel that you:

___ Are certain about what others expect of you on the job

___ Are certain about what your job responsibilities are

___ Are able to fully employ your skills and knowledge

___ Are given a chance to do the things you do best

___ Get conflicting orders from superiors

___ See the results of your work

___ Have feelings of pressure from having to please too many bosses

___ Experience a sharp increase in work load

___ Have a marked increase in how fast you have to think

___ Lack enough authority to carry out the responsibilities assigned to you

___ Know what opportunities for advancement exist for you

___ Have too heavy a work load

___ Cannot satisfy conflicting demands of various people over you

___ Are fully qualified to handle your job

___ Don't know how your supervisor evaluates your performance

___ Have the information necessary to do your job

___ Can influence decisions of your supervisor which affect you

___ Have so much work you can't do as good a job as you would like

___ Have to do things on the job that are against your better judgment

___ Repeat the same activities over and over

___ Have a chance to develop new talents

___ Have the opportunity to be creative

___ Do different things each day

___ Know how well you did at the end of the day

20. On the next items, use this code:

1 = Very little 2 = Little 3 = A moderate amount
4 = Much 5 = Very much

In your job as police officer, how much:

___ Responsibility do you have for the morale of other officers

___ Do you participate with others in determining the way things are done on your job

___ Freedom do you have in setting your own work hours and days off

___ Time do you have to do all your work

___ Do you decide with others what part of a task you will do

___ Free time do you have between heavy work load periods

___ Do you participate with others in making decisions that affect you

___ Time do you have to contemplate and consider results of your work

21. Please think now about the type of work you do. Use this code:

1 = Very unlikely; 2 = Unlikely; 3 = Likely; 4 = Very likely

___ Knowing what you know now, how likely is it that you would <u>again</u> take a job as a police officer?

___ If a friend of yours expressed an interest in becoming a police officer, how likely is it that you would advise <u>against</u> it?

22. In answering each of the following questions, use this code:

1 = Much less than I ought to get
2 = Somewhat less than I ought to get
3 = Somewhat more than I ought to get
4 = Much more than I ought to get

___ Compared to other people where you work who do a job <u>similar</u> to yours, how fair is your pay?

___ Compared to other people where you work who do a job <u>different</u> from yours, how fair is your pay?

___ Compared to other people <u>who do not work where you work</u>, but who have skills similar to yours, how fair is your pay?

23. Below are some phrases which indicate how you might see yourself in your work. For example, if you think that you are very 'successful' in your work, put a circle around the number right next to the word 'successful'. If you think you are not at all successful in your work, circle the number next to the words 'not successful.' If you think you are somewhere inbetween, <u>circle the appropriate number</u>.

Successful	1	2	3	4	5	6	7	Not successful
Dissatisfied at work	1	2	3	4	5	6	7	Satisfied at work
Unimportant at work	1	2	3	4	5	6	7	Important at work
Doing my best	1	2	3	4	5	6	7	Not doing my best

24. The following questions concern your relationships with other people. Use this code:

1 = Not often 2 = Fairly often 3 = Very often

a. How often do the following people go out of their way to make your job easier for you?

