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THE MODERATING EFFECTS OF NEED FRUSTRATION ON THE RELATIONSHIP BETWEEN JOB CHARACTERISTICS AND STRESS

By

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ABSTRACT

THE MODERATING EFFECTS OF NEED FRUSTRATION
ON THE RELATIONSHIP BETWEEN JOB CHARACTERISTICS AND STRESS

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Research indicates that a number of perceived job characteristics exhibit fairly consistent correlations with self-reports of employee stress. Questions concerning the mechanisms underlying these relationships however, are still unanswered. In the present study it was hypothesized that job stress results largely from the frustration of growth and relatedness needs caused by low levels of job scope and social support, and high levels of role conflict, role ambiguity and resource inadequacy. The strength of growth and relatedness needs was thus hypothesized to moderate the relationships between these job characteristics and stress. Survey responses from 135 restaurant employees were analyzed using moderated multiple regression techniques to test the need frustration hypothesis of job stress. Significant job characteristics/stress correlations were obtained, however, the results failed to support the hypothesized moderating effects of need strength on these relationships. Measurement problems were discussed and alternative approaches to the study of job stress were suggested.

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INTRODUCTION

During the past few years, the phenomenon of job stress has commanded the attention of a growing number of social science researchers. Initially, interest in this area was sparked by health statistics showing differential illness and mortality rates across occupations. These findings suggested that there was a link between type of work and employee health. Subsequent research established links between: 1) certain job characteristics and emotional distress, 2) emotional distress and physiological stress, and 3) physiological stress and health. Taken together, this research suggests that job stress, or in other words, the work-related stress experienced by employees, is the critical intervening variable in the relationship between work and health.

Research in the area of job stress has been primarily concerned with identifying the antecedents of stress in the work environment. The majority of studies are designed to test hypothesized relationships between the perceived levels of certain job characteristics and self-reports of various psychological stress symptoms (e.g. tension, anxiety, fatigue, depression, etc.). Investigations of this sort have enabled researchers to identify a number of job characteristics which exhibit fairly consistent correlations with stress. These characteristics include role definition problems, such as role ambiguity and role conflict, and characteristics reflecting a lack of scope in the job, such as low levels of influence, autonomy and skill variety. In addition, there

is more limited evidence that lack of social support and resource inadequacy may be associated with stress. For all of these job characteristics, however, the observed correlations with stress are typically quite low, ranging generally from the high teens to the low .30's.

The fact that job characteristics alone account for only a small proportion of the variance in stress comes as no surprise. Psychologists interested in the study of stress have long acknowledged that stress results not simply from the presence of some external condition or demand, but rather from an interaction between characteristics of the individual and characteristics of the environment. The current problem in stress research is to explain the precise nature of this interaction. Further research is needed to identify both the psychological processes involved in the stress phenomenon, and the individual characteristics most critical to the underlying person-situation interaction. In the present investigation, an attempt is made to address both of these issues through the test of a need frustration model of job stress.

It is proposed in the present study that job stress occurs largely because individuals' growth and relatedness needs are frustrated in the work environment. In other words, need frustration, specifically growth and relatedness need frustration, is proposed as the intervening variable in the observed job characteristics/stress relationships. The concepts of growth and relatedness needs are borrowed from Alderfer's (1972) Existence, Relatedness and Growth (E.R.G.) Theory of needs. These concepts are used in the present study primarily as a means of classifying preferences and areas of satisfaction/frustration into meaningful categories. No attempts are made in the present investigation, however, to test specific propositions from E.R.G. Theory, or to replicate the measures used by Alderfer.

According to Alderfer (1972), growth needs, "impel a person to make creative or productive effects on himself or the environment. Satisfaction of growth needs comes from a person engaging problems which call upon him to utilize his capacities fully, and may include requiring him to develop additional capacities" (p. 11). Relatedness needs, on the other hand, "involve relationships with significant other people... People are assumed to satisfy relatedness needs by mutually sharing their thoughts and feelings" (Alderfer, 1972, p. 10). Alderfer (1972) proposes that these needs "are primary needs in the sense of their being innate", but "they can also be increased in strength by learning processes" (p. 7). Thus all individuals are assumed to possess some degree of each need, but strength of these needs will vary across individuals. Need strength can be conceptualized and measured in terms of preferences or desires for outcomes relevant to the need category. Need satisfaction "refers to the internal state a person who has obtained what he was seeking and is synonymous with getting and fulfilling" (Alderfer, p. 7). Need frustration is the opposite condition from satisfaction. In other words, individuals experience frustration when there are impediments or obstacles which prevent them from fulfilling their desires.

The emphasis in the present study on need frustration as the underlying process in the occurrence of job stress is consistent with Lazarus' (1966) motivationally oriented psychological model of stress. Lazarus proposes that stress reactions are triggered by the psychological threat inherent in the perception that important goals or valued psychological states may be unattainable. In other words, anxiety and stress are elicited in individuals when attempts to satisfy important motives are thwarted. It is proposed here that the motives most central to the

occurrence of job stress can be conceptualized in terms of growth and relatedness needs.

The focus on growth and relatedness needs as the particular individual characteristics most relevant to the study of job stress is suggested by the nature of the job characteristics which are typically associated with both job satisfaction and stress. In other words, the job characteristics most commonly associated with stress all appear to have the potential to inhibit the satisfaction of growth and/or relatedness needs at work. For example, jobs allowing little autonomy and requiring few skills and abilities are likely to frustrate growth needs by preventing people from fully utilizing their capacities. Similarly, when individuals experience role conflict or ambiguity, growth needs may be frustrated by the feeling that it is impossible to successfully accomplish important tasks. The lack of social support, on the other hand bears an obvious relationship to the frustration of relatedness needs.

If the assumptions underlying the need frustration model are valid, then individuals with stronger growth and social needs should experience more stress when job characteristics negatively impinging on the satisfaction of these needs are present. The three hypotheses tested in the present study are based on this proposition. Specifically, it is proposed that growth and social need strength will moderate the relationships between certain job characteristics and stress. Moderated multiple regression analyses are used to assess the strength of the hypothesized interactions. In addition, first order correlations between job characteristics and three related dependent variables (intrinsic satisfaction, overall job frustration/satisfaction, and inclination to leave) are

reported. These correlations are examined in order to further understanding of the psychological processes involved in job stress, and to assess the generalizability of earlier findings to the predominantly female sample of restaurant employees used in the present study.

There are three areas of stress research which are especially relevant to the focus and purpose of this investigation. First, there is the physiological stress research pioneered by Hans Selye in the early 1930's. The present conceptualization of stress, as well as evidence concerning the link between stress and health, both stem from this stream of research.

Second, there is the stress research conducted largely in the laboratories of social psychologists. Early studies from this stream of research established the link between emotional distress (e.g., tension, anxiety, irritation, depression) and the physiological stress syndrome identified by Selye (1976). Subsequent studies in this area concentrated on identifying the psychosocial determinants of stress and the individual characteristics responsible for the differences observed to occur across individuals in the amount of stress experienced. It was this line of research which led eventually to the development of the motivationally based psychological model of stress articulated by Lazarus (1966). This motivationally oriented model of stress has provided the theoretical framework for the present study, as well as several previous investigations into the determinants of job stress.

Finally, there is the body of literature on the job-related correlates of stress. The specific job characteristics examined in the present study were selected on the basis of findings from this stream of research.

The physiological and psychological models of stress are briefly outlined in the section of the paper immediately to follow. The literature dealing specifically with job stress is then reviewed in more detail in the Literature Review section of the paper.

CHAPTER I

STRESS

Physiological Stress and Health

The concept of stress as a biological state of an organism was first introduced to the life sciences by Hans Selye in 1936 (Appley & Trumbull, 1967). As Selye used the term, stress referred to a distinct pattern of physiological reactions which could be induced by any stimulus or condition which disrupted the internal homeostasis of the organism. Some of the stressors, (i.e., stress provoking stimuli) which were found to elicit this distinct pattern of reactions included injections of hormones, exposure to x-rays, extremes of heat and cold, and conditions of crowding and isolation. The common set of physiological reactions elicited by these stimuli consisted of: a) enlargement and activation of the adrenal cortex (involving the discharge of adrenalin, hormones and fatty secretions into the blood); b) the shrinkage of lymphatic structures and changes in blood content; and c) gastrointestinal secretions and ulceration (Selye, 1976). These physiological and biochemical changes appeared to mark a general state of physiological arousal designed to prepare the body to cope with the threats to the organism's internal equilibrium. In Selye's words, these reactions represented "the bodily expression of a generalized 'call to arms' of the defensive forces in the organism" (Selye, 1976, p. 36).

Selye's discovery of this non-specifically induced pattern of reactions generated a whole stream of physiological and medical research devoted to the exploration of this phenomenon. With further research, it soon became apparent that stress was more accurately conceptualized as a syndrome, consisting in its complete form of 3 distinct stages: the alarm reaction, the stage of resistance, and the stage of exhaustion. These three stages of the stress response make up what is called the General Adaptation Syndrome (G.A.S.).

The general state of physiological arousal first identified by Selye occurs during the alarm reaction. Within a short period of time, however, this high level of general arousal is replaced by the activation of the particular system or organ which is best equipped to cope with the demands imposed by the stressors. This marks the transition to the stage of resistance. During this second stage of the G.A.S., resistance to the immediate stressor is increased; yet at the same time, the efforts to resist create functional internal imbalances which leave the organism increasingly vulnerable to the effects of other stressors. Over time, the strain of resistance takes its toll on the organism, and the body becomes less able to adapt to both external stressors and to the internal imbalances created by arousal and resistance. Critical organs (e.g., heart, kidneys, liver) eventually become exhausted, and internal systems (e.g., digestive or immunological systems) begin to break down. The general wearing down of internal systems marks the onset of the stage of exhaustion. During the stage of exhaustion, resistance to further assaults on the homeostasis of the system (e.g., infection, viruses) is reduced to critical levels, and the weakest links in the system may cease to function. Functional disorders, serious

diseases, and in extreme cases, death, can all result from this final stage of the stress syndrome. The list of diseases in which stress is believed to play a critical role is extensive: high blood pressure, diseases of the heart and the blood vessels, diseases of the kidney, eclampsia, rheumatic and rheumatoid arthritis, inflammatory diseases of the skin and eyes, infections, allergic and hypersensitivity diseases, nervous and mental diseases, sexual derangements, digestive diseases, metabolic diseases, cancer, and diseases of resistance in general (Selye, 1976, p. 169).

The serious consequences of the General Adaptation Syndrome appear to suggest that the automatic stress response is basically dysfunctional. This is not always the case, however. The heightened physiological arousal of the initial stage of the stress syndrome corresponds to the evolutionarily adaptive "fight or flight" response identified years earlier by Walter Cannon (Pelletier, 1977; Selye, 1976). This response, triggered automatically by perceptions of threat in the environment, is highly adaptive in situations where increased physical strength or speed may help an individual fend off, or physically escape from the source of the threat. The automatic stress reaction only becomes dysfunctional if a physical response to the stressor is an inappropriate or ineffective means of coping with the perceived threat. When this is the case, the alarm reaction only increases the wear and tear on the internal organs and systems, and precipitates the onset of the stage of exhaustion.

Unfortunately, it appears that in today's society, individuals often experience stress in situations where the response is dysfunctional. Health statistics show increasing rates of stress-related diseases,

suggesting that individuals today frequently experience excessive and dangerous levels of stress. For example, the role of stress in the etiology of coronary heart disease is well-established, and coronary heart disease is now the leading cause of death among males over 35 (House, 1974). Statistics such as these attest to the importance of further research on both the emotional correlates of physiological stress, and the psychosocial determinants of these reactions.

Stress and Mental Health

Many psychologists were first exposed to the concept and consequences of stress during Selye's invited address to the American Psychological Association in 1955. The concept of stress was immediately appealing to many psychologists since it appeared that the stress reaction described by Selye was the physiological counterpart to a number of more abstract psychological constructs (Harris, 1967). Accordingly, a number of investigators embarked on programs of research designed to explore the association between biochemical indices of stress and such mental health variables as tension, anxiety and frustration. Overall, this research unearthed strong support for the hypothesized association between physiological indices of stress and psychological and emotional distress (Appley and Trumbull, 1967; Lazarus, 1966; Selye, 1976). For example, high levels of anxiety, fear, anger and depression were all found to be associated with increased levels of aldosterone, epinephrine and fatty acids, three important chemical indices of stress (Oken, 1967). Still other studies found that self-reports of anxiety, depression and general emotional distress were correlated with the secretion of adrenal steroids, a central component of the alarm reaction (Oken, 1967). These and similar findings encouraged the use of the term "stress" to refer to psychological as well as physiological states of an individual.

Self-reports of variables such as anxiety, tension, depression and fatigue appear to be the most commonly used indices of stress in psychologically oriented research. Yet according to Selye, there are a number of other self-observable, emotional, physical and behavioral symptoms of stress. The list of self-observable stress symptoms compiled by Selye includes (Selye, 1976, pp. 171-177):

1. General irritability, hyperexitation, or depression
2. Pounding of the heart
3. Dryness of the throat or mouth
4. Impulsive behavior, emotional instability
5. The overpowering urge to cry or run and hide
6. Inability to concentrate, flights of thought and general disorientation
7. Feelings of unreality, weakness or dizziness
8. Predilection to become fatigued and loss of the "joie de vivre"
9. Floating anxiety
10. Emotional tension and alertness, feeling of being "keyed up"
11. Trembling, nervous ticks
12. Tendency to be easily startled
13. High-pitched, nervous laughter
14. Stuttering and speech difficulties
15. Bruxism, or grinding of the teeth
16. Insomnia--usually a consequence of being keyed up
17. Hyperkinesia, or the inability to sit still and relax
18. Sweating
19. The frequent need to urinate
20. Diarrhea, indigestion, queasiness in the stomach and sometimes vomiting
21. Migraine headaches
22. Prementrual tension or missed menstrual cycles
23. Pain in the neck or lower back--due to increases in muscular tension
24. Loss of, or excessive appetite
25. Increased smoking
26. Increased use of prescription drugs, like tranquilizers or amphetamines
27. Alcohol and drug addiction
28. Nightmares
29. Neurotic behavior
30. Psychoses
31. Accident proneness.

