

Perceptions of Organizational Stress Among Female Executives in the U.S. Government: An Exploratory Study

The psychometric properties and factor structure of a 15-item self-reporting instrument measuring perceptions of stress precipitators was investigated in a sample of 146 female Senior Executive Service employees of the U.S. federal government. A four factor solution was found to best represent the sample. Additionally, cluster analysis revealed the presence of three relatively homogeneous subgroups of sample respondents, based on the source and level of their perceived stress. It was found that "concerns about one's performance" was the highest ranked stressor, followed by concerns about work load, responsibility and authority ambiguities, and the fear of making the wrong decision. The cluster analysis resulted in three groups of stress patterns. The highest stress group included women who put the job above all else, the second highest group had a high propensity for job achievement, and the lowest stress group represented women who placed a high emphasis on self-actualization and "out-side" job considerations.

By
Rolf E. Rogers
Eldon Y. Li
Rebecca Ellis

In recent years, a growing body of literature has been devoted to the analysis and understanding of stress. Because of its critical impact on health and performance, stress research has received attention from both medical and non-medical researches. For example, some researchers have examined the relationship between psychophysiologic reactivity and the development of heart and vascular diseases such as arterial hypertension¹ and atherosclerosis in the coronary arteries.²

Other researchers have integrated the copious information regarding stressors, stress, and stress responses in order to apply it to specific performance related issues such decreased efficiency,³ decreased effectiveness⁴ and increases in absenteeism,⁵ which relates to job satisfaction.

Significantly, gender was often found to account for differences in both the incidence of disease such as cardiovascular disorders⁶ as well as differences in occupational sources of stress such as job changes and promotion⁷ and leadership aspects of managerial work and their rate of pay.⁸

We wish to acknowledge the support of the U.S. Office of Personnel Management; the U.S. Navy (Naval Ship Weapon Systems Engineering Station-Port Huene, California); and the members of the Women's Executive Leadership Program Group who supported and contributed to the data collection phase that made this study possible.

Rolf E. Rogers, Ph.D. is Professor of Management at California Polytechnic State University - San Luis Obispo. He is a Diplomat of the American Board of Administrative Psychology and a member of the American Psychological Association. Dr. Rogers is the author of five books on management subjects. His current research and consulting activities are in cross-cultural diversity and Total Quality Management.

As a result, many examiners have been prompted to look at women as a distinct group within the context of stress related research. Additionally, as women continue to enter the world of work in increasing numbers, there has been a consequent increase in attention to stress related issues relevant to women in such diverse areas as clerical work,⁹ college,¹⁰ policing,¹¹ human resources management¹² and general management positions.¹³

The study reported here explores the environmental forces and events, called stress precipitators, originally identified by the Institute for Social Research group,¹⁴ that appear threatening to female executives in government. We have chosen to concentrate on this aspect of managerial stress because of the lack of previous research with this group and because we felt that they faced unique stress precipitators in a dynamic environment requiring special attention.

The need to better understand the complexity of human and organizational needs in the public sector is gaining awareness. No longer content with the misconception that personnel activities in the civil service are restricted to the enforcement of civil service rules, new concepts are emerging that meet new demands and new challenges. In many ways, decision makers in public sector organizations face more pressures and constraints than those in the private sector.¹⁵ Multiple lines of accountability, difficulty in securing information, and divergence of opinions regarding appropriate strategies for measuring the performance of public programs all contribute to the less than optimal context of government work.¹⁶

Further, government employees have traditionally been faced with ineffective attempts to increase productivity by decreasing the number of employees necessary to produce the same service or increasing the quantity of services produced by each employee.¹⁷ Unique also to the government executive are mandatory civil service laws and rules that are often detailed and complicated, pressure from political leaders, minority groups, bureaucrats, civic groups, community groups and taxpayers as well as the constant spotlight from the public and the media.¹⁸

The concentration of this research has been psychological in nature, consequently the emphasis has been placed on individuals' perceptions of their stress in work organizations. Accordingly, the Job Related Tension Index (JRTI), a self reporting instrument which measures stress in terms of the respondent's perceptions of stress precipitators was used. The goal of this paper is to identify, employing JRTI, stress precipitators for senior female executives in the government.

Eldon Y. Li, Ph.D. is Professor of Management Information Systems, California Polytechnic State University, San Luis Obispo. He is a Certified Data Educator (CDE) and is Certified in Production and Inventory Management (CPIM). His current research interest lies in human factors in information technology (IT), strategic IT planning, software engineering, quality assurance, and information management.

Method

Subjects

A random sample of 200 females was drawn from the U.S. Government Register of Senior Executive Service Employees. Employees from all geographic regions in the U.S. and all federal government agencies were included in the sample. Fifty seven percent of the sample was currently married, and 47 percent had children, with 26 percent still having children living at home. Mean age was 44.2 years. Ninety two percent had completed college, with 82% having some post-graduate work. Subjects had geographically relocated an average of 1.13 times.