___ Your immediate supervisor

___ Your spouse, or if not married, your closest friend of opposite sex

___ Other people at work

___ Other relatives

25. Please indicate the extent to which you agree or disagree with the following statements. Use this code:

1 = Strongly disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree

___ My work is interesting to do

___ I often have to 'bend' department policies and procedures in order to get my job done

___ My supervisor is not overcritical or a 'nitpicker.'

___ There's pretty good sharing of information among the officers on all shifts

___ I like the amount of work I'm expected to do

___ To be married to a police officer is often difficult

___ I feel bored with the work I have to do

___ I often get a chance to discuss common problems with the officers on my shift

___ Department policies are too strict to let me do my job properly

___ I am satisfied with the pace of my work

___ My supervisor backs me up when I'm right

___ My children and I don't get along very well

___ The work on my job is dull

___ The department's promotion policies are basically fair

___ I am happy about my current work load

___ Some of the best qualified people can't get promoted under the current system

___ Many of the department's regulations are unrealistic

___ Families of police officers are expected by the community to behave better than other families

___ Overall, my job has a negative effect on my home life

___ This department is a good one to work for

___ I don't receive enough praise for the work I do

___ My department is too much like a military organization

___ Nobody seems to notice when I do my job well

___ My supervisor tends to 'go by the book' too much

___ My job requires me to do too much paperwork

___ I feel I am getting ahead in the department

___ Most sergeants are well trained and competent

___ My department does a poor job in maintaining communications equipment

___ There is too much punishment and too little reward around this department

___ The public is generally eager to cooperate with the police

___ Police vehicles are kept in good mechanical condition

___ There isn't enough time to learn all the rules and still get your job done

___ The relationship between citizens and police in this city is a good one

___ Many citizens believe that police officers are people who like power and tend to abuse it

___ I sometimes try to get even, rather than forgive and forget

___ There have been occasions when I felt like smashing things

___ Everybody has ample opportunity for input into department policies

___ In comparison to most people I know, I'm very involved in my work

___ The way internal investigations are handled makes me anxious

___ I have to spend too many hours in court

___ The courts are often too lenient with accused offenders

___ Court cases are usually scheduled at convenient times for me

___ I don't get enough compensation for my court appearances

___ My supervisor really pays attention to complaints and suggestions

___ I resent the penalties for violation of petty rules and regulations

___ A good manager always has to consider the feelings of his people if he expects to get top performance from them

___ Most of the command staff are fair and understanding

___ I never hesitate to go out of my way to help someone in trouble

___ I seldom feel tense or anxious talking to my supervisor

___ Sergeants should be given more responsibility by their superiors

___ The military model is out of date for police departments

___ I am always courteous, even to people who are disagreeable

___ My immediate supervisor keeps me well informed

___ My immediate supervisor is willing to listen to suggestions

___ I don't feel there is enough communication between the officers on different shifts

___ Sometimes I don't think command staff know or even care what the officers think about a new procedure

___ My immediate supervisor will back me up when I need it

___ Too many changes are made without consulting the men who have to carry them out

___ I don't feel totally comfortable talking to my immediate supervisor

___ New policies are communicated clearly to all members of the department

___ No matter who is talking to me, I am always a good listener

26. In the past year, have you had any vehicle accidents <u>while on police duty</u>? ____ 1. No ____ 2. Yes

If yes, a. How many accidents have you had on duty? _____

b. In how many accidents were you found to be at fault by the department? _____

c. How many accidents involved emergency situations or high speed chases? _____

d. In how many accidents was disciplinary action taken against you? _____

27. In the past year, have you had any vehicle accidents <u>while off-duty</u>? ____ 1. No ____ 2. Yes

If yes, a. How many accidents have you had off-duty? _____

b. In how many accidents were you found to be legally at fault? _____

28. The following questions concern your appearances in court as a police officer.

a. On the average, how many regular duty hours <u>per week</u> do you spend in court? ____ Hours <u>per week</u>

b. On the average, how many yours <u>per week</u> do you spend in court during which you are not normally on duty? ____ Hours <u>per week</u>

29. How much effect do your <u>work hours</u> have on each of the following aspects of your life? <u>Use this code</u>:

1 = Very little; 2 = Little; 3 = Much; 4 = Very much

___Family life
___Eating habits
___Sleep
___Sex life
___Digestion
___Holidays
___Social life
___Recreation
___Friendships with other police officers
___Friendships with persons who are not police officers
___Ability to perform personal errands
___Ability to deal with household chores
___Ability to hold a second job
___Ability to go to school
___Ability to stay alert
___General energy level

30. How much effect do the days of the week that you normally work have on each of the following aspects of your life: Use this code:

1 = Very little; 2 = Little; 3 = Much; 4 = Very much

___ Family life
___ Eating habits
___ Sleep
___ Sex life
___ Digestion
___ Holidays
___ Social life
___ Recreation
___ Friendships with other police officers
___ Friendships with persons who are not police officers
___ Ability to perform personal errands
___ Ability to deal with household chores
___ Ability to hold a second job
___ Ability to go to school
___ Ability to stay alert
___ General energy level

31. How good a job does the union or association which represents you do in the following areas? Use this code?

1 = Very poor job; 2 = Poor job; 3 = Good job; 4 = Very good job

___ Getting better benefits for members
___ Improving relations between members and the departments
___ Making members' jobs more satisfying and interesting
___ Improving members' working conditions
___ Representing the interests of its members

32. Are you a member of a police union or association?

___ 1. No ___ 2. Yes

33. The following questions concern your health.

a. In an average week, how many hours do you spend in physical conditioning (jogging, weight-lifting, exercises, etc.)?