Selye points out that, to a large extent, these manifestations of stress are either the results of deranged hormone secretions and nervous activity, or the results of our own attempts to divert ourselves

from stressor situations. He further notes that the patterns of symptoms exhibited by individuals will vary with differences in physiology (i.e., differences in the vulnerability of various muscles, organs and systems) and with differences in conditioning and background. Yet despite these differences across individuals, measures of the number, frequency, or duration of stress symptoms can provide a rough index of the level of stress being experienced.

As research established that a number of psychological constructs could be categorized under the rubric of stress, psychologists turned their attention to explanations of the psychological processes involved in the stress phenomenon. Efforts to identify the causes, processes, and the critical psychosocial factors involved in stress, led gradually to the development of the psychological model of stress outlined below.

The Psychological Model of Stress

Early research on the "fight or flight" response had suggested that perceived threat, or in other words, the anticipation of future harm, automatically triggered the alarm reaction. In psychological research on stress, perceived threat was also postulated as a critical intervening variable in the stress phenomenon. Yet in psychological research, the concept of threat was expanded to include the anticipation of psychological or emotional harm as well as physical harm. The psychological model of stress articulated by Lazarus (1966) was based largely on research devoted to identifying psychologically threatening situations and critical individual differences.

In his book, Psychological Stress and the Coping Process, Lazarus (1966) cites hundreds of studies which have both contributed to and confirmed the psychological model of stress he proposes. In the present

review, however, references to these studies will be omitted since the purpose here is simply to outline the theoretical framework which has been adopted by several researchers in the area of job stress.

Lazarus' (1966) model of stress begins with the assumption that individuals are motivated by fundamental needs and learned, internalized values to attain certain goals and psychological states. It is further believed that when the underlying motives are fundamental or especially well-established, the successful attainment of the related goals and psychological outcomes becomes central to the maintenance of the individual's self-concept or self-esteem, and hence critical to the individual's emotional well-being. Lazarus proposes that individuals intuitively appraise situations and events in terms of their potential facilitating or inhibiting effects on the attainment of those goals which are central to the individual's emotional well-being. When an individual perceives that social factors or situational constraints may prevent the attainment of highly valued outcomes or psychological states, the situation is construed as threatening. The experience of threat, or in other words, the anticipation of some kind of pychological or emotional harm, then automatically elicits anxiety and the physiological arousal of the alarm reaction. Extending the model, Lazarus further hypothesized that the <u>degree</u> of threat (and hence, stress) experienced by an individual in a particular situation would depend on "the strength of the motive or motives whose gratification is endangered" (Lazarus, 1966, p. 121). Lazarus and his colleagues attempted to test this hypothesis by measuring the extent to which individuals with different levels of affiliation and achievement needs experienced different degrees of stress in situations designed to frustrate these needs (Vogel, Raymond,

& Lazarus, 1959, in Lazarus, 1966). The results of this study indicated support for the hypothesized differential effects of need type and strength on stress. Individuals with high achievement/low affiliation needs experienced significantly more stress (based on measures of skin conductance, blood pressure and heart rate) in the task failure condition than in the social rejection condition. Conversely, individuals with high affiliation/low achievement needs experienced more stress in the social rejection condition.

The motivationally oriented model of stress proposed by Lazarus has provided the theoretical framework for this and several other studies aimed at identifying possible moderators of the relationships between certain job characteristics and stress. From a motivational perspective, job characteristics can be conceptualized as conditions which either facilitate or prevent the satisfaction of important needs. In the present study, growth and relatedness needs are proposed as the need categories most relevant to the study of job stress. In line with the model of stress outlined by Lazarus, it is proposed that individual differences in the strength of growth and relatedness needs will moderate relationships between the job characteristics related to the satisfaction of these needs, and stress. The specific hypotheses tested in this study are outlined at the end of the review of the job characteristics/stress literature.

CHAPTER II

REVIEW OF THE JOB STRESS LITERATURE

The job stress literature can be segmented into three broad categories of research: occupational health research, job characteristics/stress studies, and research on the person-situation interaction. A brief review of the occupational health research is presented first, primarily to highlight the contributions of this line of research to the establishment of a link between type of work and health.

Occupational Health Research

Reports from the National Center for Health Statistics indicate that there are "sizable occupational differences in coronary heart disease morbidity and mortality" (cited in House, 1974, p. 18). Occupational health research has extended these findings, confirming that there are occupational differences in the frequency of a number of different stress related illnesses. These findings have prompted speculation on the determinants of stress in the work environment, and have provided the impetus for the more probing stream of research on the specific job characteristics associated with stress.

McCord (1948) was one of the first researchers to document the relationship between employment in a particular occupation and higher than average mortality rates. In an investigation conducted for the railway industry, McCord found that the average age of death for railway dispatchers was about 16 years below the national average for males.

The most frequent cause of death was found to be heart disease (McCord, 1948, in Margolis, Kroes, & Quinn, 1974). Much later, Cobb and Rose (1973) examined the health of air traffic controllers, an occupation involving work similar in nature to that performed by railway dispatchers. The results of this study indicated that air traffic controllers, also, suffered from a disproportionate number of stress related ailments. Men employed in this occupation exhibited an excess of virtually every psychosomatic disease studied, and had four times the rate of hypertension and twice the rate of peptic ulcers as men in a comparison group.

Health differences have also been found to occur across the specialties within occupational groups. Russek (1962) had doctors, lawyers and dentists rate various occupational specialties in terms of how stressful they considered them to be. Health statistics revealed that higher incidences of coronary heart disease were associated with the specialties that had been rated "highly stressful" by the professionals in the field.

The explanations offered for the high incidence of stress among the railway dispatchers, air traffic controllers and "stressful" professional specialties, generally emphasize the role of pressures, overload, and high levels of responsibility for others in producing stress.

Other studies have examined differences in the mental and physical health of employees as a function of organizational level. Two studies focused specifically on foremen and first-line supervisors, and found that individuals employed in this capacity experienced higher rates of peptic ulcers and heart disease than both the employees they supervised and the managers over them (Dunn & Cobb, 1962; Hofstede, 1978). The explanation offered for these findings emphasizes the fact that foremen and first level supervisors are vested with a great deal of

responsibility, yet at the same time are likely to receive conflicting demands and expectations from those above and below them in the organizational hierarchy.

Studies dealing primarily with blue-collar populations implicate still another set of job characteristics as potential stressors. These studies suggest that too little responsibility and a lack of stimulation in the work environment may also elicit stress in employees. Kornhauser's (1965) major study of autoworkers, for example, indicated that mental health problems were more likely to occur the lower the status and skill level of the job. Hofstede (1978) examined the mental health of individuals employed by a large multinational corporation and found similar results. In Hofstede's study the mean levels of anxiety and tension were compared across 5 occupational categories, representing 38 different occupations in all. Hofstede's overall conclusion was that "the unskilled, managerial, and sales and clerical jobs were the most stressful, while professional and technical jobs were relatively less stressful" (Hofstede, 1978, p. 241).

In summary, the epidemiological and occupational health studies suggest that higher rates of stress are associated with jobs where employees have either very high levels of responsibility, pressure and conflict, or very low levels of responsibility, challenge and stimulation. Research designed to identify the specific job characteristics associated with stress confirmed the importance of these factors in the occurrence of job stress.

Job Characteristics/Stress Research

Most of the job characteristics examined in relation to stress can be grouped into one of four general categories of variables:

1) role characteristics, 2) work characteristics related to the scope of the job, 3) levels of social support experienced at work, and 4) the adequacy of resources needed to perform the job. Research pertaining to each of these 4 categories of variables is reviewed below.

Role characteristics. The role characteristics considered to be of primary importance in the study of job stress are role ambiguity, role conflict and role overload. These variables have been studied extensively in relation to stress, most often by researchers affiliated with the Institute for Social Research at the University of Michigan. The impetus for research on these variables came from the seminal "organizational stress" study conducted by 5 ISR researchers in 1964 (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Kahn and his colleagues reported that role conflict and ambiguity were related to a variety of worker attitudes, including: job dissatisfaction, job-related tension, feelings of futility, lower self-confidence and low levels of trust and liking for role senders. Although the job-related tension scale was less a measure of stress than an index of role problems (the items in the scale measured how often people were "bothered" by incidents reflecting role conflict and ambiguity, rather than the extent to which psychological or physical symptoms of tension were experienced), the results of the study were interpreted as supporting the authors' a priori conceptualization of role conflict and role ambiguity as stressful job characteristics. Thus, a whole stream of research on the relationship between role characteristics and stress was inspired.

The role characteristics/stress studies generated by the Kahn et al. (1964) investigation are characterized by a concept of stress somewhat different from that typically found in stress research. In most

studies, stress is viewed as a psychological and/or physiological state of the individual, consistent with Selye's original formulation of the concept. In the role research emanating from the ISR, however, stress is viewed as a characteristic of the environment which produces strain in the individual. Strain is broadly defined as any psychological or physical deviation from normal functioning (Caplan et al., 1975). From this perspective, role conflict and ambiguity are viewed as organizational stresses, rather than potential stressors. In the present paper, however, in order to avoid further confusion over terminology, the term "stress" will be used consistently throughout to refer to a state experienced by an individual.

One of the more influential studies examining role conflict and ambiguity in relation to stress was that conducted by Rizzo, House and Lirtzman in 1970. In this study, employees from a single organization were grouped into two different samples. The first sample consisted of 199 salaried managerial and technical workers, and the second, more homogeneous sample, consisted of the remaining 91 research and engineering personnel. In both samples, role ambiguity and role conflict correlated in the low .20's with a measure of general fatigue and discomfort. However, the relationships between the role characteristics and anxiety were considerably different for the two groups. In the lower level, managerial and technical sample, only role conflict exhibited a significant relationship with anxiety ($r = .20$); while in the research and engineering sample, only role ambiguity yielded a significant correlation with anxiety ($r = .22$). The differential effects of role ambiguity and role conflict in the mixed and the strictly professional samples triggered speculation on the relative power of these variables as predictors of stress in different samples.

In order to further explore the relative potency of these variables as stressors, Miles (1976) surveyed 202 high level government workers ranging in occupation from division manager to nonsupervisory scientists and engineers. Significant correlations were obtained with tension and satisfaction for both role ambiguity ($r = .31$, $r = -.49$) and role conflict ($r = .26$, $r = -.25$), however, the effects obtained for role ambiguity were consistently stronger. The trend for role ambiguity to be the stronger predictor of strain held for correlations computed within 5 occupational subgroups, as well as for the total sample. Miles concluded that the results established that role ambiguity was a more potent predictor of stress for both high and low level occupational groups, yet the fact that all employees surveyed were at the GS-12 level or above indicates that, relative to the general population, the entire sample consisted of high level occupational groups.

Schuler, Aldag, and Brief (1977) examined the association between role dimensions and anxiety in two occupational samples of an entirely different nature. One sample consisted of 99 hospital food service and janitorial workers, and the second sample consisted of 70 nursing aides and assistants. Among the food service workers, neither role conflict nor role ambiguity exhibited significant correlations with anxiety. The failure to detect a relationship, however, may be due to the relatively low scale reliabilities for this group (role conflict $\alpha = .557$, role ambiguity $\alpha = .634$). In the nursing sample, scale reliabilities were somewhat higher, and role conflict was found to be a very strong predictor of anxiety ($r = .41$). Role ambiguity, on the other hand, exhibited a significant, but relatively weak correlation with the anxiety measure ($r = .20$). These results, however, say little about

the relative strength of role ambiguity and role conflict as predictors of stress in general, since the mean levels of ambiguity reported by the nursing aides and services workers were much lower (approximately one standard deviation) than the mean ambiguity levels reported in 4 predominantly white collar samples (stress measures for these other 4 groups were not obtained). The mean level of role conflict, on the other hand, was comparable across all groups. The relative lack of ambiguity in lower level jobs, then, may account for the apparent differential effects of role ambiguity and role conflect on stress across samples.

Further support for this possibility was obtained in a large-scale study conducted by Caplan and his colleagues from the University of Michigan (Caplan, Cobb, French, Harrison, & Pinneau, 1975). The research sample in this study consisted of 2,010 white males employed in 23 different occupations across 67 different organizational sites. Eight of the occupations were classified as blue collar, 10 as white collar, and 5 as intermediate. A comparison of the mean levels of role ambiguity and conflict across the occupational groups represented in this study confirmed that high levels of role ambiguity were most likely to be found in the higher level white collar jobs. Role conflict, on the other hand, was equally likely to be found in jobs at either end of the occupational spectrum, its occurrence apparently depending on the nature of the job and the number of reporting relationships involved, rather than on occupational level.

Caplan et al. (1975) examined role conflict, role ambiguity and role overload in relation to 4 symptoms of stress: somatic complaints, anxiety, depression and irritation. Relationships were assessed at

both the group and the individual levels of analysis. Group level analyses were based on the 23 occupational means, and yielded correlations above .40 ($p < .05$ for $r = .41$) for 4 of the 12 relationships assessed: role conflict with depression ($r = .43$) and irritation ($r = .46$), and role ambiguity with anxiety ($r = .40$) and depression ($r = .64$). Individual level analyses were based on a stratified random sample of 318 employees, including approximately 14 persons from each occupational group. At the individual level, correlations for 7 of the 12 relationships were significant: role overload with irritation ($r = .21$); role conflict with somatic complaints ($r = .25$), anxiety ($r = .26$), depression ($r = .22$) and irritation ($r = .33$); and role ambiguity with depression ($r = .19$) and anxiety ($r = .17$). Within this occupationally mixed sample, role conflict appeared to be the more potent predictor of stress.

In summary, it appears that jobs differ in extent to which different role definition problems are likely to be experienced. Role ambiguity is most likely to occur in high level jobs where objectives and performance standards are likely to be less concrete. Where relatively high levels of ambiguity exist, perceived ambiguity is likely to exhibit low to moderate (.22 to .31) correlations with measures of stress. Role conflict can occur at any occupational level, however, the potential for role conflict is probably highest in jobs where there are multiple role senders, i.e., where employees have to work with or report to several different people. Role conflict measures exhibit fairly consistent low to moderate correlations with stress across a variety of samples.

Job scope characteristics. Researchers have used a variety of terms to describe the work characteristics examined in relation to stress (e.g., routineness, lack of participation in decision-making, repetitive-

ness, underload, lack of challenge, etc.). However, most of these variables can be conceptually categorized as one of the three job scope characteristics examined in the present study: underutilization of skills and abilities, lack of autonomy in how the work is accomplished, or lack of influence or participation in work-related decisions. The focus on these particular characteristics as potential stressors appears to stem, in part at least, from evidence that these characteristics are often associated with low levels of job satisfaction.