The characteristics of respondents are exhibited in Table 1 on the following page.

Measures

A self-reporting instrument, originally developed by Kahn et al.,¹⁹ entitled the Job-Related Tension Index (JRTI) was used. The JRTI consisted of 15 items. Subjects were asked to indicate how true various conditions are of the work situations on a five-point scale. The psychometric properties of these scales have been examined and have received strong support.²⁰ However, it should be noted that the JRTI is a self-reporting instrument which measures stress only in terms of the respondents' perceptions of stress precipitators rather than some objective indicators. Basic demographic questions were added to the instrument.

Procedure

Questionnaires and attached cover letters were mailed to the business address of 200 randomly chosen Senior Executive Service (SES) females. The cover letter provided a brief explanation of the nature of the questionnaire and instructions for its completion. Subjects anonymously completed and returned the questionnaires to the first author. In total, 146 usable questionnaires were obtained (73% return rate).

Analysis

The reliability, content validity, and construct validity of the 15-item instrument were first examined using the subjects' responses. Frequency distributions of the items were compared. Associations between questionnaire items and demographic variables were explored. Factor analysis was used to extract and examine the underlying structure of the instrument. In addition, cluster analysis was utilized in investigating the existence of heterogeneous subgroups within the total sample.

Rebecca A. Ellis, Ph.D. is a Professor of Management at California Polytechnic State University - San Luis Obispo. She is a member of the Academy of Management and the Industrial Relations Research Association. Dr. Ellis has published her research in several leading academic journals, including the *Journal of Applied Psychology* and *Personnel Psychology*. Her current interests include the job search process and alternative work schedules.

Table 1. Characteristics of Respondents

<i>Characteristics</i>	<i>Frequency of Respondents</i>	<i>Percent of Respondents</i>
Age Group:		
30 or under	3	2.05
31-35	8	5.48
36-40	27	18.49
41-45	50	34.25
46-50	34	23.29
51-55	15	10.27
56-60	7	4.79
Over 60	2	1.37
Marital Status:		
Married	83	56.85
Not married	63	43.15
Having Children:		
Yes	69	47.26
No	77	52.74
Children At Home:		
Yes	38	26.03
No	108	73.97
Formal Education:		
Some college	11	7.53
Completed college	16	10.96
Post-graduate work	119	81.51
Degree Earned:		
No response	1	0.68
No degree	11	7.53
Bachelor degrees	35	23.97
Master degrees	39	26.71
JD or LLB degrees	42	28.77
Ph.D. or ED.D. degrees	17	11.64
Other doctorate degrees	1	0.68
Position:		
Senior executive	138	94.52
Manager	6	4.11
Other supervisory position	2	1.37
Type of Organization:		
Military	9	6.16
Law Enforcement	33	22.60
Service	100	68.49
Other	4	2.74
Total Respondents:	146	100.00

Results

Psychometric Qualities

The instrument was found to possess adequate psychometric qualities. Reliability measured by Cronbach's alpha coefficient²¹ was 0.80. Sixty-three (60%) of the 105 possible inter-item correlations was significant at 0.05 level and every item was correlated with some other items, supporting the instrument's content validity. Construct validity was supported by the significance ($p < 0.001$) of all correlations (range from 0.30 to 0.66) between each item and the total of all items as well as by the underlying structure extracted through factor analysis.

Item Analysis

The frequency distributions of subjects' responses to the 15 questionnaire items, along with their means and standard deviations, are presented in Table 2. To test the null hypothesis that the distributions of responses were not significantly different, estimates of theoretical frequencies were computed. The 15 items were found to be significantly different at the 99% confidence level. An examination of the contribution to the chi-square test from each item disclosed that items WORK, QUAL, DEMD, Q.Q., ADVN, JUDG, D.M., RESP, FAMI, PEER, and PEOP (see Table 2 for the complete item descriptions) were significantly different from the estimated theoretical frequencies.

While items QUAL, ADVN, JUDG, RESP, PEER and PEOP have relatively large observed frequencies at the lower end of the stress scale, WORK is at the upper end. Therefore, the means are relatively low for the former items, and relatively high for the latter.

Associations with Demographic Variables

To explore the associations between the questionnaire items and the demographic variables, the former were crosstabulated with the latter one at a time. Chi-square tests were performed to identify significant associations between each pair of variables in the crosstabulation. Furthermore, Pearson's correlations were computed between the items and subjects' age. A Student's *t* test about each correlation coefficient was performed. The significant associations are indicated in Table 3.