____ Hours per week

33. b. In an average week, how many hours do you spend actively engaged in sports activities (playing softball, golf, bowling, etc.)? _____Hours per week

34. How often have you experienced each of the following during the past month while on duty? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Fainting or blacking out
___ Spells of dizziness
___ Headaches
___ Being tense
___ Nausea
___ Backaches
___ Being nervous or shaky inside
___ Hands trembling enough to bother you
___ Stomachaches
___ Being bothered by your heart beating faster than usual
___ Shortness of breath when you were not working hard or exercising

35. In addition, have you experienced any of the following while off duty during the past month? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Nightmares
___ Headaches
___ Being tense
___ Nausea
___ Spells of dizziness
___ Stomachaches
___ Backaches
___ Fainting or blacking out
___ Trouble falling asleep or staying asleep
___ Being nervous or shaky inside
___ Hands trembling enough to bother you
___ Being bothered by your heart beating faster than usual
___ Shortness of breath when you were not working hard or exercising

36. How much of the time do you have the following feelings while you are at work? Use this code:

0 = Never; 1 = A little of the time; 2 = Most of the time; 3 = All of the time

___ Irritated or annoyed
___ Nervous
___ Sad
___ Jittery
___ Calm
___ Unhappy
___ Good
___ Depressed
___ Angry
___ Cheerful

37. Below is a list of illnesses you may or may not have had. For every illness you have had in the past six months, please check in the space provided.

___ Heart disease or any heart trouble
___ Hypertension or high blood pressure
___ Trouble in the urinary tract
___ Trouble in the gastro-intestinal tract
___ Migraine (or severe headaches)
___ Mental illness or nervous breakdown
___ Arthritis or rheumatism (trouble with joints)
___ Asthma
___ Bronchitis
___ Repeated skin trouble
___ Diabetes (sugar)
___ Ulcers (stomach)
___ A cold or the flu
___ A stroke
___ Kidney trouble
___ Other (PLEASE SPECIFY) _____

_____

38. Think now about your health in general.

a. During the past six months would you say your health has been:

(CHECK ONE)
___ 1) Very bad
___ 2) Bad
___ 3) Good
___ 4) Very good

b. How does your health now compare with your health when you became a police officer?

(CHECK ONE)
___ 1) Much worse
___ 2) Worse
___ 3) The same
___ 4) Better
___ 5) Much better

39. During the past month how often have you used each of the following? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Antacids
___ Tranquilizers
___ Laxatives
___ Aspirin or headache medicine
___ Medication to give you pep
___ Cough or cold medicine
___ Sleeping pills
___ Other medicines

40. On an average day, how many of each of the following do you usually drink?

a. Bottles of beer ___ bottles
c. Shots of liquor ___ shots
b. Glasses of wine ___ glasses
d. Cups of coffee ___ cups

41. On an average day, how many of each of the following do you smoke?

a. Cigarettes ___ cigarettes
c. Pipefuls of tobacco
b. Cigars ___ cigars
___ pipefuls

42. Of the five people in the department you work with most often, how many have serious problems with the following:

(IN THE SPACE NEXT TO EACH PROBLEM, PLEASE WRITE IN A NUMBER FROM 0 TO 5 TO INDICATE HOW MANY OF THESE PEOPLE HAVE A SERIOUS PROBLEM)

___ Alcohol ___ Children ___ Finances ___ Neighbors
___ Marriage ___ Health ___ Drugs

43. How many officers in this department have you known who have attempted or successfully committed suicide? ___ Officers

44. How many officers in this department have you known who have had one or more heart attacks? ___ Officers

The last set of questions in included to provide further information about the backgrounds of police officers.

45. What is your age? _____ Years

46. What is your sex? (CHECK ONE) ___ 1) Male ___ 2) Female

47. What is your ethnic background? (CHECK ONE)

___ 1) White ___ 2) Black ___ 3) Chicano ___ 4) Other
SPECIFY _____

48. What is your weight? _____ Pounds

49. Do you consider yourself to be: (CHECK ONE)

___ 1) Very underweight
___ 4) Overweight
___ 2) Underweight
___ 5) Very overweight
___ 3) About the right weight

50. What is your height? _____ Feet _____ Inches

51. When you joined the department, what was your marital status?

(CHECK ONE)

___ 1) Never married
___ 2) Married, never divorced or widowed
___ 3) Remarried after divorce
___ 4) Remarried after being widowed
___ 5) Separated
___ 6) Divorced
___ 7) Widowed

52. Has your marital status changed since joining the department?

(CHECK ONE)

___ 1) No change
___ 2) Married for the first time
___ 3) Married after a divorce
___ 4) Married after being widowed
___ 5) Separated (but not divorced)
___ 6) Been divorced
___ 7) Been widowed

53. If you have ever been divorced, are you now paying:

1. Alimony
   ___ 1. No
   ___ 2. Yes
2. Child support
   ___ 1. No
   ___ 2. Yes

54. If you are now married, does your spouse currently hold a job?

(CHECK ONE) ___ 1) No ___ 2) Yes, part time ___ 3) Yes, full time

If yes, how important is your spouse's income for the maintenance of your household? (CHECK ONE)

