

## Organizational Determinants of Job Stress

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A model of job stress that focuses on organizational and job-related stress is presented. Job stress is conceived of as a first-level outcome of the organization and job; it is a feeling of discomfort that is separate and distinct from second-level outcomes or consequences of job stress. The second-level outcomes may include varying levels of satisfaction, organizational commitment, motivation, and performance. A partial test of the model examines relationships between hypothesized stressors and experienced job stress. Survey data obtained from 367 managers of a large restaurant chain were used with the results generally supporting the model. Factor analysis supported the concept that job stress is multidimensional. Two distinct dimensions of job stress were identified: time stress and anxiety. Both job stress dimensions were significantly related to each of the model's five organizational stressor categories, but not all of the independent variables within the categories were significantly related to job stress. Moreover, the specific stressors associated with each dimension of job stress proved to be substantially different.

Interest in the phenomenon of work-related stress has increased markedly during the last few years, as indicated by several reviews of the literature, a number of books, and a rash of public seminars promoting different approaches to stress control (Brief, Schuler, & Van Sell, 1981; Cooper & Marshall, 1976; Kahn, 1981; Levi, 1981; Moss, 1981). Despite this widespread interest, there have been relatively few reports of empirical investigations of stress in work organizations. The organizational literature on stress is dominated instead by concept papers with few tests of the concepts presented.

Nevertheless, the available evidence and common sense suggest that job stress contributes to health-related problems among workers and to

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organizational problems such as employee dissatisfaction, alienation, low productivity, absenteeism, and turnover (Beehr & Newman, 1978; Schuler, 1980) at an estimated annual cost of between 10 and 20 billion dollars (Jick & Payne, 1980). In view of the human and monetary costs of these problems, there is a need for more empirical studies of stress phenomena in work organizations. However, at least three factors make such studies unusually complex, and difficult to interpret and generalize: notably, a lack of conceptual clarity on the meaning of stress, the choice of an appropriate research perspective, and methodological problems inherent in the study of stress phenomena.

### *Conceptual Problems*

A concept is a word that expresses an abstract generalization derived from particular understandings of observable phenomena. Thus, for example, the concept of aggression has been defined as "a number of particular actions having the similar characteristic of hurting people or objects" (Kerlinger, 1967, p. 4). One of the advantages of such a precise definition is that it provides clear and common direction to research on the concept and, thereby, facilitates comparisons across studies. Unfortunately, the concept of stress lacks precision in that it has been both broadly and narrowly defined, and treated as a stimulus, a response, an environmental characteristic, an individual attribute, and an interaction between an individual and his or her environment (Beehr & Newman, 1978; Katz & Kahn, 1978; Levi, 1981). Thus, for example, while one researcher might label a physiological dysfunction as stress (Ivancevich & Matteson, 1980a) another would call it a consequence of stress (Schuler, 1980). Given these differences in treatment, it is not surprising that there is no consensus on the concept of stress. It is only a slight exaggeration to say that it is whatever a given researcher says it is. Most often, the concept is discussed as though it were unidimensional, less often as multidimensional, and least often as both multidimensional and variable, with a potential for variation in the level of intensity associated with each dimension (Schuler, 1980).

In sum, despite several excellent reviews of the literature (Beehr & Newman, 1978; Cooper & Marshall, 1976; Ivancevich & Matteson, 1980a, 1980b; and Schuler, 1980), industrial and organizational psychologists have not agreed on the meaning and process of stress in work organizations. In recognition, Ivancevich and Matteson have labeled stress as "the most imprecise [term] in the scientific dictionary" (1980a, p. 5). As will be discussed, it is our view that job stress is a particular individual's awareness or feeling of personal dysfunction as a result of perceived conditions or happenings in the work setting.

*Problems of Research Perspective*

Stress has been studied from the three perspectives of individual differences, environmental factors, and some admixture of the two. Appropriately, the choice of one perspective over another has typically been determined by the research question(s) to be answered. For example, medical researchers who are interested in the physiological outcomes of stress treat the individual as the unit of analysis and focus on personal characteristics such as heredity, age, and personality traits. In contrast, researchers with an organizational perspective typically ignore individual differences and concentrate on organization-based sources of stress such as job content and the quality of supervision, while the integrated approach focuses on both individual differences and environmental factors (cf. Ivancevich & Matteson, 1980b).