One of the major studies in which these work characteristics were examined in relation to stress was that conducted by Caplan et al. (1975). In this study, data on perceived opportunities to utilize skills and abilities, and to participate in work-related decisions were collected from two samples of employees. The first sample consisted of 314 white males, representing 23 different occupational groups. Within this occupationally mixed sample, both participation and skill utilization exhibited low, but significant correlations with somatic complaints ($r = -.13$ and $r = -.18$ respectively) and depression ($r = -.17$, both). Correlations between the two work characteristics and anxiety and irritation were not significant.

The second sample examined by Caplan et al. consisted of 390 working males, most of whom were college-educated professionals. The correlations obtained for the second sample were slightly stronger than those obtained for the first sample. This is most likely due to the fact that several of the occupational groups included in this sample were chosen on the basis of past evidence that individuals in these occupations experienced especially high levels of stress (e.g., air traffic controllers, machine-paced assemblers, and administrators). In this

predominantly professional sample, underutilization was significantly correlated with somatic complaints (r = .23), depression (r = -.26), and anxiety (r = -.19); while participation exhibited significant correlations with only depression (r = -.23) and anxiety (r = -.19).

In another large scale study, Margolis, Kroes and Quinn (1974) examined data from a representative national sample of over 1,400 part-time and full-time employees. Relationships between 6 potential stressors (role ambiguity, underutilization of abilities, overload, resource inadequacy, insecurity about future employment, and non-participation in decisions affecting one's job) and 10 dependent variables were examined. The dependent variables were conceptualized as measures of physical and psychological strain, including overall physical health, depressed mood, self-esteem, and job satisfaction. The results indicated that under-utilization of abilities and non-participation in decision-making were the most powerful predictors of strain. These two work characteristics were significantly correlated with all 10 of the strain indices. Overall, non-participation appeared to be the most potent stressor, exhibiting higher correlations than any of the other 6 stressors with 8 of the 10 strain measures.

Opportunity to participate in, or influence decisions was also found to be a powerful predictor of stress in a study conducted by Zaleznik, Kets de Vries and Howard (1977). This extensive investigation into the determinants of job stress was based on a sample of 2,000 high level members of a large Canadian service organization. Data from 3 occupational groups, operations, staff and management, were analyzed separately. The operations and staff groups both reported symptoms indicating that they were experiencing high levels of stress. The opera-

tions group reported especially high levels of emotional distress, medication use, and allergy respiratory symptoms; while the staff group tended to report more cardiovascular and gastrointestinal disorders. The management group, on the other hand, indicated a consistently low symptom rate. Three factors were investigated as possible explanations for the differences across groups in the number of stress symptoms reported (reasons for differences in the types of symptoms reported were not explored). Two factors, personality differences and differences in traumatic life experiences were ruled out as plausible explanations for the observed differences in stress levels. The third factor considered, the extent to which individuals were able to exert influence within the bureaucratic structure, was found to be the differentiating variable. This conclusion was based on the analysis of a number of different self-reports of the job experience. It appeared that the more highly stressed operations and staff groups felt frustrated by their inability to influence the decisions that affected their work. Managers, on the other hand, had a considerable amount of decision-making authority, and appeared to know how to exert their influence within the system. From these data, the authors concluded that the perceived inability to act on the work environment added to the frustrations experienced by staff and operations groups, and ultimately contributed to the higher incidence of physical and mental health problems among these employees.

The conclusions drawn from the Zaleznik, Kets de Vries and Howard (1977) study are consistent with the results reported by Karasek (1979). Karasek (1979) hypothesized that stress results from the combination of low job decision latitude and heavy job demands. In Karasek's view,

job demands (e.g., workload, conflicts, task requirements) instigate action, motivating and energizing the individual; while at the same time, job decision latitude acts as a behavioral constraint, limiting the number and kinds of actions that can be undertaken. Therefore, if an employee experiences heavy job demands, yet at the same time is constrained by low decision latitude, he or she is unlikely to be able to transform energy into effective action, and is likely to experience frustration and stress.

To test this hypothesis, Karasek analyzed data from two national surveys of working adults, one conducted in the United States and one conducted in Sweden. The job decision latitude measure appeared to incorporate the concepts of autonomy, participation and skill variety. The items used to measure this variable focused on opportunities to learn new things, be creative, make and participate in decisions, and "have a say" on the job. The job demands index appeared to represent work overload, referring to both the need to work very hard or very fast, and the lack of adequate time in which to accomplish the required work. An index of mental strain was constructed from items measuring exhaustion, nervousness, irritability, depression, worry and sleeping problems. The results indicated that individuals in high demand/low decision latitude jobs were, as predicted, those most likely to experience mental strain or stress. Yet, as Karasek noted, the data also indicated that "the opportunity for a worker to use his skills and to make decisions about his work activity is associated with reduced symptoms at <u>every</u> level of job demands" (Karasek, 1979, p. 303). In other words, low levels of autonomy, participation and skill utilization were associated with stress independently of the level of work load reported. While

Karasek (1979) proposed that job scope variables might interact with job demands to produce stress, Beehr (1976) proposed that autonomy might interact with role ambiguity. Specifically, Beehr hypothesized that autonomy would act as a moderator variable in the relationship between role ambiguity and stress. Data collected from 587 individuals employed in a variety of jobs, indicated that for individuals reporting high levels of autonomy, correlations between role ambiguity and 3 indicators of strain (job dissatisfaction, low self-esteem, and depressed mood) were not significant. The correlations between role ambiguity and strain were significant, however, for employees reporting low levels of autonomy. Beehr (1976) concluded that these data support the hypothesized moderating effects of autonomy. However, there appears to be no theoretical or empirical basis for viewing autonomy as a moderator variable, rather than as an independent predictor of stress. Examination of the correlation matrix for the total sample shows that the correlations between autonomy and job dissatisfaction ($r = .37$), self-esteem ($r = -.27$), and depressed mood ($r = -.32$), are all considerably higher than the correlations between role ambiguity and the same three strain measures.

The one study yielding results inconsistent with those reported above was that conducted by Brief and Aldag (1976). Brief and Aldag examined the relationship between the 5 core dimensions measured in the JDS (skill variety, task identity, task significance, autonomy, and feed-back) and anxiety, for a sample of 77 nursing aides and assistants. All of the correlations between the core dimensions and the anxiety/stress index were low and non-significant. The failure in this study to replicate the findings of previous research, however, may be due to the exceptionally low reliabilities of the job characteristics

scales (the average internal consistency reliability was .46). In addition, since the data were obtained from individuals in very similar low level jobs, there may have been too little variance in the job characteristics measures to allow relationships to be detected if, in fact, they did exist.

In summary, job scope, including variables referring to autonomy, utilization of skills and abilities, and opportunities to influence or participate in decisions, appears to be fairly consistently related to stress. The effects appear to be strongest in occupationally mixed samples, and either weaker or more difficult to detect in homogenous samples of employees.

Social support. Social support is generally measured by having employees rate the extent to which they experience trust, respect, openness, and friendliness in their relationships with co-workers and supervisors. While these ratings may tap perceptions of supervisory style or organizational climate, support measures are generally intended to reflect the subjective experience of the employee rather than the attributes of the work environment, or the nature of supervision.

In most studies where social support measures have been included, the primary focus of the research has been on the relationship between role, or occasionally work characteristics and stress. Social support is typically relegated to the role of a moderator variable, despite the lack of any strong empirical or theoretical rationale for the hypothesized interaction effect. LaRocco and Jones (1978) cite 7 studies in which social support has been examined as a moderating variable, and they note that the results are inconclusive. There does, however, appear to be consistent evidence supporting the notion that social support

and stress are directly associated. Results bearing on the direct relationship between these two variables are highlighted in the present review.

The Caplan et al. (1975) investigation is one of the more influential studies in which social support has been posited as a moderating variable. The argument they present in favor of the hypothesized interaction effect is based largely on data from two doctoral dissertations (Caplan, 1972; House, 1972, in Caplan et al., 1975) showing that men who have high social support from others in their environment show no effects of role ambiguity and conflict on strain (Caplan et al., 1975, p. 13). While these findings might have been interpreted as evidence that the effects of stressors are cumulative, Caplan, House, and their colleagues have interpreted the data to mean that social support interacts with other stressors, acting essentially as a buffer to stress. The explanation offered by House (1974) is that "social support from peers, superiors and subordinates improves the ability of men to cope with job stresses, and therefore should enhance physical and mental health" (p. 22). Empirical tests of this "buffer" explanation have not been conducted, however, and exactly how social support effectively increases the ability to cope with role definition problems is left unclear.

Analyses testing the hypothesized interaction effects had not yet been conducted when the initial results of the Caplan et al. study were published in 1975, so data bearing on the validity of the "buffer" theory are not available from the report of their study. Examination of the correlation matrices, however, indicates that a combined measure of co-worker and supervisory social support was strongly related to 4 mea-

sures of stress (somatic complaints, depression, anxiety and irritation) in both of the samples studied. In one sample, 6 out of the 8 social support/stress correlations were significant, while in the second sample, 7 out of the 8 correlations were significant. In addition, the support measures were the only variables in the study to exhibit correlations of .30 or more with depression. In terms of both the strength and the significance of the obtained correlations, social support appeared to be one of the most powerful predictors of stress in the study.

Beehr (1976) also conducted a study in which social support was hypothesized to moderate, or more precisely, to reduce the strength of, observed role characteristics/stress relationships. To test the hypothesis, a diverse sample of 587 employees was split at the median on group cohesiveness and supervisor support measures. Correlations between role ambiguity and 4 indices of mental strain were then compared for the high and low social support groups. This analysis failed to support the hypothesized moderating effects of supervisory and co-worker support. However, the first order correlations indicated that supervisory support was strongly associated with stress. All four of the correlations between supervisory support and the strain measures were significant, and furthermore, all four of the correlations were stronger than the corresponding correlations between role ambiguity and strain.

LaRocco and Jones (1978) conducted the only study in which the "buffer" hypothesis of social support was compared with the hypothesis that social support acts as a stressor in its own right, directly influencing subjective states. Questionnaire responses from 3,725 U.S. Navy enlisted men were used to test the 2 competing hypotheses. The potential moderating or buffering effects of stress were assessed using both moder-

ated regression and subgrouping analyses. Results of the two analyses were quite different, yet neither type of analysis yielded results supporting the notion that social support moderated the effects of role problems (combined ambiguity and conflict measures) on job satisfaction, satisfaction with the Navy, intent to re-enlist, self-esteem or number of dispensary visits. There was evidence, however, that the work group and leader support measures contributed additively along with the role problems measure, to job and Navy satisfaction and self-esteem. None of the variables in the study exhibited significant correlations with the frequency of visits to the medical treatment center.

In summary, the results of these studies suggest that there is a direct association between social support and stress. Moreover, the social support/stress correlations are often larger than the correlations observed between other potentially stressful job characteristics and stress. The strength of the relationship between social support and stress suggests that this variable should be examined as a potential stressor rather than as a moderator variable in future research.

Resource Adequacy. The adequacy of needed resources in the work environment has only recently been examined in relation to stress. Resource adequacy measures tend to focus on the availability and adequacy of the supplies, information, staff, and time, needed to effectively accomplish the work.

One of the first investigations to include a measure of resource adequacy was that conducted by Margolis, Kroes, and Quinn (1974). Data for this study were obtained from personal interviews with a representative national sample of over 1,400 employed persons working 20 hours a week or more. Resource inadequacy was found to be one or the strongest

predictors of stress in this study, exhibiting significant correlations with 9 of the 10 strain measures, including job satisfaction ($r = -.29$), depressed mood ($r = .20$) and overall physical health ($r = -.10$).

Peters and O'Connor (1980) and Peters, O'Connor and Rudolph (1980) explored the resource inadequacy variable in greater depth. First of all, Peters and O'Connor (1980) developed a conceptual framework from which inadequate resources could be viewed as situational constraints preventing people from performing effectively in their jobs. From this position, i.e., viewing resource inadequacy as a constraint to effective performance, several hypotheses were developed. Hypotheses concerning the affective responses of people to these contraints were based on the evidence accumulated in the field of social psychology indicating that blocking an individual's goal attainment tends to result in experienced frustration. Peters and O'Connor (1980) suggest that "to the extent that situational constraints inhibit the accomplishment of valued goals, it can be hypothesized that such restrictive conditions will be associated with greater frustration, stress, and dissatisfaction" (p. 83). The authors further hypothesized that "highly able, highly motivated individuals" would "be the most frustrated and dissatisfied under high constraint conditions" (Peters & O'Connor, 1980, p. 84). Peters, O'Connor and Rudolph (1980) carried out a study designed to test the first of these two hypotheses. The study involved 70 college students who were instructed to perform a number of tasks in a laboratory setting. Eight situational variables, involving resources relevant to the performance of the task, were manipulated to produce either facilitating or inhibiting work conditions. Results of the study indicated that individuals in the facilitating condition did in fact do more,

and better quality work, despite relatively weak manipulations of resource adequacy, than did individuals in the inhibiting condition. In addition, individuals in the adequate resources condition reported higher levels of satisfaction and lower levels of frustration than individuals in the performance inhibiting condition.

The limited data available on the effects of resource inadequacy suggest that this variable warrants further examination as a potential stressor in the work environment. The notion that resource inadequacy induces stress by preventing motivated individuals from performing effectively on the job also appears to warrant further consideration. This explanation of the mechanism underlying the relationship between stress and resource inadequacy is consistent with the need frustration model of job stress proposed in the present study. To the extent that situational contraints imposed by inadequate resources prevent individuals from effectively using their abilities and successfully accomplishing tasks, the relationship between resource inadequacy and stress can be explained in terms of the frustration of growth needs.

In summary, job characteristics/stress research has identified 4 sets of job characteristics which exhibit fairly consistent correlations with stress measures: role characteristics, including conflict and ambiguity; job scope variables including autonomy, influence and skill utilization; social support, measured in relation to both supervisors and co-workers; and the adequacy of the resources available to carry out the work. It is expected that these characteristics will be associated with stress in the present study as well.

These characteristics can be viewed as representing the key <u>situational factors</u> in the person-situation interaction hypothesized to

lie at the heart of the stress phenomenon. Their identification has paved the way for studies addressing the individual factors, in other words, the motivational and psychological processes involved in this interaction. The two current approaches to the study of individual differences in stress are outlined in the section to follow, and the rationale for the approach adopted in the present study is presented.