___ 1) Very unimportant
___ 2) Unimportant
___ 3) Important
___ 4) Very important

55. Before you joined the department, what was the highest level of formal education you had completed? That is, when you became a police officer, was your education: (CHECK ONE)

___ (01) Some high school, but not a graduate
___ (02) Graduate from high school
___ (03) Some college courses, but did not graduate
___ (04) Graduate from college
___ (05) Some graduate courses in college
___ (06) Graduate degree
___ (07) Other (SPECIFY)

_____

56. Since joining the department, how much additional formal education have you had? That is, after you became a police officer, have you: (CHECK ONE)

___ (01) Had no additional formal education

___ (02) Graduated from high school

___ (03) Taken some college courses, but have not graduated

___ (04) Graduated from college

___ (05) Taken some graduate college courses, but have not received a graduate degree

___ (06) Obtained a graduate degree

___ (07) Other (SPECIFY) _____

57. How important do you think your department considers it that an officer go to school in order to be promoted? (CHECK ONE)

___ 1) Very unimportant

___ 2) Unimportant

___ 3) Important

___ 4) Very important

58. How many children do you now support? ____ Children

59. Other than your spouse and children, how many people depend upon you as their primary source of support? ____ Persons

This completes the questionnaire. Thank you for your cooperation. If you have any comments about the questionnaire or related subjects, please note them in the space below.

APPENDIX B

DEFINITIONS OF STRESS AND STRAIN VARIABLES AND CONTENT OF RELATED QUESTIONNAIRE ITEMS

APPENDIX B

DEFINITIONS OF STRESS AND STRAIN VARIABLES

AND CONTENT OF RELATED QUESTIONNAIRE ITEMS

STRESS VARIABLES

Work Load

Definition: Perception by the person of the amount of work he is given to do.

Introduction: Now think about your present job. Use the following code to describe your job:

1 = not often 2 = fairly often 3 = very often[1]

How often do you feel that you:

19:12 Have too heavy a work load?

19:18 Have so much work you can't do as good a job as you would like?

Introduction: On the next items use this code:

1 = very little
2 = little
3 = a moderate amount
4 = much
5 = very much

In your job as a police officer, how much:

20:4[2] Time do you have to do all your work?

20:6 Free time do you have between heavy work load periods?

20:8 Time do you have to contemplate and consider results of your work?

---

[1]Scoring converted to 1, 3 and 5 on a five-point scale.

[2]The underlined items were reverse scored.

Role Conflict

Definition: Perception by the person of conflicting demands from supervisors or others, or arising from the nature of the person's responsibilities.

Introduction: Now think about your present job. Use the following code to describe your job:

1 = not often 2 = fairly often 3 = very often

How often do you feel that you:

19:5 Get conflicting orders from superiors?

19:7 Have feelings of pressure from having to please too many bosses?

19:10 Lack enough authority to carry out the responsibilities assigned to you?

19:13 Cannot satisfy conflicting demands of various people over you?

19:19 Have to do things on the job that are against your better judgment?

Role Ambiguity

Definition: Perception by the person of uncertainty about the requirements or outcome of his work.

Introduction: Now think about your present job. Use the following code to describe your job:

1 = not often 2 = fairly often 3 = very often

How often do you feel that you?

19:1[1] Are certain about what others expect of you on the job?

19:2 Are certain about what your job responsibilities are?

19:6 See the results of your work?

19:15 Don't know how your supervisor evaluates your performance?

---

[1]The underlined items were reverse scored.

19:16[1] Have the information necessary to do your job?

19:24 Know how well you did at the end of the day?

Job Future Ambiguity

Definition: Perception by the person of uncertainty about his future career or job security.

Introduction: Below are some questions about the future of your job as a police officer. Use the following code:

1 = very uncertain
2 = moderately uncertain
3 = moderately certain
4 = very certain

How certain are you about:

14:1 What your future career picture looks like?

14:2 The opportunities for advancement which will occur in the next few years?

14:3 Whether your job skills will be of use five years from now?

14:4 What your responsibilities will be six months from now?

Pay Inequity

Definition: Perception by the person of the fairness of his pay compared to the pay of significant others.

Introduction: In answering each of the following questions, use this code:

1 = much less than I ought to get
2 = Somewhat less than I ought to get
3 = Somewhat more than I ought to get
4 = Much more than I ought to get

22:1 Compared to other people where you work who do a job similar to yours, how fair is your pay?

22:2 Compared to other people where you work who do a job different from yours, how fair is your pay?

22:3 Compared to other people who do not work where you work, but who have skills similar to yours, how fair is your pay?

[1]The underlined items were reverse scored.