Surprisingly, industrial and organizational psychologists have largely ignored the theoretical and practical implications of the choice of a particular perspective even though it determines the variables included in a study and, therefore, the conclusions reached and solutions recommended. For example, it can be reasonably argued that many of the currently popular stress-coping seminars owe their popularity to the implicit assumption that individuals can choose their response (e.g., stress) to stimuli or change the nature of the stimuli by acting on their environment. This assumption raises an interesting question: "What if the individual can't?" Similarly, the organizational perspective leads to discussions of how an organization can mediate stress by changing its processes (stressors) or, indeed, to the more fundamental decision of whether stress is a problem it chooses to address (Ivancevich & Matteson, 1980b).

At best, the available evidence suggests that individual differences have a moderating effect on reactions to potentially stressful situations (French & Caplan, 1972; Holland, 1973; Ivancevich & Matteson, 1980a; Kahn, 1981; Rosenman, Brand, Jenkins, Friedman, Straus, & Wurm, 1975). It has been reported, for example, that certain personality characteristics, such as those comprising the "Type A" behavior pattern, may affect individual responses to potential stressors (Sales, 1969). It does not necessarily follow, however, that individual differences are the most appropriate perspective from which to study stress in work organizations. Relative to other potential moderators, individual differences may, in fact, account for little variance in stress reactions to a particular situation. In addition, it may not be necessary or even useful to assess individual differences directly in order to determine whether the modal response to a situation is one that could be labeled stress—particularly if, as suggested by French and Caplan (1972), French (1974), and Holland (1973), people seek jobs that are congruent with their personal characteristics. If so,

there may be too little variance among incumbents of certain jobs for individual differences to be a significant predictor of stress reactions for that occupation. This explanation may account for the finding that few personal characteristics are associated with stress in what are generally recognized to be highly stressful occupations (e.g., police officer, air traffic controller). Thus in work settings, it may be that the organizational perspective deserves more theoretical and empirical attention than it currently receives. This may be particularly true when the investigation is intraoccupational rather than across occupations, with the latter's higher probability of greater variance in individual differences.

### *Methodological Problems*

One problem that makes the use of existing research and future empirical investigations difficult is the multicollinearity inherent in the large number of intercorrelated variables typically associated with job stress. The options for dealing with this problem are (a) ignore it; (b) delete one or more of the offending variables; or (c) transform the variables into combinations that are uncorrelated (Green, 1978). While none of the options is completely satisfactory, the first option is most often selected in stress research, perhaps on the premise that we live in a multicollinear world. A more practicable approach may simply be for the researcher to point out where multicollinearity is thought to be a problem so that the reader can knowledgeably interpret the results.

Another potential problem in the study of job stress is the need to measure both stressors and stress through the unique perceptual lens of the individual. That is, if the concept of stress is defined in terms of the personal reaction of a particular individual to stimuli in his or her environment, then self-report measures should be common in stress research. In short, stress is in the "eye of the beholder." Although this orientation to stress has inherent in it the problems of monomethod research, there appears to be no fully acceptable alternative that does not compromise the precision of the concept.

### *Summary*

The above discussion suggests a need to specify a carefully delimited concept of stress as a basis for research that will result in a theory of stress in work organizations. The possibility exists that stress phenomena are too complex to support a theory specifying only a small set of variables that cause the content, process, and consequences of stress. Thus, for the present at least, it will probably be necessary to settle for partial tests of complex models and to tolerate some unwanted, but inescapable, ambiguity resulting from problems such as incomplete abstractions, compromise operationalizations, and multicollinearity. The current literature

is a more-than-adequate starting point for the conceptualization and testing of such stress models.

### A MODIFIED JOB STRESS CONCEPT

Beehr and Newman (1978), Cooper and Marshall (1976), Ivancevich and Matteson (1980a), Katz and Kahn (1978), and Schuler (1980) all point out that individuals in organizations are subject to conditions and occurrences that may result in psychological and/or physiological deviations from normal functioning. These deviations are seen as resulting from anticipated or missed opportunities, constraints on goal-directed behavior, or demands leading to important but uncertain outcomes (Schuler, 1980). Hence, these researchers would define stress as a deviation from normal psychological or physiological functioning caused by exigencies in the individual's immediate environment. It may be that the psychological-physiological dysfunction conceptualization of job stress is too inclusive, and is problematic in that it does not distinguish whether the individual is aware of the dysfunction. It is our view that physiological dysfunctions are more likely to be the consequences of stress and not its content, and, further, that job stress in order to have consequences of any kind must be at least at some level of awareness. This conceptualization anchors the notion of "deviations from normal" in the experience of the individual; that is, what is normal for one individual's functioning may well be abnormal for another.