Person-Situation Interaction Research

Researchers concerned with explaining the person-situation interaction underlying job stress typically adopt one of two different approaches to the problem; either they test the person-environment fit model of job stress, or they examine the moderating effects of higher order need strength.

The person-environment fit theory of job stress has been formulated primarily by researchers affiliated with the Institute for Social Research. The model appears to be based on the theory of work adjustment proposed by Lofquist and Dawis (1969) as well as the general motivational model of stress.

In the person-environment fit model of job stress, individual differences are conceptualized in terms of differences across individuals in the extent to which a number of different job characteristics and outcomes are viewed as desirable. Stress is expected to be related to the magnitude of the discrepancy between perceived and desired levels of job characteristics.

Other researchers prefer to conceptualize the relevant individual differences in terms of differences in need strength. The theoretical roots of the need-based approach appear to include Maslow's need theory and the literature on job design and intrinsic job satisfaction, as

well as the general motivational model of stress. In studies based on this approach, preferences for certain job characteristics and personal outcomes are used to infer the strength of each individual's higher order needs. Measures of need strength are hypothesized to act as moderators of the typically observed relationships between the levels of certain job characteristics and stress.

Person-environment (P-E) fit theory. The basic assumptions underlying P-E fit theory (Caplan, Cobb, French, Harrison, Pinneau, 1975; Harrison, 1978), are, first, that individuals are motivated by needs and values to attain certain goals and outcomes, and second, that the inability to attain these valued goals and outcomes is likely to lead to the experience of stress.

In terms of a job situation, P-E fit theory proposes that goal attainment is most likely when there is a good fit between the attributes of the work environment and needs and values of the individual. Conversely, when environmental "supplies" are inadequate to meet the needs of the individual, resulting in a poor P-E fit, individuals are less likely to attain valued outcomes, and hence, more likely to experience stress.

The "goodness of fit" between the person and the environment is conceptualized in terms of discrepancies between the perceived and the desired levels of a number of different job characteristics. Discrepancy or fit scores are computed for each individual on each of several job characteristics, and these scores, either individually or aggregated, are then used to predict stress. Since P-E fit theory is proposed as a process, rather than a content model of job stress, no attempts are made within the model to specify key underlying needs, or to identify

conceptually related categories of motives or preferences. In effect, the number of individual characteristics considered in a P-E fit model equals the number of specific preference measures obtained.

The person-environment fit model of job stress was the basis for one of the central hypotheses in the Caplan et al. (1975) study. The researchers hypothesized that "the goodness of the P-E fit will produce stronger effects on strains than will either the characteristics of the work environment or the characteristics of the person" (p. 16). Measures of P-E fit were obtained for 4 of the job characteristics examined in the study: job complexity, responsibility for people, role ambiguity and quantitative workload. The rationale for using only these particular job characteristics in the test of the model was not given.

The authors noted that before the percentage of variance in strain explained by job characteristics alone (the E measure) can be compared with the variance in strain explained by fit scores (E measures subtracted from P measures), it is necessary to take steps to ensure that both measures are linearly related to stress. According to Caplan et al. (1975), job characteristics measures can be assumed to be linearly related to stress, but P-E fit score/stress relationships should be tested for linearity since fit scores are known to sometimes exhibit curvilinear, or U-shaped relationships with stress. Examination of the shapes of the relationships between the fit scores and stress in the Caplan et al. study revealed that role ambiguity, job complexity, and responsibility for people fit scores all exhibited curvilinear relationships with stress. In other words, some individuals wanted more of the characteristic, and some wanted less, and a discrepancy in either direction was associated with stress. For these three variables, then, indices

with linear relationships to strain were created by taking the absolute values of the fit scores.

Results of the study were reported for two different samples. The first sample consisted of 390 white males, 85% of whom were employed in occupations in the upper 4 categories (out of 10 categories in all) of the Duncan Socioeconomic Status Scale. In this sample, the fit scores for the quantitative workload, responsibility for persons, and the job complexity variables, exhibited considerably higher correlations with the 4 stress measures (somatic complaints, depression, anxiety, and irritation) than the job characteristics (E measures) alone. In the case of role ambiguity, however, the situation was reversed. None of the four P-E fit correlations exceeded .06, while the simple role ambiguity measure exhibited a correlation of .23 with both depression and anxiety. The second sample included in the study consisted of 322 individuals from 23 different occupations. In this sample also, the P-E fit scores for quantitative workload and complexity were more strongly related to stress than the E measures alone. The opposite held true for the other two factors, however. None of the P-E fit scores for responsibility for persons and role ambiguity were significantly correlated with any of the stress measures; whereas 4 out of the same 8 correlations with stress were significant when job characteristics measures alone were used.

Taken together, results based on the two samples suggest that discrepancy scores are superior predictors of stress for complexity and workload, whereas the E measures alone are the superior predictors when role ambiguity is the variable under consideration. The responsibility for persons measure yielded the lowest correlations obtained, and the

correlations based on the E and the P-E measures exhibited different relative strengths in the two samples.

By highlighting the importance of a good fit between the needs of an individual and the attributes of a job, person-environment fit theorists have made a valuable contribution to the job stress literature. However, there are several problems involved in testing the theory and in analyzing and interpreting the data which appear to limit the utility of the model in empirical research. First, the decision to base predictions on discrepancy scores is questionable in light of the widely noted problems inherent in the use of such scores. Second, the strategy of conducting post-hoc analyses to determine the shape of the relationships between fit scores and stress (and only the fit scores and stress, and not the job characteristics scores and stress) obscures the fact that the shape of the relationship obtained in job characteristics/stress studies is largely under the control of the researcher. In addressing the issue of curvilinearity, Caplan et al. (1975) note that a P-E fit score is likely to have a curvilinear relationship with stress when two different motives are associated with the dimension. They illustrate this point with the example that too little responsiblity may result in boredom and the frustration of growth needs, while too much responsibility may result in an individual's feeling a constant threat of failure. This is a point well-taken, yet the authors neglect to point out that nearly any job characteristic can be conceptualized as a point on a dimension where the two extremes represent undesirable, or motive-threatening conditions. For example, were one to conceptualize a dimension referring to the extent to which employees are given direction and guidance in carrying out their jobs, one might find autonomy threatened

at one extreme and role clarity threatened at the other. Linear relationships between job characteristics and stress are the rule rather than the exception only because investigators select and phrase items and response scale anchors so that one end of the scale represents a desirable condition and the other represents an undesirable condition. In the Caplan et al. study, however, this practice was not followed, invalidating their assumption that the job characteristic or E measures would exhibit linear relationships with stress. Where curvilinear fit score/stress relationships were found in their study, it is likely that curvilinear E measure/stress relationships existed as well. If this is the case, then comparisons between corrected fit measures and uncorrected job characteristics measures were biased in favor of the model and conceptually and empirically meaningless.

Coburn's (1975) study involving over 1,000 Canadian workers illustrates that a job characteristics scale can be deliberately constructed to both yield a curvilinear relationship with stress and to incorporate a measure of fit without recourse to the involved data analytic strategies used in tests of the person-environment fit model of stress. In Coburn's investigation, the job characteristics of "overload" and "underload", referring to excessively complex, or excessively simple work, were conceptualized as opposite extremes of a single job complexity dimension. Both extremes of this dimension were assumed, a priori, to represent a state of job-worker incongruence, or in other words, a poor person-environment fit, which would be associated with stress.

Individuals who reported that their jobs were "dull", "monotonous" and "lacking challenge" were assumed to be experiencing underload, while individuals reporting that their jobs were "frequently more than they

could handle" and "extremely mentally tiring", were assumed to be experiencing overload (Coburn, 1975, p. 200). A five-point index of subjective incongruence was formed by assigning scores of 4 and 5 to individuals who reported the overload conditions and assigning scores of 1 and 2 to individuals reporting the underload conditions. Scores of 3 were assigned to individuals reporting neither underload nor overload. Since the midpoint of the scale was assumed to represent job-worker congruence and both the extremes were viewed as conditions of incongruence, Coburn predicted that there would be a curvilinear relationship between the subjective incongruence index and the stress and job attitudes measures. The data supported the hypothesized curvilinear relationship, indicating that individuals reporting both underload and overload experienced more stress and less satisfaction than individuals in the jobs where neither was experienced. It is interesting to note that Coburn predicted and obtained a curvilinear relationship based on a measure which incorporated the only two dimensions from the Caplan et al. study (complexity and overload) for which predictions of stress were consistently better with the corrected P-E fit measures than the job characteristics measures alone.

A final criticism of the P-E fit model of stress is that there is no conceptual framework to suggest which types of individual and job characteristics might be most relevant in the occurrence of job stress. The decision to compute P-E fit scores for some, but not all of the job characteristics examined, seems quite arbitrary. Furthermore, the lack of conceptually meaningful categories of either individual or job characteristics limits the ability of the model to make predictions about the types of individuals who are likely to experience stress in certain classes of jobs.

One advantage of the person-environment fit model of job stress, however, is that researchers are less likely to confine their investigations of potential stressors to those variables which can be conveniently fit into a need category. In addition, fit scores may represent the person-environment interaction effect for specific job dimensions more accurately than interaction terms based on global rather than specific individual characteristics. However, on the whole, the drawbacks to this approach seem to outweigh the advantages.

The need based approach to the conceptualization and measurement of the person-situation interaction involved in stress also has its problems, particularly in regard to the measurement of needs. Yet a major advantage of this approach is that it is both parsimonious and grounded in existing theory.

Need Strength as a Moderating Variable

The job stress researchers who prefer to conceptualize individual differences in terms of needs, generally focus on "higher order needs" (Beehr, Walsh & Taber, 1976; Brief & Aldag, 1976) or needs for achievement and autonomy (Morris & Snyder, 1979).

Studies in which higher order need strength is examined as a potential moderating variable are based largely on the work of Hackman and Lawler (1971) and Hackman and Oldham (1975). In outlining a theoretical framework for their job design/satisfaction research, Hackman and Lawler (1971) proposed that the satisfaction of higher order needs in the work environment depends on the extent to which individuals are able to experience challenge, meaningfulness and personal responsibility in their work. They further argue that certain job characteristics, specifically, autonomy, task identity, task significance, feedback, and variety in

required skills, represent conditions which must be present to some extent before employees will be able to feel that they have successfully acccomplished something worthwhile or meaningful as a result of their own efforts. Based on this argument it was proposed that the level of these characteristics would be positively related to measures of intrinsic satisfaction. It was also hypothesized that the relationship between these job dimensions and satisfaction would be stronger for individuals with strong higher order needs than for individuals with weak higher order needs. Research has largely supported these hypothesized relationships (Hackman & Lawler, 1971; Hackman & Oldham, 1975; Wanous, 1974) although as White (1978) points out, the moderating effects obtained are typically quite small.

Researchers adopting the need-based approach to the study of individual difference in stress have extended the theoretical framework proposed by Hackman and his colleagues. The role and work characteristics typically associated with stress are analyzed in terms of their implications for the satisfaction of higher order needs. When analysis suggests that certain characteristics may prevent the satisfaction of higher order needs, it is argued that the stress associated with these characteristics be explained in terms of need frustration. The validity of the need frustration explanation is then assessed by examining the moderating effects of need strength on the relationship between the job characteristic and stress.

The theoretical framework and the research strategy involved in this approach to the study of stress have been adopted in the present investigation. In other words, the hypothesized moderating effects of growth and social need strength are based on the hypothesis that

stress-related job characteristics act as impediments to the satisfaction of these needs in the work environment.

Beehr, Walsh and Taber (1976) examined the moderating effects of higher order need strength on three job characteristics/stress relationships. The specific job characteristics examined were role overload, role ambiguity, and non-participation. Dependent variables included a measure of job dissatisfaction as well as two indices of stress (fatigue and tension). The sample used in this study consisted of 134 white collar workers employed in drafting, mechanical and technical/clerical jobs.

The specific hypothesis tested was that role ambiguity, role overload and non-participation would be more strongly related to stress for people with strong higher order needs than for people with weak higher order needs. The rationale offered for this hypothesis was that higher order need satisfaction "depends upon the successful performance of a challenging role. Jobs that have ambiguous demands, jobs that have too many demands, and jobs that do not allow the employee to participate in work-related decisions are likely to hinder attempts at successful performance, thereby frustrating higher order needs" (Beehr, Walsh, & Taber, 1976, p. 42).

Higher order need strength was measured in this study by averaging the importance ratings respondents assigned to opportunities to "accomplish something worthwhile", "do something that makes you feel good as a person", "do the things you do best", "develop your skills and abilities", "decide for yourself how your job should be done", "set your own pace on your job", and "see the results of your work" (p. 43). The authors point out that these items "measure higher order need strength

as defined by two orientations, Maslow's (1943) concept of self-actualization and some of the task attributes of intrinsically motivating jobs" Beehr, et al., 1976, p. 43).

In order to test the moderating effects of higher order need strength, the authors trichotomized the sample on the basis of the need strength measure. Examination of the correlations obtained for the highest and lowest subgroups (n = 46 and n = 43 respectively) revealed that 7 out of the 9 job characteristics/stress correlations were significant for the high need strength group, while only 2 of the 9 correlations were significant for the low need strength group. In addition, the differences in the correlations obtained for the two groups were found to be significant. The data, then, support the hypothesis. It should be noted, however, that these results are based on very small subgroups, and the authors noted a tendency for there to be greater variance in ratings within the high need strength group.

In a related study, Brief and Aldag (1976) examined the moderating effects of higher order need strength on the relationships between stress and role ambiguity, role conflict, and 5 task characteristics measured in the JDS. The sample in this study consisted of 77 nursing aides and assistants.

In order to test moderating effects of higher order need strength, the significance of differences between correlations in high and low need strength subgroups was assessed. Contrary to the results obtained by Beehr et al. (1976), no significant differences in the job characteristics/stress correlations were evident between the two subgroups. There are several possible explanations for the failure to find a moderating effect, however. First, higher order need strength was measured

using an ipsative instrument from the JDS designed to measure relative preferences for intrinsic versus extrinsic outcomes. Since nursing aides and assistants are paid very low wages, differences in the relative preferences reported by individuals may have reflected differences in financial security rather than true differences in the extent to which intrinsic outcomes were valued by employees. Furthermore, splitting a sample of only 77 individuals into high and low need strength subgroups provides a very weak basis for drawing inferences about moderating effects. In addition, it should be noted that the task characteristics scales exhibited very low reliabilities (the average alpha was .49) and very low correlations with the stress measures for the sample as a whole (none reached significance). Considering these limitations, the absence of a significant interaction effect in the Brief and Aldag study is not surprising.