Participation

Definition: Perception by the person of the influence he has on shared decisions which affect him, and his opportunity to contribute to the decision-making process.

Introduction: On the next items use this code:

1 = very little
2 = little
3 = a moderate amount
4 = much
5 = very much

In your job as police officer, how much,

20:2 Do you participate with others in determining the way things are done on your job?

20:5 Do you decide with others what parts of a task you will do?

20:7 Do you participate with others in making decisions that affect you?

Social Support

Definition: Perception by the person of the help obtained by him from his immediate supervisor and others which makes his job easier for him.

Introduction: The following questions concern your relationship with other people. Use this code:

1 = not often 2 = fairly often 3 = very often

How often do the following people go out of their way to make your job easier for you?

24 Your immediate supervisor
Your spouse, or if not married, your closest friend of the opposite sex
Other people at work
Other relatives

STRAIN VARIABLES

Tension

Definition: Perception by the person of mental or emotional strain while performing his work.

Introduction: How tense or relaxed do you feel in handling the following situations. Answer using the following code: 1 = very tense 2 = tense 3 = relaxed 4 = very relaxed

10[1]	Family quarrel	Robbery in progress
	Person with gun	Burglar alarm
	Auto accident	Fight in a bar
	Prowler	Burglary in progress
	Shooting	Animal complaint
	Route Patrol	Routine department paperwork
	Car check	Another officer needs assistance
	Building check	Call of unknown nature
	Possible homicide	High speed auto chase
	Child beating	Mentally disturbed person
		Staying alert to police radio

Job Dissatisfaction

Definition: Perception by the person of feelings of satisfaction or dissatisfaction with his job.

Introduction: How satisfied or dissatisfied are you with the following elements of your job as a police officer? Use the following code:

1 = very dissatisfied 2 = dissatisfied
3 = satisfied 4 = very satisfied

13	Job security	System of arranging work schedules
	Fellow officers	Personal appearance code
	Promotion system	Method of determining days-off
	Academy training	Performance evaluation system
	Overtime pay	Disciplinary system
	Excitement	Middle management
	Salary	Method of determining assignments
	Equipment maintenance	Freedom to make decision
	Top administration	Recognition from supervisors
	Immediate supervisor	Amount of overtime
	in-service training	

Somatic Complaints

Definition: Perceptions by the person of symptoms of physical and/or behavioral disorders caused or influence by the emotional state of the person.

---

[1]The underlined items are reverse scored.

Introduction: How often have you experienced each of the following during the past month while on duty? Use this code:

0 = never 1 = once 2 = two or more times

34

Fainting or blacking out	Being nervous or shaky inside
Spells of dizziness	Hands trembling enough to bother you
Headaches	Stomachaches
Being tense	Being bothered by your heart beating faster than usual
Nausea	Shortness of breath when you were not working hard or exercising
Backaches	

Introduction: In addition, have you experienced any of the following while off duty during the past month? Use this code:

0 = never 1 = once 2 = two or more times

35

Nightmares	Trouble falling asleep or staying asleep
Headaches	Being nervous or shaky inside
Being tense	Hands trembling enough to bother you
Nausea	Being bothered by your heart beating faster than usual
Spells of dizziness	Shortness of breath when you were not working hard or exercising
Stomachaches	
Backaches	
Fainting or blacking out	

APPENDIX C

THE 1978 QUESTIONNAIRE

APPENDIX C

THE 1978 QUESTIONNAIRE

M E M O R A N D U M

TO: All Sworn Personnel/Jackson Police Department

FROM: Syd White

SUBJECT: Questionnaire

DATE: June 19, 1978

You will be requested to complete another questionnaire as a follow-up to the one which you completed during 1977. You will recall that the purposes of the research at that time were to discover sources of job stress, to isolate stress factors in order to eliminate or reduce them, and to obtain data for further research into the effects of stress on police personnel.

This follow-up is primarily for the purpose of studying your adaptation to your work schedule. The information will be used in conjunction with that obtained last year to identify advantages and disadvantages of each shift in relation to individual characteristics.

As you were assured last year, your replies will be kept in confidence; no one in the department will ever know how you answer any of the questions. Responses will be summarized and published in a final report, but your individual responses will not be disclosed.

Syd White

Syd White

SW:mj

FOLLOW-UP QUESTIONNAIRE

POLICE JOB STRESS

The main object of this follow-up questionnaire is to find out the effects of work schedule changes on various aspects of your job, life style, and health. Try to think about the whole year when you answer and to see both the good things and the bad. This will bring out both advantages and disadvantages of different shift arrangements and, hopefully, will lead to establishing work schedules that minimize stress caused by shift work on police personnel and their families.