In contrast, Margolis and Kroes (1974) suggest that individuals manifest stress in various ways, including short-term psychological states and physiological reactions, long-term or chronic psychological responses and physical difficulties, and work performance decrements. However, to treat all such deviations as stress without regard to time or duration may only contaminate the concept, make it unduly complex, and allow any maladaptive state to be defined as stress. It seems more reasonable to view short-term psychological states (e.g., anxiety, tension) as representing a different level of outcome than long-term deviations, such as impaired health or reduced productivity. In our view then, stress is a transient feeling relative to more lasting deviations; the latter second-level outcomes are best viewed (when they are stress-related) as *consequences* of job stress rather than as stress per se. They occur, if at all, later in time and usually in response to intense and recurring job stress. This distinction between stress as a first-level outcome, the potential for its recurrence, and second-level outcomes is consistent with Selye's (1976) view that stress is additive. Kanner, Lazarus, and their associates (Kanner, Coyne, Schaefer, & Lazarus, 1981; Lazarus, 1981) also suggest a similar concept in their empirical study of the psychological and physiological effects of the day-to-day "hassles" people experience. In general, these

views suggest that the concept of stress be limited to the *felt*, manifestly uncomfortable, response of an individual to environmental stimuli thereby precluding its being treated as a characteristic of the environment or an attribute of the individual.

Our discussion suggests that the feeling we call job stress may be found in the presence or absence of more lasting deviations from normal functioning. When the stressor is removed without delay, or when the individual is successful in coping with it, the feeling of stress may dissipate quickly without resulting in any second-level outcome. If stress is intense and/or prolonged, however, second-level outcomes are more likely to occur. Thus, whether job stress is short term and inconsequential or leads to more lasting second-level outcomes depends upon its duration, intensity, the number of operative stressors, and the individual's ability to dissipate the feeling of stress. As noted, identical objective conditions may cause intense stress and, perhaps, lasting second-level outcomes in one individual, and little or no job stress in another. It may be that job stress, like cognitive dissonance (Festinger, 1957), can be dissipated either cognitively or behaviorally, or simply endured. Consequently, a variety of outcomes, or the absence of any perceptible outcome, may result from equivalent levels of job stress. If stress is intense or if it continues over a prolonged period, the likelihood of second-level outcomes is increased.

Thus, we use the term job stress to describe the feeling of a person who is required to deviate from normal or self-desired functioning in the work place as the result of opportunities, constraints, or demands relating to potentially important work-related outcomes. Our use of the term feeling is intentional, in that it implies a "subjective awareness of our own emotional state" (Gaylin, 1979, p. 1). In addition, this feeling is both uncomfortable and undesirable to the individual. This conceptualization of job stress as being both uncomfortable and undesirable helps to distinguish it from the positive motivational feelings of arousal that result from the challenge of a difficult but attainable goal. Hence, our concept of stress is limited to an emotional response to stimuli that *may* have dysfunctional psychological or physiological consequences.

### *An Organizational Model of Stress*

Figure 1 presents our model of job stress. As shown in Fig. 1, the stressors are grouped into six categories: (1) characteristics and conditions of the job itself, (2) conditions associated with the organization's structure, climate, and information flow, (3) role-related factors, (4) relationships at work, (5) perceived career development, and (6) external commitments and responsibilities. The typology of stressors shown in Fig. 1 is similar to those discussed by Cooper and Marshall (1976) and