Morris and Snyder (1979) examined the extent to which two variables conceptually related to higher order need strength, need for achievement and need for autonomy, moderated role characteristics/stress relationships. In this study, analyses were based on the questionnaire responses of 262 university employees holding a wide range of non-academic jobs. Need for achievement and need for autonomy were measured with relevant scales from the Manifest Needs Questionnaire.

Morris and Snyder (1979) departed from the common practice of comparing subgroup correlations, and instead used multiple regression analyses to test for possible interaction effects. Moderated multiple regression analyses appear to be the more appropriate data analytic strategy since they have greater statistical power (Cohen, 1968) and provide a test more relevant to the nature of the hypothesized moderating effects

than typical subgroup analyses (Peters & Champoux, 1979). The results of the regression analyses provided little support for the proposition that need for achievement and need for autonomy moderate relationships between role characteristics and the 4 dependent variables examined: organizational commitment, job involvement, psychosomatic complaints and propensity to leave the organization. The findings did indicate, however, that when need for achievement and need for autonomy were included as independent predictors of stress, they added significantly to the explained variance in all dependent variables except psychosomatic complaints. The psychosomatic complaints scale, however, consisted of only two items, raising the possibility that it was not an adequate measure of this form of stress. The nature of the two items in the scale and the correlation between them was not reported, although the authors did note that the correlation was significant.

In summary, then, findings concerning the moderating effects of need strength on the job characteristics-stress relationship are mixed. Further research efforts based on this model appear warranted, however, in light of the wide-spread acceptance of the motivational model of stress and the problems inherent in tests of the P-E fit theory of job stress. Investigations of the need frustration model which include measures of several different job characteristics and use appropriate data analytic strategies will allow us to better assess the utility of need concepts in the study of job stress.

CHAPTER III

SUMMARY AND HYPOTHESES

The present investigation represents a further effort to explore the person-situation interaction hypothesized to be at the heart of the job stress phenomenon. An attempt is made in this study to examine the relationships between a number of job characteristics and stress within a conceptually meaningful need theory framework. The job characteristics examined in relation to stress include social support and the adequacy of resources, as well as the more commonly studied role characteristics (role ambiguity and conflict) and job scope variables (autonomy, influence and skill variety).

All of these characteristics appear to affect the extent to which employees are able to satisfy either growth or social needs. Based on the arguments presented by Beehr, Walsh and Taber (1976) and Peters, O'Connor and Rudolph (1980), role ambiguity and conflict, low levels of the job scope characteristics, and inadequate resources are all assumed to represent conditions which prevent employees from attaining the goals and psychological states critical to the satisfaction of growth needs. Similarly the lack of social support in the work environment is assumed to frustrate relatedness needs.

The validity of the need frustration model of job stress is assessed in the present study by testing the following three hypotheses.

Hypothesis 1: Growth need strength will moderate the relationship between job scope (autonomy, influence and skill variety) and stress.

Hypothesis 2: Relatedness need strength will moderate the relationships between supervisory and co-worker social support, and stress.

Hypothesis 3: Growth need strength will moderate the relationships between role ambiguity, role conflict, resource inadequacy, and stress.

CHAPTER IV

METHOD

Sample

The sample in the present study consisted of 135 non-supervisory employees of 36 different restaurants in the greater Lansing area (22% response rate). Each organization was part of a larger chain of restaurants, with 12 different chains represented in all. Of the total sample, 71 individuals were employed in limited menu, fast-food restaurants, and 60 individuals were employed in family style restaurants with waitress service to tables (4 were employees of in-between restaurants). Permission to distribute surveys in the restaurants was obtained from regional or district managers for the restaurant chains prior to entry. Restaurant managers or research assistants distributed the questionnaires to employees at their place of work. The anonymity of respondents was guaranteed.

The sample consisted predominantly of part-time employees (70% work between 15 and 35 hours/week), most of whom were female (75%) and either high school or college students (64%) at the time the survey was administered (Spring of 1980). It is likely that the employees in this sample are atypical of most restaurant employees in regard to their educational aspirations. Only 15% of the employees in the sample reported that high school was probably the highest level of education they would obtain and almost 30% of the total sample reported that they expected to attend graduate school.

The limited nature of the present sample precludes generalizing the results of the study beyond the population of relatively young, mostly female part-time restaurant employees.

Measures

Stress. The index of stress consists of the mean response to two different sets of items. One set of items consists of "neurotic symptoms" taken from the Health Opinion Survey (Leighton et al., 1963). Respondents were asked to indicate on a 3-point scale (never, sometimes, often) how often in the last few months they had experienced things like trembling or sweaty hands, "cold sweats", weakness, problems sleeping, shortness of breath, pounding heart and general body ailments. Three of the original 17 items in this scale were dropped because they exhibited exceptionally low correlations with the other items. Two of the deleted items (Do you tend to lose weight when you worry? Do you have loss of appetite?) were judged to be poor indices of stress since some people may eat more when they are experiencing stress. The the third deleted item (Does ill health affect the amount of work that you do?) was judged to be ambiguous.

Respondents were also asked to use a 5-point frequency scale to indicate how often they experienced restlessness, fatigue, irritability, difficulty in concentrating, boredom, depression, angry feelings, digestion problems, nausea and allergies. The nausea and allergy items were dropped from the final scale since the responses to these items were totally unrelated to responses concerning the frequency with which other symptoms were experienced. The final 23 item stress scale was constructed by combining the two different stress scales. The inter-item consistency reliability of the final stress scale was .90. The entire set of stress items is shown in the Appendix (Part I).

The Job Scope (α =.78) scale consists of 6 items referring to the levels of skill variety, autonomy and influence opportunities perceived to exist in the employees cuurent jobs (see Appendix, Part II). Respondents were asked to use a 5-point "extent" scale to indicate the extent to which the items characterized their present jobs. Higher levels of these characteristics are presumed to represent a high level of job scope and increased opportunities to satisfy growth needs.

The Supervisory (α = .80) and Co-worker (α = .85) Social Support measures consisted of 3 items each (Appendix, Part II). The support received from supervisors was assessed by having respondents indicate the extent to which their managers were "friendly and easy to approach", "considerate of employees' feelings", and showed "confidence and trust" in employees. Items measuring the social support received from co-workers referred to the extent to which individuals "got along well" with their co-workers, "looked forward to" being with their co-workers, and experienced them as being "friendly and supportive". The correlation between the two scales was only .31, indicating that two separate dimensions of social support were being tapped.

The indices of Growth and Relatedness Need Strength were derived from responses to the same set of items that were used to measure Job Scope and Social Support (see Appendix, Part II). The Growth Need Strength (GNS) index (α = .80) was obtained by averaging employees ratings of the extent to which the 6 Job Scope items would characterize their "ideal" job, or a job they "would like very much". This method of inferring need strength is based on the rationale that preferences for high levels of autonomy, influence and skill variety reflect desires to use and increase one's capacities, and to have a creative and productive effect

on the environment. In other words preferences for increased job scope are presumed to reflect the strength of an individual's desires to satisfy growth needs. Similarly, preferences for high levels of social support are presumed to reflect the strength of an individual's Relatedness Needs (RNS). Examination of the inter-item correlations for the 6 social support measures, however, suggested that preferences for supervisory and co-worker support were not strongly associated. Consequently, hypothesis 3 was tested using the separate measures of Relatedness Need Strength obtained from the co-worker (α = .82) and supervisory (α = .76) scales (Co-worker RNS, and Superv. RNS), as well as the combined (Comb. RNS) index (α = .81) of Relatedness Need Strength.

In the tables, the Growth and Relatedness Need Strength measures are referred to as GNS-Pref and RNS-Pref to indicate that they were derived from employee preferences for certain job characteristics and levels of support.

In order to assess the construct validity of the need strength measures, growth and relatedness needs were also measured using an importance scale. This second measure of Growth Need Strength (GNS-Imp, α = .80) was obtained by asking respondents to indicate "how important" it was to them to have a job in which they have opportunities to learn new things, use their own judgment and ideas, and influence work-related decisions (4 items). The RNS-Imp (α = .74) measure was obtained by having respondents indicate how important is was to them to have "friendly and supportive" supervisors and co-workers (2 items).

Role Ambiguity (α = .84) was measured in the present study by having respondents rate the extent to which it was clear to them what they were expected to do on the job. The 7 items in the scale referred to

the clarity of the expectations stemming from several different sources (e.g., immediate supervisor, top management, co-workers and customers) as well as the extent to which general job requirements were clear (see Appendix, Part III). The item responses were all recoded so that a high score represented a high level of role ambiguity.

Role Conflict (α = .84) was measured using a scale containing 14 items representing different instances of role conflict (see Appendix, Part IV). Typical items referred to: not being able to do, or do well, all the things management or co-workers expect me to do; receiving contradictory requests from the same or different managers; and having co-workers and customers expect me to do things that are not part of my job (see Appendix, Part IV). Individuals rated each item according to the extent to which it characterized their job. Inter-item correlations suggested that three items be dropped from this scale for the purposes of data analysis. One of the items that was dropped, "I do work that is not part of my job" appeared to be ambiguous since agreement could mean that the employee was especially helpful rather than experiencing conflict. The two additional items that were dropped appeared slightly more difficult to understand, referring to "the extent to which you share your co-workers views about what their jobs (or "your job", second question) include". The primary reason these items failed to correlate with the others, however, was probably the fact that these were the only two items which were reverse scored. Individuals' response sets appear to have contaminated the measures.

Role Conflict and Role Ambiguity appeared to be related, both conceptually and empirically. The scale scores themselves correlated .50, and the inter-item consistency reliability (α = .86) for the combined

items was slightly higher than the reliabilities for the separate scales. This suggests that both measures might be tapping a more general role definition problem dimension. In order to explore the relative power of the separate and the combined scales as predictors of stress, a combination Role Definition Problems Index was constructed by averaging individuals' Role Conflict and Role Ambiguity scores.

Resource Inadequacy (α = .70) was measured by having employees indicate how "frequently" (5 point scale) the "each of the following things happen while you are at work". The items referred to running out of supplies, machines and equipment not working right, there being too few people scheduled for a shift, unnecessary delays in getting the work done, and not being told something you need to know (see Appendix, Part V).

Additional items and scales used in secondary analyses are shown in Part II (intrinsic satisfaction) and Part VI (life satisfaction/frustration, restaurant satisfaction/frustration, and GNS-Imp and RNS-Imp) of the Appendix.

Data Analysis

The need frustration model of job stress tested in the present study suggests that the level of need strength interacts with the perceived levels of job characteristics in determining the level of stress experienced by employees. According to Peters and Champoux (1979), when a moderator variable is hypothesized to interact with independent variables in determining levels of a dependent variable, moderated regression analyses are the most appropriate data analytic technique. Peters and Champoux (1979) point out that the subgroup analyses typically used in moderator variable research are most appropriate when one is searching

for "different validity coefficients (correlations) between a predictor and criterion variable within different subgroups of individuals formed from the moderator variable" (p. 240). Since the interaction effect, rather than differences in predictability across subgroups is the primary focus of this study, moderated regression analyses are used to test the hypotheses.

The first step in carrying out these analyses was the creation of interaction terms. The variables representing growth or relatedness need satisfaction opportunities (job scope and the social support measures) were reverse scored so that high scores on all 6 job characteristics represented conditions which were expected to be associated with stress. The interaction terms were then created by multiplying each job characteristic by the need strength measure hypothesized to moderate the relationship between the job characteristic and stress. The SPSS step-wise regression program was used to assess the extent to which the interaction term increased the amount of explained variance in stress over that explained by the job characteristic and need strength measure as independent predictors.

For each hypothesis tested, the job characteristic measure was entered in the regression equation first, the need strength measure was entered second, and the interaction term was entered last. Including need strength as an independent predictor in the regression equations forces a stronger test of the hypothesized interaction effect. The interaction term must add significantly to the variance explained in stress by the combination of the two independent predictors (the level of the job characteristic and the need strength index) before the data can be said to support the hypothesis. With this ordering of the vari-

ables in the regression equation, if the interaction term is found to add a significant increment of explained variance, then the possibility that the observed effect is due to an artifactual covariance of the moderator variable with the dependent variable can be ruled out.

CHAPTER V

RESULTS

Hypotheses and Moderated Multiple Regression Analyses

Moderated multiple regression (MMR) analyses were used to assess the hypothesized moderating effect of the need strength variables on the observed job characteristics/stress relationships. However, prior to the computation of the interaction terms, the construct validity of the need strength measures was assessed. Examination of the intercorrelations among the 4 indices of need strength indicated that Growth and Relatedness Needs were not well differentiated by the set of measures used in this study. The correlations between the two growth need measures and the two relatedness need measures were only .39 and .41 respectively, while the growth and relatedness need measures from the preference scale correlated .64 and the measures of the 2 needs based on the importance scale exhibited a correlation of .43. The fact that correlations between scales designed to measure two different needs were higher than correlations between different measures of the same need, suggests that the need strength measures may have been contaminated by common method variance, and thus may not be valid measures of two conceptually distinct needs.

In order to examine any differential effects of the two measures of growth need strength, Hypothesis 1 was tested using growth need strength measures from both the preference and importance scales (GNS-Pref and

GNS-Imp), as well as a measure obtained by combining the two scales (GNS-Comb). As indicated in Table 1, the results were essentially the same no matter which growth need strength measure was used. For this reason, subsequent analyses are based only on the preference measure of growth need strength (GNS-Pref).

The prediction made in Hypothesis 1 was that growth need strength would moderate the relationship between job scope and stress. The results of the moderated multiple regression analyses failed to support the hypothesis. None of the Growth Need Strength measures had any effect on the amount of explained variance in stress, either as independent predictors or through the interaction terms. Multiplying job scope by the need strength indices appeared to have the effect of multiplying by a constant.

Hypothesis 2 predicted that relatedness need strength would moderate the relationships between both supervisory and co-worker social support, and stress. The results of the MMR analyses are presented in Table 2. In the case of supervisory social support, a significant interaction effect was obtained using the relatedness need strength measure from the supervisory support scale. This need strength measure also exhibited a significant negative correlation with stress. No effect of need strength on stress was obtained for either the co-worker support, or the overall social support measures.