3. What is your present rank?

___ Patrol officer ___ Captain

___ Sergeant ___ Detective

___ Lieutenant ___ Other (Name rank) _____

4. In an average week, how many hours do you normally work on the following types of assignments?

In a marked police car ____ Hours

In an unmarked police car ____ Hours

In a police station or office ____ Hours

Other (Describe assignment)

_____ ____ Hours

_____ ____ Hours

7. In your job, do you usually:

___ Work the same hours each day. If so, what are those hours?

___ a.m. / p.m. to ___ a.m. / p.m.

___ Work on a changing shift basis. If so, what are the shifts?

Shift I ___ a.m. / p.m. to ___ a.m. / p.m. SHIFT II ___ a.m. / p.m. to ___ a.m. / p.m.

Shift III ___ a.m. / p.m. to ___ a.m. / p.m.

10. How tense or relaxed do you feel in handling the following situations? Answer using the following code:

1 = Very tense; 2 = Tense; 3 = Relaxed; 4 = Very relaxed

___ Family quarrel
___ Person with gun
___ Auto accident
___ Prowler
___ Shooting
___ Routine patrol
___ Car check
___ Building check
___ Possible homicide
___ Child beating
___ Robbery in progress
___ Burgler alarm
___ Fight in a bar
___ Burglary in progress
___ Animal complaint
___ Routine department paperwork
___ Another officer needs assistance
___ Call of unknown nature
___ High speed auto chase
___ Mentally disturbed person
___ Staying alert to police radio

13. How satisfied or dissatisfied are you with the following elements of your job as a police officer? Use the following code:

1 = Very dissatisfied
2 = Dissatisfied
3 = Satisfied
4 = Very satisfied

___ Job security
___ Fellow officers
___ Promotion system
___ Academy training
___ Overtime pay
___ Excitement
___ Salary
___ Equipment maintenance
___ Top administration
___ Immediate supervisor
___ System of arranging work schedules
___ Personal appearance code
___ Method of determining days off
___ Performance evaluation system
___ Disciplinary system
___ Middle management
___ Method of determining assignments
___ Freedom to make decisions
___ Recognition from supervisors
___ In-service training
___ Amount of overtime

14. Below are some questions about the future of your job as a police officer. Use the following code:

1 = Very uncertain
2 = Moderately uncertain
3 = Moderately certain
4 = Very certain

How certain are you about:

___ What your future career picture looks like

___ The opportunities for advancement which will occur in the next few years

___ Whether your job skills will be of use five years from now

___ What your responsibilities will be six months from now

19. Now think about your present job. Use the following code to describe your job:

1 = Not often 2 = Fairly often 3 = Very often

How often do you feel that you:

___ Are certain about what others expect of you on the job

___ Are certain about what your job responsibilities are

___ Are able to fully employ your skills and knowledge

___ Are given a chance to do the things you do best

___ Get conflicting orders from superiors

___ See the results of your work

___ Have feelings of pressure from having to please too many bosses

___ Experience a sharp increase in work load

___ Have a marked increase in how fast you have to think

___ Lack enough authority to carry out the responsibilities assigned to you

___ Know what opportunities for advancement exist for you

___ Have too heavy a work load

___ Cannot satisfy conflicting demands of various people over you

___ Are fully qualified to handle your job

___ Don't know how your supervisor evaluates your performance

___ Have the information necessary to do your job

___ Can influence decisions of your supervisor which affect you

___ Have so much work you can't do as good a job as you would like

___ Have to do things on the job that are against your better judgment

___ Repeat the same activities over and over

___ Have a chance to develop new talents

___ Have the opportunity to be creative

___ Do different things each day

___ Know how well you did at the end of the day

20. On the next items, use this code:

1 = Very little 2 = Little 3 = A moderate amount

4 = Much 5 = Very much

In your job as police officer, how much:

___ Responsibility do you have for the morale of other officers

___ Do you participate with others in determining the way things are done on your job

___ Freedom do you have in setting your own work hours and days off

___ Time do you have to do all your work

___ Do you decide with others what part of a task you will do

___ Free time do you have between heavy work load periods

___ Do you participate with others in making decisions that affect you

___ Time do you have to contemplate and consider results of your work

22. In answering each of the following questions, use this code:

1 = Much less than I ought to get

2 = Somewhat less than I ought to get

3 = Somewhat more than I ought to get

4 = Much more than I ought to get

___ Compared to other people where you work who do a job <u>similar</u> to yours, how fair is your pay?

___ Compared to other people where you work who do a job <u>different</u> from yours, how fair is your pay?

___ Compared to other people <u>who do not work where you work</u>, but who have skills similar to yours, how fair is your pay?