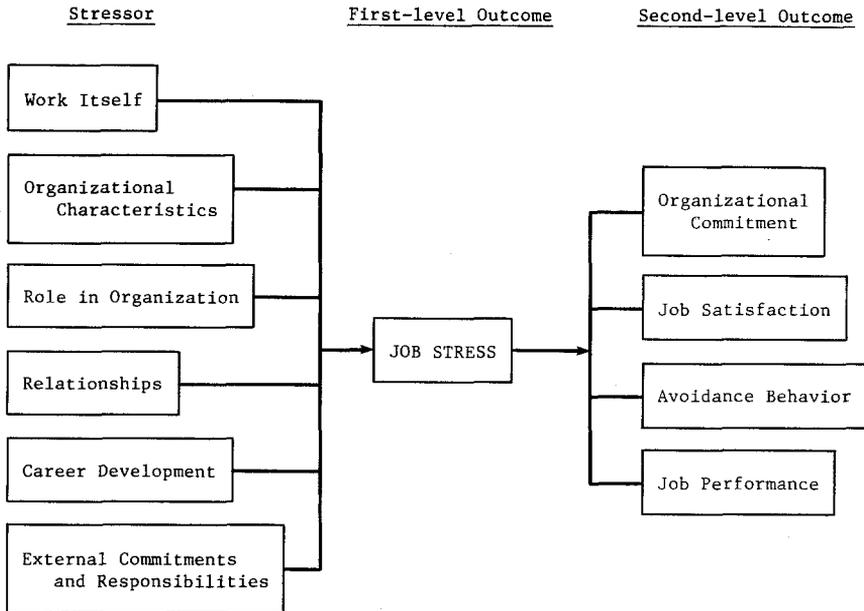


FIG. 1. A model of job stress.

Ivancevich and Matteson (1980b). However, our model differs in that it is primarily organizational and does not treat individual differences as a moderator of the stressor–stress relationship.

The model shows two levels of outcomes: first- and second-level. Only the first-level outcome is referred to as stress. Second-level outcomes are viewed as individual and organizational consequences which are affected by stress, and quite likely by other variables as well. These second-level outcomes might include decrements in organizational commitment, satisfaction, motivation, and job performance, and avoidance behavior.

#### THE PRESENT STUDY

The present study was intended to be a partial test of the model described above. Specifically, we set out to identify the nature of the relationships between several potential stressors, selected on the basis of a review of the stress literature and a knowledge of the target population, and the first-level outcome, job stress. We also intended to examine more closely the dimensionality of job stress, to determine the extent to which the dimensions are differentially affected by different stressors. For example, our experience with managers and familiarity with the popular management literature suggest the existence of a *time pressure* dimension

(e.g., “crisis management” and “too much to do, too little time”), while our reading of the empirical and psychoanalytic literature on the content of emotion suggests a distinction between time pressure as stress and the discomfort or *feeling* of stress. Moreover, if stress is multidimensional, it is not unreasonable to expect the separate dimensions to have patterns of stressors that differentially contribute to explained variance in stress. However, beyond our anecdotal dimensionalization of stress, we have no a priori expectations with respect to either the dimensions of stress or patterns of stressors.

## METHOD

### *Sample*

Participants in the study were 367 managers employed by a major restaurant chain who constitute 61% of the total managerial employees. Their jobs ranged from entry-level trainees through regional managers. The sample was 97.5% male and over 99% white. The mean age, tenure, time in present job, and income of the participants were 28.55 years ( $SD = 4.38$  years), 2.67 years ( $SD = 2.10$  years), 1.11 years ( $SD = 1.20$  years), and \$13,229 ( $SD = \$7,744$ ), respectively.

### *Measures*

The data were gathered on a voluntary basis through a mail survey questionnaire. The questionnaire was designed to assess managers' perceptions of several aspects of the organization, some of which were evaluated as being possible stressors; namely, its structure, human resource processes, and organizational climate. Four aspects of perceived structure were assessed: formalization, centralization, role ambiguity, and role conflict. The latter two scales were short forms of the measures developed by Rizzo, House, and Lirtzman (1970). Nine organizational processes were assessed: three dimensions of leadership (i.e., interpersonal style, task orientation, and closeness), compensation, training, career management, planning, communication, and decision making. The seven dimensions of organizational climate assessed were autonomy, trust, cohesiveness, support, recognition, innovation, and fairness. Stress was defined by 15 items based on our review of the literature and earlier interviews with managers in the organization. Responses to individual items were measured using a 4-point Likert-type scale. Scales were subsequently developed to measure various stressor dimensions; these scales consisted of four to seven individual items. The internal consistency of the scales was determined by computing corrected item-total score correlations and coefficient alphas for each scale (Nunnally, 1978). For all scales, the corrected item-total score coefficients ranged from a low of .26 to a high of .84, while coefficient alpha ranged from .81 to .97. The