Hypothesis 3 predicted that growth need strength would moderate the relationships between 3 job characteristics (role ambiguity, role conflict and resource inadequacy) and stress. Results of the test of this hypothesis are presented in Table 3. Interaction terms were computed using the combined growth need strength measure. The addition of the

Table 1

Results of MMR Analyses for the Job Scope/Stress Relationship with Growth Need Strength as the Moderator Variable

Variable entered in regression equation	[1]Simple r	[2]Multiple R	Multiple R^2	[3]Multiple R^2 change	[4]Significance of increment in explained variance in stress
Job Scope	.187	.187	.035	.035	.03
Growth Need Strength (Preference Scale)	-.019	.187	.035	.000	ns
Job Scope x GNS (Preference Scale)	.155	.196	.038	.003	ns
Growth Need Strength (Importance Scale)	-.015	.187	.035	.000	ns
Job Scope x GNS (Importance Scale)	.155	.187	.035	.000	ns
Growth Need Strength (Combination Scale)	-.02	.187	.035	.000	ns
Job Scope x GNS (Combination Scale)	.163	.189	.036	.000	ns

[1]Zero order correlations between the variable on the left and stress ($n = 135$, $p < .05$, for $r = .16$).

[2]Indicates multiple R with stress when variables on the left are entered in the regression equation in descending order (job characteristic, need strength, interaction term).

[3]Indicates the change in the multiple R^2 as need strength and the interaction term are entered in the regression equation.

[4]ns entered when $p < .20$.

Table 2

Results of MMR Analyses for Social Support/Stress Relationships with Relatedness Need Strength as the Moderator Variable

Variable entered in regression equation	[1]Simple r	[2]Multiple R	Multiple R^2	[3]Multiple R^2 change	[4]Significance of increment in explained variance in stress
Supervisory Social Support	.362	.362	.131	.131	.001
Rel. Need Strength (supervisory)	-.199	.380	.144	.013	.154
Superv. Soc. Sup. x RNS (supervisory)	.272	.415	.172	.028	.037
Co-worker Social Support	.258	.258	.067	.067	.003
Rel. Need Strength (co-workers)	.008	.282	.080	.013	.171
Co-worker Soc. Sup. x RNS (co-workers)	.284	.285	.081	.001	ns
Overall Social Support	.395	.395	.156	.156	.001
Rel. Need Strength (overall)	-.116	.395	.156	.000	ns
Overall Soc. Sup. x RNS (overall)	.355	.404	.163	.007	ns

[1]Zero-order correlations between the variable on the left and stress ($n = 135$, $p < .05$ for $r = .16$, $p < .001$ for $r = .27$).

[2]Multiple R with stress when the variables on the left are entered in the regression equation in descending order (job characteristic, need strength, interaction term).

[3]Indicates the change in the multiple R^2 as need strength and the interaction term are entered in the regression equation.

[4]ns entered when $p < .20$.

Table 3

Results of MMR Analyses for Role Problems, Resource Inadequacy/Stress Relationships with Growth Need Strength as the Moderator Variable

Variable entered in regression equation	[1]Simple r	[2]Multiple R	Multiple R^2	[3]Multiple R^2 change	[4]Significance of increment in explained variance in stress
Role Ambiguity	.260	.260	.068	.068	.002
Growth Need Strength	-.020	.261	.068	.001	ns
Role Amb. x GNS	.255	.274	.075	.007	ns
Role Conflict	.307	.307	.094	.094	.001
Growth Need Strength	-.020	.309	.095	.000	ns
Role Conf. x GNS	.283	.330	.109	.014	.155
Role Definition Problems (Combined RA and RC)	.382	.338	.114	.114	.001
Growth Need Strength	-.020	.338	.114	.000	ns
Role Def. Probs. x GNS	.363	.363	.132	.017	.108
Resource Inadequacy	.308	.308	.095	.095	.001
Growth Need Strength	-.020	.308	.095	.000	ns
RI x GNS	.281	.308	.095	.000	ns

[1]Zero-order correlations between the variable on the left and stress ($n = 135$, $p < .05$ for $r = .16$, $p < .001$ for $r = .27$).

[2]Indicates multiple R with stress when variables on the left are entered in the regression equation in descending order (job characteristic, need strength, interaction term).

[3]Indicates the change in the multiple R^2 as need strength and the interaction term are entered in the regression equation.

[4]ns is entered when $p < .20$.

interaction term resulted in a slight increase in the multiple correlation with stress in the case of role conflict. However the increment in explained variance was not significant for this or either of the other two variables.

In the study as a whole, there was only one instance (social support from supervisors) where the addition of the interaction term to the regression equation added significantly to the amount of variance in stress accounted for by the job characteristic and need strength measure. This was also the only case where the need strength measure alone exhibited a significant correlation with stress. The obtained relationship was negative, however, and ran counter to the assumptions underlying the hypothesis. The data indicated that individuals who reported weaker preferences for friendly, open and trusting supervisors (i.e., weaker relatedness needs in regard to supervisors), were more likely to be experiencing a high level of stress, whereas the hypothesis would predict that, given comparable perceived levels of supervisory support, those with the stronger relatedness needs would experience the most stress. Thus, despite the significant increment in explained variance resulting from the addition of the interaction term (supervisory support and relatedness needs), the hypothesis was not supported. Further evidence that the interaction terms did little to improve the ability to predict stress stems from the fact that there was only one instance in the present study (social support from co-workers) where the interaction term exhibited a higher zero-order correlation with stress than the job characteristic measure alone. Additional MMR analyses conducted using intrinsic satisfaction as the dependent variable also failed to support the hypothesized moderating effects of need strength on job characteristics measures

in predicting stress. Similar to the results obtained with stress as the dependent variable, the job characteristics measures alone predicted satisfaction as well as the job characteristics/need strength interaction term.

In summary, none of the findings in the present study supported the need frustration model of job stress as it was tested here. The failure to obtain moderating effects with the growth need strength variable is consistent with results reported by Brief and Aldag (1976) and Morris and Snyder (1979) and in opposition to the results obtained by Beehr, Walsh, and Taber (1976). The effects obtained in the Beehr et al. (1976) study, however, were based on subgroup analyses which might be more appropriately interpreted as suggesting differential validity across subgroups rather than an interaction. In other words, the subgroup analyses used by Beehr et al. (1976) demonstrated that stress <u>can be more accurately predicted</u> from job characteristics measures for individuals with strong growth needs than for individuals with weak growth needs. However, the hypothesis under consideration here, that the <u>level</u> of stress experienced is a function of the <u>interaction</u> between job characteristics and need strength, is more appropriately tested using regression techniques rather than subgroup analyses (Peters & Champoux, 1979).

Considering then only those studies using regression techniques, the present as well as previous research efforts seriously call into question both the validity and the utility of need strength measures in the study of job stress.

The zero-order job characteristics/stress correlations obtained in the present study are reviewed below and discussed in light of previous

findings concerning these primary relationships. Following this review there is a discussion of several of the theoretical and methodological problems associated with the need frustration model of stress. Suggestions for alternative approaches to the study of job stress are offered at the end of the Discussion section.

Zero-Order Correlations

The intercorrelations among all the variables in the study, and the correlations between the perceived job characteristics and stress, are reported in Tables 4 and 5. As predicted, all of the job characteristics exhibit significant correlations with stress. Social support from the supervisor is the variable most strongly associated with stress ($r = -.36$) while job scope is the characteristic exhibiting the weakest relationship with stress ($r = -.19$). Role ambiguity, role conflict and resource inadequacy are all moderately related to stress ($r = .30$, $r = .31$, $r = .31$).

Evidence that social support is the strongest predictor of stress is consistent with the results obtained in the Caplan et al. (1975) and Beehr (1976) studies. Given the nature of restaurant work and the type of people who might be expected to seek out restaurant jobs, the strong relatedness need strength/stress association is not surprising. Restaurant work typically both permits and requires a good deal of social interaction, and thus is likely to increase the importance of positive interpersonal relationships at work, and attract individuals for whom relatedness needs are especially strong. The relative strength of the mean level of relatedness needs reported ($\bar{X} = 4.49$, S.D. = .49) compared to the level of growth need strength reported ($\bar{X} = 4.06$, S.D. = .62) appears to support the possibility that restaurant employees may have

Table 4

Scale Characteristics and Intercorrelations Among Variables

Variable	[1]M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Job Scope	1.87	.80	(.78)																
2. Superv. Soc. Support	2.51	.90	.51	(.80)															
3. Co-worker Soc. Support	2.93	.79	.35	.25	(.85)														
4. Overall Soc. Support	2.72	.67	.55	.82	.76	(.74)													
5. Resource Inadequacy	2.30	.75	-.12	-.39	-.02	-.25	(.70)												
6. Role Ambiguity	1.98	.58	-.32	-.37	-.24	-.39	.35	(.84)											
7. Role Conflict	1.99	.66	-.18	-.32	-.13	-.29	.46	.42	(.84)										
8. Role Def. Problems	1.98	.52	-.29	-.41	-.22	-.40	.48	.82	.86	(.86)									
9. Stress	2.25	.62	-.19	-.36	-.26	-.40	.31	.26	.31	.34	(.90)								
10. Intrinsic Sat.	3.00	1.12	.63	.52	.28	.51	-.18	-.25	-.21	-.27	-.28	(.78)							
11. Inclination to Leave	2.81	1.09	-.39	-.46	-.34	-.50	.22	.25	.33	.35	34	-55	(.80)						
12. Restaurant Sat./Frus. (one item)	3.55	1.03	.44	.47	.33	.51	-.27	-.34	-.35	-.41	-.39	.62	-.67	(---)					
13. Life Sat./Frus. (one item)	3.82	1.18	.02	.13	.05	.12	.08	-.07	.13	.04	-.44	.06	-.08	.14	(---)				
14. Growth Need Strength (Preference Measure)	4.06	.62	.14	.02	.12	.08	-.08	-.15	.03	-.07	-.02	-.09	.15	-.10	.13	(.80)			
15. Growth Need Strength (Importance Measure)	4.00	.66	.08	.04	-.02	.01	-.01	-.15	.03	-.17	-.01	-.07	.13	.01	.12	.39	(.75)		
16. Relatedness Need Strength (Preference Measure)	4.49	.49	.09	.13	.37	.31	-.07	-.17	-.11	-.16	-.12	.01	.06	.03	.20	.64	.36	(.80)	
17. Relatedness Need Strength (Importance Measure)	4.37	.59	.25	.16	.31	.29	.02	-.17	-.06	-.13	-.07	.13	.13	.25	.14	.15	.43	.41	(.79)

[1]All variables measured on 5-point Likert-type scale where a low score indicates a low level of the variable and a high amount of the variable.

[2]$n = 135$; $p < .05$ for $r = .16$, $p < .001$ for $r = .27$; scale reliabilities are reported on the diagonal.

Table 5

Independent and Dependent Variable Correlations

Variable	[1]M	SD	1	2	3	4	5	6	7	8	9
1. Stress	2.25	.62	(.90)								
2. Job Scope	1.87	.80	-.19	(.78)							
3. Supervisory Social Support	2.51	.90	-.36	.51	(.80)						
4. Co-worker Social Support	2.93	.79	-.26	.35	.25	(.85)					
5. Overall Social Support	2.72	.67	-.40	.55	.82	.76	(.74)				
6. Resource Inadequacy	2.30	.75	.31	-.11	-.39	-.01	-.25	(.70)			
7. Role Ambiguity	1.98	.58	.30	-.33	-.37	-.24	-.39	.35	(.84)		
8. Role Conflict	1.99	.66	.31	-.18	-.32	-.13	-.29	.46	.48	(.84)	
9. Overall Role Definition Problems	2.09	.52	.34	-.29	-.41	-.22	.40	.49		.86	(.86)

[1]Means are all based on a 5-point extent scale (1 = to a very small extent or not at all, 5 = to a very great extent). Internal consistency reliabilities of the scales are reported on the diagonal ($n = 135$; $p < .05$ for $r = .16$, $p < .001$ for $r = .27$).

stronger growth than relatedness needs (Table 4). It should also be noted, however, that the difference between the two measures may be due to differences in the social desirability of the items making up the scales, and the difference may hold for the population in general as well as for the sample of restaurant employees surveyed in the present study.

While the strength of the observed social support/stress relationship is understandable, the reasons for the relatively low job scope/stress correlation ($r = .19$) are less clear. In light of previous research findings, as well as the generally high educational aspirations of the employees surveyed, this correlation seems to be somewhat lower than one might expect.

One explanation for the failure to detect a strong job scope/stress relationship rests on the possibility that a large proportion of the variance in the job scope measure was error variance (i.e., due to individual differences in response sets, frames of reference, and subjective perceptions) rather than true variance reflecting real differences in the scope of the different jobs. This possibility is especially likely in samples like that surveyed in the present study, where the jobs held by employees are quite similar. If the job scope measure was in fact contaminated by a considerable about of error variance, a strong underlying relationship, even if it existed, would be difficult to detect. In an effort to examine the extent to which employee perceived levels of job scope reflected independently observable differences across jobs, rather than error variance, employees in the present sample were divided into two subgroups based on the type of restaurant in which they worked. Seventy-one of the individuals responding to the survey worked in limited

menu, fast-food, counter service only restaurants. Jobs in the fast-food restaurants appeared to be very limited in scope. The restaurants were typically set up as assembly-lines, and employees generally stood at the counter and performed a limited number of tasks (e.g., pouring drinks or flipping hamburgers) over and over again. Sixty other individuals in the sample were employed in family style restaurants with more varied menus and waitress service to tables. Employees in these restaurants performed a greater number and variety of tasks, and appeared to have considerably more opportunities to exercise discretion in the performance of their work. A comparison of the mean levels of job scope reported by employees of the two restaurant types indicated that employee perceptions of the scope of their jobs were largely consistent with outsider observations. As indicated in Table 6, the mean level of job scope reported by employees of the fast-food restaurants ($\bar{X}$ = 1.66) was more than one-half standard deviation (S.D. based on the entire sample) below the mean level reported by employees of the family style restaurants ($\bar{X}$ = 2.13). This finding, combined with the observation that the reported stress levels were comparable for the two groups, suggests that the failure to detect a strong job scope/stress correlation in the sample as a whole is <u>not</u> due to a lack of true variance in the job scope measure.