24. The following questions concern your relationships with other people. Use this code:

1 = Not often 2 = Fairly often 3 = Very often

How often do the following people go out of their way to make your job easier for you?

___ Your immediate supervisor

___ Your spouse, or if not married, your closest friend of opposite sex

___ Other people at work

___ Other relatives

29. How much effect do your work hours have on each of the following aspects of your life? Use this code:

1 = Very little; 2 = Little; 3 = Much; 4 = Very much

___ Family life
___ Eating habits
___ Sleep
___ Sex life
___ Digestion
___ Holidays
___ Social life
___ Recreation
___ Friendships with other police officers
___ Friendships with persons who are not police officers
___ Ability to perform personal errands
___ Ability to deal with household chores
___ Ability to hold a second job
___ Ability to go to school
___ Ability to stay alert
___ General energy level

30. How much effect do the days of the week that you normally work have on each of the following aspects of your life? Use this code:

1 = Very little; 2 = Little; 3 = Much; 4 = Very much

___ Family life
___ Eating habits
___ Sleep
___ Sex life
___ Digestion
___ Holidays
___ Social life
___ Recreation
___ Friendships with other police officers
___ Friendships with persons who are not police officers
___ Ability to perform personal errands
___ Ability to deal with household chores
___ Ability to go to school
___ Ability to stay alert
___ Ability to hold a second job
___ General energy level

34. How often have you experienced each of the following during the past month while on duty? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Fainting or blacking out
___ Spells of dizziness
___ Headaches
___ Being tense
___ Nausea
___ Backaches
___ Being nervous or shaky inside
___ Hands trembling enough to bother you
___ Stomachaches
___ Being bothered by your heart beating faster than usual
___ Shortness of breath when you were not working hard or exercising

35. In addition, have you experienced any of the following while off duty during the past month? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Nightmares
___ Headaches
___ Being tense
___ Nausea
___ Spells of dizziness
___ Stomachaches
___ Backaches
___ Fainting or blacking out
___ Trouble falling asleep or staying asleep
___ Being nervous or shaky inside
___ Hands trembling enough to bother you
___ Being bothered by your heart beating faster than usual
___ Shortness of breath when you were not working hard or exercising

36. How much of the time do you have the following feelings while you are at work? Use this code:

0 = Never
1 = A little of the time
2 = Most of the time
3 = All of the time

I feel:

___ Irritated or annoyed
___ Nervous
___ Sad
___ Jittery
___ Calm
___ Unhappy
___ Good
___ Depressed
___ Angry
___ Cheerful

37. Below is a list of illnesses you may or may not have had. For every illness you have had in the past six months, please check in the space provided:

___ Heart disease or any heart trouble
___ Hypertension or high blood pressure
___ Trouble in the urinary tract
___ Trouble in the gastro-intestinal tract
___ Migraine (or severe headaches)
___ Mental illness or nervous breakdown
___ Arthritis or rheumatism (trouble with joints)
___ Asthma
___ Bronchitis
___ Repeated skin trouble
___ Diabetes (sugar)
___ Ulcers (stomach)
___ A cold or the flu

___ A stroke

___ Kidney trouble

___ Other (PLEASE SPECIFY _____

_____

38. Think now about your health in general. During the past six months would you say your health has been: (CHECK ONE)

___ 1) Very bad ___ 3) Good

___ 2) Bad ___ 4) Very good

39. During the past month how often have you used each of the following? Use this code:

0 = Never 1 = Once 2 = Two or more times

___ Antacids ___ Aspirin or headache medicine ___ Cough or cold medicine

___ Tranquilizers

___ Laxatives ___ Medication to give you pep ___ Sleeping pills

___ Other medicines

40. On an average day, how many of each of the following do you usually drink?

a. Bottles of beer ___ bottles c. Shots of liquor ___ shots

b. Glasses of wine ___ wine d. Cups of coffee ___ cups

41. On an average day, how many of each of the following do you smoke?

a. Cigarettes ___ cigarettes Pipefuls of tobacco

b. Cigars ___ cigars ___ pipefuls

60. Did you change from a rotating shift schedule to a fixed shift schedule during the last twelve months?

____ No ___Yes If Yes, was the fixed shift

Your first choice _____

Your second choice _____

Other (Please explain) _____

_____

61. In general, how do you feel about your work schedule?

(Circle the appropriate number)

1 = Very dissatisfied 2 = Satisfied

3 = Dissatisfied 4 = Very satisfied

62. In general, how does your family (or the people you live with) feel about your work schedule?

(Circle the appropriate number)

1 = Very dissatisfied
2 = Dissatisfied
3 = Satisfied
4 = Very satisfied

63. What do you like best about your work schedule?

64. What do you like least about your work schedule?

This completes the follow-up questionnaire. Thank you for your cooperation. When this research is completed, the results will be made available to all members of the Jackson Police Department.