TABLE 1  
VARIABLES INCLUDED WITHIN EACH STRESSOR CATEGORY

1. Aspects of job <sup>a</sup>	4. Relationships at work
Autonomy <sup>b</sup>	Trust
Stability	Support from boss
Pay-performance limitations	Cohesiveness
Task variety	
Emphasis on achieving	
Actual base salary*	
Hours worked per week*	
2. Structure, climate, information flow	5. Aspects of role
Recognition of good performance	Innovativeness encouraged
Fairness	Role conflict
Formalization	Role ambiguity
Centralization	Boss's encouragement/support
Quality of decision making	Boss's task orientation
Communication adequacy	Closeness of supervision
Communication openness	Tenure in job*
Emphasis: profit vs people	Tenure in company*
Concern for individuals	Organization level*
Corporate management out of touch*	Supply support
3. Career development	6. Extraorganizational variables
Training quality	Age*
Basis of promotions	Sex*
Performance feedback	Number of dependents*
Emphasis on individual development	Years of education*

<sup>a</sup> Measures marked with an asterisk are single items and, typically, objective measures; all other variables are scales.

<sup>b</sup> The scales are 4-point scales.

score of an individual on a given scale was defined as his or her mean response to all items in the scale with negative items reversed.<sup>1</sup> Using the literature as a guide (Beehr & Newman, 1978; Brief *et al.*, 1981; Cooper & Marshall, 1976; Ivancevich & Matteson, 1980b; Schuler, 1980), the scales were classified into the six categories of stressors shown in Fig. 1. The content of each stressor category is shown in Table 1.

### *Stress Dimensions*

The dimensionality of job stress was identified through principal components analysis, with the solution rotated to the varimax criterion. The criterion of item retention was a factor loading of not less than .50 on the defining component; with one exception, this resulted in a factor loading of less than .35 on all other components. Two components, accounting

<sup>1</sup> Additional information about the items and scales used in this study is available from the authors.

for 77.5% of the variance, were extracted from the 15 stress items. Using the loadings criterion specified above, all but 2 of the 15 items were retained. Table 2 presents the results of the principal components analysis.

The content of the items comprising the first component is closely associated with *feelings of being under substantial time pressure*, and is named *time stress*. The second component is dominated by items having to do with *job-related feelings of anxiety*. This dimension of job stress is referred to as *anxiety*. The means for time stress and anxiety are 2.47 and 1.93, respectively; the respective standard deviations are .682 and .649. Cronbach's alpha for the components treated as scales are .86 and .74, respectively. The corrected item-total score correlations for time stress range from .61 to .79, and for anxiety, from .61 to .75. The correlation between the factors used as scales was .54, indicating considerable nonoverlapping variance in the dimensions.

TABLE 2  
PRINCIPAL COMPONENTS ANALYSIS OF JOB STRESS ITEMS

Item	Component	
	I	II
I have felt fidgety or nervous as a result of my job	.11	.76
Working here makes it hard to spend enough time with my family	.74	.12
My job gets to me more than it should	.29	.70
I spend so much time at work, I can't see the forest for the trees	.57	.48
There are lots of times when my job drives me right up the wall	.32	.68
Working here leaves little time for other activities	.77	.20
Sometimes when I think about my job I get a tight feeling in my chest	.23	.67
I frequently get the feeling I am married to the company	.65	.30
I have too much work and too little time to do it in	.63	.28
I feel guilty when I take time off from job	.05	.51
I sometimes dread the telephone ringing at home because the call might be job-related	.57	.16
I feel like I never have a day off	.73	.08
Too many people at my level in the company get burned out by job demands	.66	.15
Percent Variance	28.7	48.8
Variables not included		
I don't have enough time to develop my people	.49	.45
This is a relaxed place to work	.48	.30

### *Stressor–Stress Relationships*

Assessment of the stressor–stress relationships consisted of: (1) within-category analysis of each stressor for each dimension of stress; (2) determination of the variance explained in each dimension of stress by all stressor categories; and (3) summarizing the relationship between all stressors and each of the dimensions of stress.