It should also be noted that job scope and support from supervisors were strongly related in this study (r = .51, see Table 5). While this may be an artifact of common method variance (items were similiar in format and in the same section of the survey), the strength of the association raises the possibility that supervisors, through their attitudes and behaviors, affect the extent to which employees perceive that they

Table 6

Variable Means and Independent/Dependent Variable Correlations for the Fast Food and Family Service Restaurant Subsamples

Variable	Fast Food (n = 71)			Family Service (n = 60)		
	$\bar{X}$	r with stress	r with Intr. Sat.	$\bar{X}$	r with stress	r with Intr. Sat.
Job Scope	1.66	-.13	.60	2.13	-.31	.67
Superv. Soc. Sup.	2.56	-.34	.51	2.49	-.41	.59
CW. Soc. Sup.	2.95	-.33	.23	2.88	-.17	.34
Role Conflict	1.97	.15	-.16	2.02	.52	-.29
Role Ambiguity	1.98	.33	-.28	1.98	.21	-.22
Resource Inad.	2.21	.21	-.20	2.40	.48	-.23
GNS	3.96	.04	-.29	4.23	-.09	.10
RNS	4.47	-.09	-.15	4.52	-.11	.22
Life Sat/Frus	3.85	-.51	-.05	3.85	-.37	.18
Rest. Sat/Frus	3.59	-.30	.68	3.47	-.50	.58
Intr. Sat.	2.89	-.15	---	3.11	-.47	---
Stress	2.22	---	.15	2.27	---	.47

have the opportunity to exercise autonomy and influence in their jobs. Supervisory support may thus affect the satisfaction of growth, as well as relatedness needs, in the work environment.

In regard to role conflict and ambiguity, it is somewhat surprising that comparable and low levels of both variables were reported. One might expect that restaurant employees, in their roles as "boundary spanners" of the organization (i.e., in this case, dealing with customers), would experience fairly high levels of role conflict. This appeared not to be the case, however. While the reasons for this are unclear, it is interesting to note that role conflict exhibited a fairly strong correlation ($r = .46$, see Table 5) with resource inadequacy. This association raises the possibility that, to some extent at least, perceptions of role conflict may result from conflicts between job expectations and demands and the performance constraints imposed by inadequate resources.

Examination of the job characteristic/intrinsic satisfaction correlations (see Table 7) suggests that the job characteristics may lead to stress through different mechanisms. Job scope and supervisory social support are both strongly related to the intrinsic satisfaction measure. The relationships between these two variables and intrinsic satisfaction are stronger than the relationships between these variables and stress, suggesting that, as hypothesized, need frustration, or intrinsic satisfaction may be an intervening variable in the relationship between these job characteristics and stress.

Role conflict and resource inadequacy, on the other hand, exhibit stronger correlations with the stress measure than they do with the intrinsic satisfaction measure. In fact, the role conflict and resource

Table 7

Job Characteristic and Interaction Term Correlations

with Stress and Additional Dependent Variables

	Stress	Intrinsic Satisfaction	Restaurant Satisfaction/ Frustration	Inclination to Leave
Job Scope	-.19	.63	.60	-.39
Job Scope x GNS	-.15	.61	.41	-.41
Superv. Soc. Sup.	-.36	.52	.58	-.46
Superv. Soc. Sup. x RNS (Supervisory)	-.33	.50	.46	-.47
Co-W Social Support	-.26	.28	.27	-.34
C-W Soc. Sup. x RNS (Co-Worker)	-.25	.29	.33	-.37
Resource Inadequacy	.31	-.18	-.22	.22
RI x GNS	.27	-.15	-.24	.22
Role Ambiguity	.26	-.25	-.36	.25
RA x GNS	.25	-.24	-.33	.28
Role Conflict	.31	-.21	-.35	.33
RC x GNS	.29	-.20	-.33	.35

inadequacy correlations with intrinsic satisfaction are the lowest exhibited by any of the job characteristics. This pattern of results suggests that the concepts of intrinsic or growth need satisfaction/frustration may be unnecessary in explaining the effects of these characteristics on stress. Consistent with the hypothesis put forth by Peters and O'Connor (1980) inadequate resources may lead to immediate frustration and hence, stress, simply by blocking goal-directed behavior (i.e., the performance of one's job). Similarly, perceived role conflict may induce internal conflicts which are inherently frustrating. The effects of role conflict on stress then, may, like the effects of resource inadequacy, be immediate, obviating the need to posit intervening variables in these relationships. The results of the moderated multiple regression analyses reported above also support this notion.

CHAPTER VI

DISCUSSION

Methodological and measurement problems. It was noted earlier that the measures used in the present study failed to adequately differentiate Growth and Relatedness Need Strength. A further, perhaps related, problem is that the scales also failed to detect any meaningful differences across individuals in the strength of these two needs. The need strength distributions were extremely skewed, with by far the majority of the respondents indicating preferences for jobs characterized "to a large extent" or "to a very large extent" by the variables representing opportunities to satisfy growth and relatedness needs. The uniformly high preference and importance ratings appear to be due, in part at least, to individual response sets and the social desirability of the job scope and social support items. However, the additional possibility that individual differences in need strength are small enough to be of little practical importance must also be entertained.

The tendency for need strength measures to yield highly skewed distributions may explain the popularity of subgroups analyses as a means of assessing hypothesized moderating effects. When uniformly high need strength scores are used to create interaction terms for regression analysis, the effect may approximate multiplying the job characteristics scores by a constant. However, if samples are dichotomized or trichotomized on the basis of need strength scores, artificial variance

can be created by assigning individuals to different subgroups on the basis of very small differences in mean scores. Chance alone is likely to produce at least some differences across groups in job characteristics/stress correlations; yet even when differences are significant and in the predicted direction, the support for hypothesized moderating effects is weak when the actual differences in need strength are relatively small, subgroup sizes are small, and results are based on comparisons of only the two extreme groups. Furthermore, interpretation of the data may be difficult when there appear to be differences across groups in the variance of independent and dependent variables, or when there is reason to believe that individual response sets or social desirability may have influenced the need strength ratings.

The problems in drawing conclusions from moderator variable research are further compounded by evidence that subgroup analyses and moderated multiple regression analyses may lead to very different results (LaRocco & Jones, 1978; Stone, Mowday, & Porter, 1977). In a study designed to assess the moderating effects of need for achievement and need for autonomy on the relationship between job scope and job satisfaction, Stone, Mowday and Porter (1977) conducted <u>both</u> subgroup and moderated multiple regression analyses in order to assess the comparability of the results based on the different types of analysis. The authors reported that the "subgroup analysis showed no moderating effect for need for autonomy, and moderatng effects inconsistent with previous research and theory for need for achievement. Moderated regression showed no moderating effect for need for autonomy and a moderating effect of negligible practical importance for need for achievement" (Stone, Mowday, & Porter, 1977, p. 466). In other words, different conclusions concerning

the moderating effects of need for achievement might be drawn from the two different analytic techniques.

The possibility that the two types of analysis may lead to different conclusions was also explored in the present study. A general need strength index was obtained by summing scores on all four need strength measures. The sample was then split at the mean on this variable and job characteristics/dependent variable correlations were computed for the high and low need strength subgroups. The results of these analyses are shown in Tables 8 and 9. An examination of the job characteristics and interaction term correlations with stress (MMR analyses, see Table 7) suggests that the need strength variable exerts no moderating effect on the job characteristics/stress relationships. In fact, in most cases, the effect of the need strength variable is to slightly reduce the correlation with stress. Examination of the correlations obtained from the subgroup analysis (Table 9), on the other hand, tempts one to conclude (before tests of the significance of the differences between correlations are conducted) that need strength <u>does</u> moderate job characteristics/stress relationships, especially in the case of the job scope/satisfaction, and social support/stress relationships. The association between job scope and all four dependent variables is stronger for the high need strength group than for the low need strength group. It also appears that role conflict is more strongly associated with the dependent variables among the high need strength group. Resource inadequacy, on the other hand, exhibits stronger correlations with the dependent variables in the low need strength group. The moderating effects on the supervisory support, co-worker support and role ambiguity correlations are inconsistent. The results of the subgroup analyses, then, suggest that

Table 8

Scale Characteristics for the High and Low Halves of the Sample on Overall Need Strength

Variables	Low (n = 69)		High (n = 66)		Total (n = 135)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Dependent Variables:						
Stress	2.24	.60	2.25	.65	2.25	6.62
Intrinsic Sat.	2.90	1.09	3.10	1.15	3.00	1.12
Restaurant Sat.	3.45	.93	3.67	1.12	3.55	1.03
Inclination to Leave	2.77	1.03	2.86	1.14	2.81	1.09
Independent Variables:						
Job Scope	1.77	.66	2.01	.90	1.87	.80
Soc. Support Superv.	2.39	.86	2.63	.94	2.51	.90
Soc. Sup. Co-workers	2.78	.83	3.09	.73	2.93	.79
Role Ambiguity	2.05	.59	1.90	.57	1.98	.58
Role Conflict	1.92	.66	2.06	.65	1.99	166
Resource Inadequacy	2.31	.71	2.29	.80	2.30	.75

Table 9

Independent and Dependent Variable Correlations for the High and Low Overall Need Strength Subgroups

	Dependent Variables							
	Stress		Intrinsic Sat.		Restaurant Sat/Frus		Inclination to Leave	
Independent Variables	Low	High	Low	High	Low	High	Low	High
Job Scope	-.16	-.22	.54	.70	.32	.51	-.35	-.44
Superv Soc Support	-.45	-.29	.51	.51	.32	.57	-.49	-.45
Co-worker Soc Sup	-.26	-.27	.23	.32	.36	.28	-.35	-.36
Role Ambiguity	.22	.30	-.33	-.16	-.36	-.31	.32	-.21
Role Conflict	.25	.36	-.17	-.26	-.33	-.41	.25	-.41
Resource Inadequacy	.34	.28	-.31	-.06	-.34	-.22	.36	-.10
Dependent Variables								
Inclination to Leave	.34	.34	.54	.59	.66	.69	----	----
Restaurant Sat/Frus	-.28	-.48	.51	.70	----	----		
Intrinsic Sat.	-.36	-.21	----	----				

job scope and role conflict predict these 4 dependent variables more accurately for individuals with high need strength scores than for individuals with low need strength scores. The implications of this conclusion become ambiguous, however, when the scale means for the two subgroups are examined. According to Table 8, the individuals with the highest need strength scores also reported the highest level of every other variable except resource inadequacy (the only objectively anchored scale) and stress. The apparent reversal of the trend for the role ambiguity variable is explained by the fact that these scores were obtained by recoding items which originally measured role clarity. In addition, the largest differences between groups are found for the job scope and social support items, the items from which the need strength measures were derived. The consistently higher scores within the high need strength group suggest that the need strength ratings may covary with, and perhaps be influenced by some individual characteristic (the tendency to circle high numbers on questionnaires, perhaps) or some factor in the work environment (e.g., the nature of the job may influence preferences for characteristics). When these possibilities are considered, the degree of confidence one can place in conclusions concerning the moderating effect of need strength is somewhat reduced.

The present attempt to test the need frustration model of job stress appears to have raised more questions than it has answered. The presence of methodological and measurement problems combined with the contradictory results obtained from the different data analysis techniques, makes it difficult to draw strong conclusions about the validity of the need frustration model of job stress from the present study. The results furthermore raise questions about the validity and reliability of the

evidence concerning moderator variables in studies where subgroup analyses constitute the only tests of the hypothesized effects. White (1977) notes that studies employing need strength variables as moderators of job characteristics/satisfaction relationships yield generally inconsistent results. He further notes that even when differences across subgroups in the obtained correlations are in the predicted direction, the differences are typically quite small.

One possible explanation for the inconsistency in the results obtained in moderator variable research centers on sampling problems. Some studies, including the present one, focus on a fairly homogeneous sample, whereas other studies use very diverse samples. Moderating effects may be more difficult to detect when there is relatively little variance in the jobs and individuals studied.

Future researchers may need to consider the differential effects obtained with different samples, as well as the reliability and validity of their measures and the appropriateness of their data analytic techniques. In addition, researchers might do well to consider alternative theoretical frameworks, and look beyond job characteristic perceptions and preferences in their search for the determinants of job stress. Below, some of the assumptions underlying the currently popular approaches to the study of job stress are examined as a means of both identifying our biases and suggesting alternative conceptualizations of the relationships and process involved in the stress phenomenon.

Alternative Approaches. Investigations based on a motivational model of stress, including studies based on both need concepts and person-environment fit theory appear to incorporate three implicit assumptions which may or may not be valid. First, it is presumed that the strength

of basic needs varies enough across individuals to produce detectable and practically significant variations in the way people respond to certain job characteristics. This assumption appears to be untestable at the present time because of the problems in obtaining reliable and valid measures of need strength.

A second assumption concerns "the relative importance of the work role and work connected problems, compared to the other roles and sources of satisfaction and dissatisfaction" (Kasl, 1980, p. 5). In job stress research it is assumed that the satisfaction of needs and motives in the work environment, particularly those related to growth, is a central goal of employees across a variety of occupational groups. However, differences in the nature of the work, in individual values and orientations toward work, as well as differences in the number of hours worked, may influence the extent to which work is an important source of both need satisfaction and stress.

In the present study, one of the items included in the questionnaire asked individuals to rate, on a 5-point scale, the extent to which their lives outside of work were satisfying or frustrating. Responses to this item exhibited a correlation of -.44 with stress, the strongest single correlation with stress (for the total sample) of any of the variables measured in the study (see Table 7). A similar item measuring overall satisfaction/frustration with the restaurant, exhibited a correlation of -.39 with stress. To assess the extent to which the strong life satisfaction/stress association was attributable to the large percentage of part-time employees in the sample, correlations were computed separately for employees who worked under (n = 90) and over (n = 45) 28 hours/week (see Table 10). Essentially no difference was found be-

Table 10

Variable Means and Independent/Dependent

Variable Correlations for the Part Time and Full Time Subsamples

	Part Time 28 hrs/week or less (n = 90)		Full Time more than 28 hrs/wk (n = 45)	
Variable	$\bar{X}$	r with stress	$\bar{X}$	r with stress
Job Scope	1.74	-.21	2.14	-.25
Superv. Soc. Sup.	2.47	-.37	2.56	-.38
C-W Soc. Sup.	2.90	-.36	2.98	-.11
Role Conflict	1.90	.26	2.17	.34
Role Ambiguity	2.04	.35	1.88	.18
Resource Inad.	2.24	.21	2.42	.43
GNS	4.10	.03	4.00	-.07
RNS	4.54	-.08	4.39	-.13
Life Sat/Frus	4.02	-.44	3.42	-.41
Rest. Sat/Frus	3.48	-.36	2.98	-.47
Intr. Sat.	2.87	-.25	3.24	-.43
Stress	2.19	---	2.36	---

tween the life satisfaction/stress correlations obtained within the part-time (r = .44) and full-time (r = .41) subgroups of employees. Restaurant satisfaction, on the other hand, appeared to show a slightly stronger effect for full-time employees (r = -.47) than part-time employees (r = -.36), although the significance of the differences between these correlations was not examined. In order to examine the effects of differences in the nature of the work, the correlations within the fast-food and full service restaurant groups were also examined (see Table 9). Among fast-food employees, the life satisfaction/stress correlation was quite high (r = -.51), and the restaurant satisfaction/stress correlation was relatively low (r = .30). Conversely, within the family style restaurant subgroup, the life satisfaction/stress correlation was lower (r = .37) than the restaurant satisfaction/stress correlation (r = .50).