APPENDIX D

THE JACKSON POLICE DEPARTMENT

APPENDIX D

THE JACKSON POLICE DEPARTMENT

General

The Jackson Police Department (JPD) is responsible for all policing in the city of Jackson, Michigan, a city of approximately 50,000 population in south-central Michigan. The department is an integral unit of the city government, reporting through the city manager to the mayor and council of the city.

As of July 1, 1977, the organization and strength of the JPD was as follows:

	Sworn Officers	Cadets	Other Personnel	Total
Office of the Chief	1		1	2
Staff Operations	1		15	16
Police Operations	1		1	2
Patrol Unit 1	15	2		17
Patrol Unit 2	18	2		20
Patrol Unit 3	16	2		18
Investigative Operations	15		1	16
Youth Service Bureau	7		1	8
Selective Enforcement Unit	4			4
Crime Scene Search Unit	1	1		2
Subpoena Officer	1			1
Transcription Room			2	2
Emergency Dispatch	1			1
	81	7	21	109

Operations

Patrol operations are conducted mainly by one-man auto patrols, supplemented by several motorcycle patrol units. The patrol group is supervised by a sergeant, who in turn reports to a lieutenant in charge of the shift at headquarters. Each individual patrol covers a separate section of the city, but back-up units are available when required to assist the officer answering the original call. Calls are recorded by the officer and may require to be written up on one or more forms which are turned in to the supervisor at the end of the shift.

Incidents which require further investigation are usually assigned to a detective in the investigative operations unit for follow-up and closure during the day shift. When cases are taken to court the patrol officer must be available to attend court and give evidence if required. Often this must be done on the officer's day off, and as it may involve sitting in court for hours waiting for evidence to be taken, this type of assignment is not popular with patrol officers.

Complaints involving juveniles are usually handled by the youth service bureau which operates on the day shift out of an office at headquarters. Members of this unit also visit schools and other institutions as part of their continuing effort to reduce and prevent juvenile offenses.

A selective enforcement unit of plain clothes officers works on special assignments which often have to be conducted with great secrecy and involve working irregular hours on continuous surveillance and other demanding duties.

Patrol activities are linked to headquarters by a radio communications system operated by a dispatcher who reports to the supervisor in charge of each shift at headquarters. An emergency dispatch unit linking the city police with township, county and state police is operated at a separate location in Jackson, staffed partly with JPD personnel.

Police cadets serving with JPD are hired under provisions of the Comprehensive Employment Training Act. They are rotated through a number of training assignments including assisting on patrol work. Many of them are hired as officers following completion of their training.

With the exception of the crime scene search unit and the subpoena officer, the remaining headquarters positions, including administrators, secretaries, clerk-typists, and parking checkers, are filled by civilian employees.

Shift Arrangements

During 1977, approximately half of the department's employees worked a fixed day shift (8:00 a.m. to 4:00 p.m., Monday through Friday). Police patrol and emergency dispatch operations were on a rotating shift, round the clock basis, including weekends and holidays. Each shift unit, including supervisors, was responsible for staffing one eight hour shift for four months at a stretch. The day shift ran from 8 a.m. to 4 p.m., the afternoon shift from 4 p.m. to 12 p.m., and the night shift from 12 p.m. to 8 a.m. Work schedules, including days off, holidays, and vacation time, were planned several weeks ahead and posted on a bulletin board. Usually each officer worked

for five days and then had two days off, but this pattern was often disturbed by holidays and unforeseen happenings such as court appearances, personal or sick leaves or rapidly changing operational needs.

At the end of a four month stint on a particular shift, each unit, including supervision, was rotated to a different time period in the day - afternoon - night shift sequence.

Before discontinuance of most rotating shift operations took place, each person on rotation was asked to elect first and second choices of fixed shift assignments and enter the choices on lists posted in the department. Most officers discussed the forthcoming changes with their supervisors before deciding. The lists then formed the basis for the shift schedules under the new system which became effective January 1, 1978. Approximately 75% of those transferring to fixed shifts were assigned to the first shift they had chosen, and all but one officer of the remainder were assigned to their second choices. As a rule, when officers could not all be given their first choices, seniority was used to decide which persons were given first preference. The only exceptions to this rule were made in order to ensure that sufficient experienced personnel were present on each shift. Nine officers and two supervisors were continued on rotation, mainly in order to give new officers experience on all shifts.