### *Within-Category Analysis*

The first step was to compute the multiple correlation between the variables defining each of the stressor categories and the dimensions of stress. The partial regression coefficients and significance levels of each of the variables within categories were then analyzed to determine the contributions of each stressor to the total regression. Finally, both forward and backward multiple regressions were performed as a basis for assessing multicollinearity among the independent variables.<sup>2</sup> Table 3 presents the results of the within-category analysis.

As can be seen from the results presented in Table 3, most of the categories of stressors made significant contributions to the variance explained in each dimension of stress. The  $R^2$ 's, corrected for the number of variables and sample size, ranged from .37 to .05 for time stress, and from .25 to .03 for anxiety. However, as expected, the extraorganizational stressors were relatively weak. Within categories, not all of the variables made a significant contribution to the variance explained in each of the dependent variables. Table 3 also presents the findings for the variables within each of the stressor categories.

*The job.* As a set, the variables in this category showed the second highest relationship with time stress ( $R^2 = .35$ ) and the third highest with anxiety ( $R^2 = .17$ ). With respect to time stress, five of the eight variables in the category were found to have a significant relationship. The strongest single relationship (a partial of .36) was with an objective measure of hours worked per week. Autonomy, stability, perceived limitations on the relationship between performance and pay, and the perceived basis for compensation decisions also contributed significantly to the variance explained in time stress. With respect to anxiety, only three of the eight independent variables relating to the job itself contributed to the variance explained.

*Structure/climate/information.* As shown in Table 3, the scales and items in this category yielded the highest corrected  $R^2$  with time stress ( $R^2 =$

<sup>2</sup> Both forward and backward multiple regressions were performed in order to assess collinearity among the independent variables. The extent of this condition was determined by examining changes in the partial regression coefficients and significance levels as the independent variables were entered into or removed from the equation. Multicollinearity is discussed at those points in the text where it appears to be a problem.

TABLE 3  
SUMMARY OF RELATIONSHIPS BETWEEN STRESSOR CATEGORIES AND THE DIMENSIONS OF  
JOB STRESS

Stressor category	Stress			
	Time		Anxiety	
	$R^{2a}$	Partial	$R^2$	Partial
Job	.35***		.17***	
Autonomy		-.14**		NS
Stability		-.24***		-.27***
Pay-performance limit		-.13*		NS
Compensation basis		-.16**		-.13*
Task variety		NS		NS
Emphasis on achievement		NS		NS
Base salary		NS		NS
Hours worked per week		.36***		.15**
Structure, climate, information	.37***		.24***	
Recognition		NS		NS
Fairness		NS		NS
Formalization		NS		-.11*
Centralization		NS		NS
Decision making		NS		NS
Communication adequacy		NS		NS
Communication openness		-.12*		NS
Emphasis: profit vs people		NS		NS
Concern for individual		-.15**		-.14**
Corporate management out of touch		.20**		.16**
Role	.19***		.25***	
Encouragement of innovation		NS		NS
Role conflict		NS		.25***
Role ambiguity		NS		NS
Task orientation, boss		NS		NS
Closeness of supervision		.13*		.13*
Tenure, present job		NS		NS
Supply support problems		.14*		.13*
Career	.22***		.15***	
Training quality		-.11*		-.19**
Promotion basis		-.11*		-.19**
Performance		NS		NS
Emphasis on individual development		-.30***		NS
Interpersonal relationships at work	.12***		.10***	
Trust		NS		NS
Support from boss		-.14*		NS
Cohesiveness		-.15**		NS
Personal/extraorganizational	.05*		.03*	
Age		-.13*		NS
Sex		NS		NS
Number of dependents		NS		NS
Years of education		.19**		.19**

<sup>a</sup>  $R^2$  is corrected for sample size and number of variables.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

.37) and the second highest (.24) with anxiety. Of the 11 scales and items in this category, 3 displayed significant relationships with time stress. These variables involve feelings that top management is out of touch with problems at the respondent's level, the concern shown for individuals in the organization, and the openness of communications.

The feeling of anxiety showed significant relationships with two of the same stressors as time, plus one additional variable. As in the instance of time, the feeling that top management was out of touch with the respondent's problems showed the strongest relationship to anxiety, and beliefs about concern for individuals was the second strongest. However, unlike time, anxiety was negatively related to the degree to which procedures and practices are formalized in the organization.