These findings, while not conclusive, suggest nevertheless that the importance of work as a source of satisfaction and stress may be related to the nature of the work. When jobs are quite limited in scope and unrelated to the long-term career aspirations of employees, individuals may feel less involved in their jobs and derive the bulk of their satisfaction (and frustrations) from non-work sources.

A third, related assumption concerns the stability of the needs and motives people bring with them to a job. It appears to be generally assumed that individuals' needs and goals are unaffected by the nature of the work environment, and remain stable across different job situations. Kasl (1980), on the other hand, suggests that workers in less skilled jobs may attempt to adjust to non-challenging work by lowering their expectations, changing their need structure, and making the most

of social opportunities on and off the job (p. 30). In other words, employees who find themselves in jobs which are low in job scope may place less emphasis on enjoying the work itself, and may instead view the rewards of work in terms of financial considerations and social opportunities.

The extent to which needs and motives were changed by the job could not be assessed in the present study. However, it was possible to compare the different job characteristic/stress correlations across the fast-food (low job scope) and the family style (higher job scope) employee subgroups. A larger percentage of the fast-food than the family style employees were part-time workers. However, in other respects the two groups appeared to be quite similar. Kasl's (1980) hypothesis suggests that employees of the fast-food restaurants may be more likely to de-emphasize the importance of opportunities to satisfy growth needs, and focus instead on opportunities to satisfy social needs. If this is indeed the case, then stress should be more strongly associated with social support, and more weakly associated with job scope for the employees of fast-food restaurants. This appears to be the trend in the data. For the fast-food group, job scope and intrinsic satisfaction are only weakly related to stress ($r = -.13$ and $r = -.15$, respectively) whereas both variables are quite strongly related to stress among the family style restaurant employees ($r = -.31$, $r = -.47$). Social support from co-workers, on the other hand, exhibits the opposite pattern, correlating -.33 with stress among the fast-food workers, and only -.17 with stress among the family style restaurant employees. Supervisory social support exhibits a slightly higher association with stress for the family-style group ($r = -.41$ vs. $r = -.34$ for the fast-food group)

but this might be expected in light of the strong association between job scope and supervisory support. There are two plausible explanations for these findings. One explanation rests on the hypothesis put forth by Kasl (1980) that individuals may modify their motives and expectations to conform to better fit the realities of the job situation. This hypothesis calls into question the validity of the assumption that needs and motives are stable characteristics across different situations. The second possibility is that different types of people are attracted to the different types of restaurants. While this is a plausible alternative explanation, the general comparability of the demographic characteristics of employees in the two types of restaurants makes this explanation less likely.

The existence of competing hypotheses relevant to the motivational assumptions typically made in job stress research suggests that future researchers should both explicate their underlying assumptions and attempt to test them. The same point applies to job characteristics/stress research in general.

One of the assumptions underlying job characteristics/stress research concerns the direction of causality in the observed relationships. When significant job characteristics/stress correlations are obtained, it is generally assumed that the relationship is due to the effects of job characteristics on stress. This causal interpretation would be reasonable if the job characteristics measures used in stress studies were objective measure of relatively stable attributes of the work environment. This is not the case, however. The job characteristics measures employed in stress research are almost without exception <u>perceptual</u> measures, and as such are likely to reflect characteristics

of the individual as well as attributes of the job. When the subjective nature of these measures is acknowledged, alternative hypotheses about the direction of causality in the observed relationships appear plausible.

One alternative hypothesis is that the observed relationships are due to the influence of stress on perceptions of job characteristics. In other words, the amount of stress individuals experience may affect the way they respond to and perceive various aspects of their jobs. For example, a high level of stress may reduce an individual's ability to tolerate ambiguity or cope with conflicting job demands, causing the individual to experience and perceive higher levels of role ambiguity and role conflict than someone in the same job who is not experiencing stress. Or, as suggested in the literature on clinical depression, individuals who are experiencing depression or similar symptoms of stress may selectively focus on the problems areas in their work, and thus perceive both job characteristics and social relationships in a more negative light (Novaco, 1979).

A second possible explanation for the perceived job characteristics/ stress association is that both job perceptions and stress are causally related to a third variable (e.g., available coping skills, general attitudes, or personality factors). For example, deficiencies in coping or interpersonal skills may cause individuals to experience high levels of stress in both work and non-work settings, and to perceive certain aspects of their jobs as problematic. Similarly, differences in cognitive sets or general outlooks on life might influence both the way individuals experience and/or rate their jobs as well as the amount of stress they experience and/or report experiencing. For example, Kobasa, Hilker, and Maddi (1979) found that a set of attitudes toward life (specifically,

viewing change as a challenge instead of a threat, experiencing a sense of control over events, and feeling involved in work and social life) differentiated upper level managers who experienced illness in conjunction with high levels of "stressful" life events from those with equally high "stressful" life events scores who did not experience illness. This set of attitudes could conceivably result in both low levels of stress and favorable perceptions of the job.

A third possibility is that stress, behavior, individual characteristics and characteristics of the environment (or job) all interact reciprocally, mutually determining each other (Bandura, 1977). This conceptualization seems to offer the most complete explanation of the nature of the relationships involved in the stress phenomenon. This explanation is also the most difficult to empirically verify or disprove. The problems involved in testing such a model, however, do not detract from the value of the model as a conceptual framework from which a number of different perspectives can be considered. It seems that much of the job stress research to date, the present investigation included, has been limited in value because it has been characterized by a narrow focus on a limited number of variables, a failure to distinguish perceptual from objective measures of job characteristics, and an over-reliance on untested, unidirectional notions concerning causal relationships.

The broader framework suggested by the notion of reciprocal determinism (Bandura, 1977) might lead to more fruitful research designed to test a number of competing hypotheses concerning the relationships among stress, behaviors (especially coping behaviors), attributes of the individual (attitudes, beliefs, perceptions) and characteristics of the environment. Consideration of this broader conceptualization

of the possible determinants and consequences of stress, combined with a careful concern for the reliability of measures may go a long way toward increasing the utility and validity of future research in this area.

APPENDIX

APPENDIX

PART I

QUESTIONNAIRE ITEMS MEASURING THE VARIABLES

STRESS - mean of responses to the following two sets of items:

A. Health Opinion Survey of neurotic symptoms (Leighton, et al., 1963; House, Kaplan, McMichael, & Wells, 1976) ("How often": 3-point "never", "sometimes", "often" response scale).

1. Do your hands tremble enough to both you?
2. Are you troubled by hands and feet sweating so that they feel damp and clammy?
3. Are you bothered by your heart beating hard?
4. Do you feel tired when you first get up?
5. Do you have any trouble getting to sleep or staying asleep?
6. How often are you bothered by nightmares (dreams that frighten or upset you)?
7. Are you bothered by "cold sweats"?
8. Do you feel that you are bothered by all sorts (different kinds of ailments in different parts of your body)?

*9. Do you have loss of appetite?

*10. Does ill health affect the amount of work (including housework) that you do?

11. Do you feel weak all over?
12. Do you have spells of dizziness?

*13. Do you tend to lose weight when you worry?

14. Are you bothered by shortness of breath when you are not exerting yourself?
15. Do you feel healthy enough to carry out the things that you would like to do?
16. Do you feel in good spirits?
17. Do you sometimes wonder if anything is worthwhile anymore?

* Items deleted from final combined stress scale.

B. Items from the stress literature (5-point frequency scale).

I HAVE EXPERIENCED:

Restlessness and agitation	Depression
Fatigue	Angry feelings
Irritability	Digestion problems
Difficulty in concentrating	* Nausea
Boredom	* Allergies

PART II

INSTRUCTIONS INCLUDED IN THE QUESTIONNAIRE PERTAINING TO THE VARIABLES

JOB SCOPE THROUGH INTRINSIC SATISFACTION:

In this section, we would like you to describe your present job and your ideal job.

When we ask you to describe your present job, please choose the answer that best describes your job now, regardless of whether you like or dislike your job.

When describing your ideal job, indicate how you would like your "perfect" job to be--a job you would like very much.

Please indicate your answer using the following scale.

To a very small extent or not at all	To a small extent	To some extent	To a large extent	To a very large extent
1	2	3	4	5

JOB SCOPE - mean of responses to items referring to present job.

GROWTH NEED STRENGTH (GNS - Pref) - mean of responses to items referring to the ideal job.

1. My present job requires me to use different skills and abilities.
2. My ideal job would require me to use different skills and abilities.
3. My present job gives me the opportunity for independence and freedom in how I do the work.
4. My ideal job would give me the opportunity for independence and freedom in how I do the work.
5. My present job gives me the chance to use my personal initiative or judgment in carrying out the work.

* Items deleted from final combined stress scale.

6. My ideal job would give me the chance to use my personal initiative or judgment in carrying out the work.
7. In my present job I have a say in how we go about getting the work done here.
8. In my ideal job I would have a say in how we go about getting the work done here.
9. In my present job my manager encourages suggestions from employees.
10. In my ideal job my manager would encourage suggestions from employees.
11. In my present job I feel that I can influence decisions that affect me.
12. In my ideal job I would feel that I could influence decisions that affect me.

CO-WORKER SOCIAL SUPPORT - mean of responses to items referring to present job.

RELATEDNESS NEED STRENGTH (RNS) - mean of responses to items referring to ideal job.

13. In my present job I look forward to being with my co-workers.
14. In my ideal job I would look forward to being with my co-workers.
15. In my present job my co-workers are friendly and supportive.
16. In my ideal job my co-workers would be friendly and supportive.
17. In my present job my co-workers and I get along well together.
18. In my ideal job my co-worders and I would get along well together.

SUPERVISORY SOCIAL SUPPORT - mean of responses to items referring to present job.

RELATEDNESS NEED STRENGTH (RNS) (RNS - Supervisor) - mean of responses to items referring to ideal job.

19. In my present job my management is friendly and easy to approach.
20. In my ideal job my management would be friendly and easy to approach.
21. In my present job my management shows confidence and trust in employees.
22. In my ideal job my management would show confidence and trust in employees.
23. In my present job my management is considerate of employees' feelings.
24. In my ideal job my management is considerate of employees' feelings.

INTRINSIC SATISFACTION - mean of responses to the following 2 items.

25. In my present job I get a sense of accomplishment from doing the work.

26. My present job contributes to my feeling good about myself.

PART III

ROLE AMBIGUITY - mean of responses to the following 7 items ("How clear are you about:"; 5-point response scale, 1 = not at all clear, 5 = extremely clear; reversed scored for data analysis).

1. What is included in your job.

2. How you are supposed to do your job.

3. What your immediate manager (the one you report to most often) expects of you.

4. What the top management of the restaurant (Head manager; Co-manager) expects of you.

5. What your co-workers expect of you.

6. What the customers expect of you.

7. How to handle customer problems.

PART IV

ROLE CONFLICT - mean of responses to 11 of the following 14 items ("To what extent is each of the following statements true for your job?"; 5-point "extent" scale).

1. Even if I wanted to, it is not possible to do my work in a way that can please everyone here at the same time.

2. Customers expect me to do work that is not part of my job (leave blank if you don't deal directly with customers).

3. Things I have to do as part of my job go against my personal values (for example, a biologist may have to kill an animal in his work).

4. I cannot do all the things my management expects me to do and do them well.

5. When I actually do my job, I have to ignore things my management expects me to do.

6. When I actually do my job, I have to ignore things that a co-worker expects me to do.

* 7. To what extent do you share your co-workers' views about what <u>their</u> jobs include?

* 8. To what extent do your co-workers share your view about what <u>your</u> job includes?

9. What one <u>manager</u> expects me to do on my job is different from what another <u>manager</u> expects me to do (leave blank if you have only one manager).

10. I receive contradictory requests from the same manager.

11. My co-workers expect me to do work that is not part of my job.

12. A manager tells me to do one thing and then the same manager turns around and tells me to do the opposite.

13. My <u>management</u> expects me to do work that is not part of my job.

*14. I do work that is <u>not</u> part of my job.

PART V

<u>RESOURCE INADEQUACY</u> - mean of responses to the following 5 items ("How often does each of the following happen while you are at work?"; 5-point frequency scale).

1. Too few people are scheduled for the shift.

2. You run out of supplies or have to make do with poor substitutes.

3. There are unnecessary or avoidable delays in getting work done around here.

4. You have not been told ahead of time something you need to know.

5. The machines and equipment you use do not work right.

* Items deleted

PART VI

ADDITIONAL ITEMS AND SCALES USED IN SECONDARY ANALYSES

LIFE SATISFACTION/FRUSTRATION - score on the following item:

1. My life outside of work.

RESTAURANT SATISFACTION/FRUSTRATION - score on the following item:

2. My overall experience at this restaurant.

Response Scale for Both Items:

Very frustrating	Somewhat frustrating	Neither satisfying nor frustrating	Somewhat satisfying	Very Satisfying
1	2	3	4	5

RELATEDNESS NEED STRENGTH (RNS - Imp) - mean of response to items 1 and 2 below.

GROWTH NEED STRENGTH (GNS - Imp) - mean of responses to items 3 through 6 below.

1. Being able to work with friendly and supportive co-workers.
2. Having a friendly and supportive manager.
3. Having a job that allows you to keep learning or improving.
4. Having a job where you feel you have a say in decisions that affect you.
5. Having a job where you are encouraged to contribute ideas to improve things.
6. Having a job where you need to use your own judgment a lot.

Response Scale for Above Items:

("How important to you is:")

Not important at all	Not too important	Moderately important	Very important	Extremely important
1	2	3	4	5

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