*Role in the organization.* This is the only category of stressors that was found to be more strongly related to anxiety ( $R^2 = .25$ ) than to time stress ( $R^2 = .19$ ). As shown in Table 3, only two of the variables in this category were found to have significant relationships with time stress, both positive. The first involves problems experienced with a supply support unit of the organization, while the second deals with the extent to which the respondent's superior is perceived to snoop around the work place, to be present most of the time, and the like. Of the three variables that are significantly associated with anxiety, the two just named—supply support problems and closeness of supervision—were also related to time stress. In both cases the partial regression coefficient was almost identical. The strongest relationship by far, however, was between role conflict and anxiety.

*Career development opportunities.* Three of the four variables shown in Table 3 were significantly related to time stress: the emphasis placed on individual development; the extent to which promotions are based on merit; and the quality of training received in preparation for greater responsibility. The fourth variable, performance feedback, was not significantly related to time stress.

Two of the four career development measures were significantly related to anxiety: training quality and perceived basis for promotions. Both of these variables were found to have negative relationships, yielding identical partial regression coefficients of  $-.19$ . The two remaining variables did not attain significance. However, this result may be due in part to multicollinearity between the scales relating to performance feedback and emphasis on individual development. Specifically, when the latter variable was removed using backward stepwise regression, the former became significant ( $p < .05$ ) with a partial of  $.11$ , without yielding a significant increase in  $R^2$ .

*Relationships.* The category of hypothetical stressors having to do with

interpersonal relationships on the job consists of three variables: trust, perceived support from one's boss, and cohesiveness. An additional item was the statement: "There is little "back-biting" between employees at my level." As shown in Table 3, the interpersonal relationship category yielded significant  $R^2$ 's with both time stress ( $R^2 = .12$ ) and anxiety ( $R^2 = .10$ ). Two variables, cohesiveness and support, yielded significant partial regression coefficients with time. Interestingly, although the four independent variables together had a corrected  $R^2$  of .10 ( $p < .001$ ), none of the four yielded a significant partial. The most likely explanation for this result is multicollinearity between trust and support. When the former is removed through backward stepwise regression, the latter becomes significant ( $p < .001$ ), and the partial regression coefficient increases from  $-.08$  to  $-.31$ .

*Extraorganization.* This category of stressors consisted of four variables: age, sex, number of dependents, and years of education. Both regressions were significant, but the corrected  $R^2$ 's were small and the significance levels were reduced. Specifically, the corrected  $R^2$ 's were .05 ( $p < .01$ ) and .03 ( $p < .05$ ) for time stress and anxiety, respectively. Two partial regression coefficients were found to be significant when regressed on time stress: a positive relationship with years of education and a negative relationship with age. In the instance of anxiety, only one variable, education, proved significant, with the relationship being positive.

#### *Total Variance Explained*

*Within-stress dimensions.* In order to determine the total explained variance in each dimension and to identify the dominant stressors, each of the dimensions of stress was regressed on the independent variables without regard to stressor category. The corrected  $R^2$ 's for time stress and anxiety were .43 and .29, respectively. When compared to the results shown in Table 3, these results indicate that the total regression accounts for significantly more variance than any single category of stressors.

Seven variables were consistently related to time stress in all the regression analyses, including the total regression. In declining order of partial regression coefficient, they are: hours worked per week, perception that top management is out of touch, concern for employees, closeness of supervision, perception of the basis of compensation, organizational level of respondent, and emphasis on individual development. While trust and task orientation of the superior appeared significant, their effect was muted by multicollinearity. From the perspective of the model shown in Fig. 1, it is interesting to note that with the exception of extraorganizational stressors, each of the stressor categories is represented among these nine variables. Moreover, in all but one instance, where the pres-

ence of multicollinearity was noted, the variables that were significant in the assessment of total variance in time stress were also significant on a within-category basis.

The results with respect to anxiety are somewhat less clear. Specifically, only two variables (role conflict and acceptance of innovation) were significant when all of the independent variables were forced into the regression, suggesting the presence of multicollinearity. Tenure with the company approached significance ( $p < .06$ ), and several other variables achieved significance at various stages of both the forward and backward stepwise regressions but, because of multicollinearity, they were not consistently significant. These include centralization, communication adequacy, education level, degree to which innovation is encouraged, and quality of training. Five of the seven measures that proved significant were from two stressor categories: two were role-related variables, and three were related to structure, climate, and information. Interestingly, level of education again showed a significant negative relationship with anxiety in the forward and backward regressions, although it was not significant in the total regression.

*Canonical analysis.* An important question concerned how much of the variance in job stress could be accounted for using self-report measures of the status of organizational variables, without recourse to individual differences. In order to answer this question, a canonical correlation analysis was calculated using all of the supposed stressors as independent variables and the two job stress dimensions as dependent variables. The redundancy statistics for the two canonical variates were summed to determine the amount of variance explained in job stress. The two redundancy statistics were .51 and .18, totaling 69% explained variance.

## DISCUSSION

A limited concept of job stress that emphasizes an individual's subjective awareness of dysfunction was presented. The results of a partial test suggest that there are at least two dimensions of this feeling but do not rule out the possibility of additional dimensions. Indeed, one priority task for future research is the investigation of other possible dimensions of stress.

A number of the potential stressors were found to be associated with one or both of the dimensions of job stress, indicating some commonality of the determinants, but with differences in the patterns of determination. Of interest is the finding that a number of variables that were expected to be related to stress were not. For example, it is somewhat surprising that variables such as emphasis on achievement, fairness, decision making, and feedback were not predictive of these stress dimensions. In a few

instances, this result may well be due to the problem of multicollinearity among the independent variables, and in others due to inadequate operationalizations.

The results also indicate that some of the stressors are related to one form of job stress, but not both. A number, such as the belief that upper-level management is out of touch with day-to-day managerial problems, opinions about the quality of company training programs, and beliefs about whether rewards are based on merit, apparently affect both dimensions of stress. However, in addition to the shared stressors, each dimension of stress has associated with it a unique pattern of stressors. For example, as shown in Table 3, time stress is uniquely determined by autonomy (work itself), the perception that there is a limit on the relationship between pay and performance (work itself), the openness of communication (structure, climate, information), support from the boss (relationships), and cohesiveness (relationships). In contrast, anxiety is uniquely determined by formalization (structure, climate, information) and role conflict (role). It may be that stress has its start in a constellation of common stressors, and is then differentiated by the effects of unique stressors. These findings must be regarded as tentative, however. The meaning of these and other stressors thus merits further thought and investigation.

In terms of explained variance, the results of the current study are encouraging and suggest the importance of organizational sources of stress. If the importance of the organization as a source of stress is supported by future research, then a means of stress reduction not ordinarily used (i.e., the organization itself) should be considered. Put somewhat differently, the results indicate that much of the effort now directed toward educating individuals to understand and cope with job stress may be misplaced. Instead, it may be that those who design and manage organizations are in a much better position to assess the causes of stress and, where appropriate, to remove or moderate them. Indeed, if the present results are replicated elsewhere, the individual change approach with its focus on sensitizing people to the existence of stress may, in fact, be harmful, especially when the individual has no means of removing the source(s) of stress. This reasoning raises the intriguing question of whether the individualized approach to stress may *induce* rather than reduce stress.

Obviously, more research is needed. Specifically, we believe four areas of research are indicated by the findings reported here. First, efforts should be made to determine whether there are other dimensions of job stress. Second, the generalizability of the dimensions identified in the present study should be tested. Such tests should concentrate especially on different industries, age groups, and occupations. Third, research is

needed in order to learn more about the kinds of stressors identified in the present study. Questions that merit consideration include the uniqueness of stressors, given a particular dimension of stress, and whether some stressors are situation specific. Specificity, for example, is suggested by our finding that problems with supply sources were relatively strongly related to both dimensions of stress in this restaurant industry setting. It seems reasonable to assume that some stressors may be unique to a particular type of setting while others may be found in many kinds of organizations, but the issue needs to be investigated.

Finally, the model we have presented indicates that experienced job stress will sometimes, but not always, lead to organizationally and individually relevant second-level outcomes such as reduced job performance and voluntary turnover. Our conceptualization of stress phenomena (Fig. 1) suggests that the relationship between stress and second-level outcomes will depend upon the intensity of the stress, its duration, the number of operative stressors, and alternatives the individual sees as being available to him or her. Future research could profitably be directed toward identifying the nature and strength of the relationship between job stress and its possible consequences.

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