Table 2. Item Distribution

Item No.	Description	Item Abbreviation	Standard		Frequencies of Score*					Chi-Square
			Mean	Deviation	1	2	3	4	5	
1.	Too little authority to carry out responsibilities.	AUTH	2.36	0.87	19	73	39	13	2	7.788
2.	Scope and responsibility of job are unclear.	RESP	2.11	0.83	31	78	29	6	2	29.617
3.	Opportunities for advancement are unknown or unclear.	ADV N	2.31	1.17	40	56	20	22	7	39.177
4.	Work load is too heavy to be completed in an ordinary work day.	WORK	3.49	1.05	2	25	49	39	31	197.399
5.	Fear that the conflicting demands of others cannot be satisfied.	DEMD	3.03	0.88	5	34	63	39	5	52.448
6.	Forced to do things against one's better judgement.	JUDG	2.12	0.68	24	82	38	2	0	31.141
7.	Superior's evaluation of one's performance is unknown.	PERF	2.46	0.95	22	56	50	13	4	2.333
8.	Lack of information needed to carry out the job.	INFO	2.46	0.82	14	67	50	14	1	7.067
9.	Unable to influence the actions or decisions of superior.	INFL	2.40	0.90	20	66	42	15	2	3.582
10.	Feeling of not being liked and accepted by others at work.	PEOP	2.28	0.76	17	81	38	10	0	18.825
11.	Not knowing what people you work with expect of you.	PEER	2.25	0.70	17	80	44	5	0	22.577
12.	Fear of making wrong decisions that affect people's lives.	D.M.	2.93	0.90	7	38	66	29	6	31.038
13.	Think that the work load may interfere with the work quality.	Q.Q.	2.97	0.81	3	35	73	31	4	49.142
14.	Feel that one is not fully qualified to handle the job.	QUAL	1.80	0.77	57	65	22	1	1	106.277
15.	Feel that one's job interferes with one's family life.	FAMI	2.92	0.98	10	36	63	27	9	27.685
Grand Mean: 2.53					Total: 288 872 686 266 74 (N=2186)					Total Chi-Square (d.f.=56): 626.097

* Measured on 5-point likert scale: 1= Never, 2= Rarely, 3= Sometimes, 4= Often, and 5= All the time.

As shown in Table 3, ten of the fifteen items had at least one significant ($p < .05$) association with a demographic variable. Seven of the eight demographic characteristics assessed in this study were represented in the set of significant relationships. In total, fourteen significant associations were found. Age or Age Group was associated with five of the fifteen items, Position was associated with three items, and Education, Degree Earned, Marital Status, Having Children, and Type of Organization were each associated with one item. The items associated with age or age group included feelings that the job interfered with family life, and that conflicting demands from others could not be satisfied. More clearly job-related associations included relationships between Age or Age Group and a perceived lack of authority commensurate with job responsibilities, concern about the adequacy of one's own qualifications for the job, and perceived heavy workloads. Position (senior executive, manager, or "other supervisory position") was associated with unclear promotion opportunities, concerns that work quantity may interfere with work quality, and (again) the fear that conflicting demands of others could not be met. Education (some college work but no degree, college degree completed, or post-graduate work) was also associated with role conflict, while type of Degree Earned (none, B.A., M.A., J.D., Ph.D. or "other") was associated with the perceptions of personal/professional acceptance by others. Type of Organization (military, law enforcement, service or "other") was associated with a perceived lack of information needed to carry out the job. Finally, Marital Status and Having Children were associated with uncertainty about one's performance evaluation.

Factor Analysis

Bartlett's sphericity test²² was performed to determine whether the correlation matrix of the 15 items should be factored. The null hypothesis was rejected at the 0.001 significance level and the principal components method was used to extract factors from the correlation matrix. The use of an eigenvalue cut-off point of 1.0, as suggested by Kaiser,²³ resulted in four factors. The factors were then rotated using varimax rotation. The factor loadings for the four factors are exhibited in Table 4. The loadings smaller than 0.40 have been omitted for the sake of readability.

The first factor identified was labeled as *Performance*. It was composed of 5 items: unable to influence the actions or decisions of superior, superior's evaluation of one's performance is unknown, lack of information needed to carry out the job, feeling of not being liked and accepted by others at work, and not knowing what people you work with expect of you. The second factor, labeled as *Work Load*, consisted of 4 items; work load is too heavy to be completed in an ordinary work day, think that the work load may interfere with the work quality, feel that one's job interferes with one's family life, and fear that the conflicting demands of others cannot be satisfied. *Organization Design and Responsibility/Authority*, the third

factor identified, was comprised of three items: scope and responsibility of job are unclear, too little authority to carry out responsibilities, and opportunities for advancement are unknown or unclear. The final stress precipitator identified was labeled *Decision Making* and included two items: fear of making wrong decisions that affect people's lives, and feel that one is not fully qualified to handle the job.

Table 3. Associations between Questionnaire Items and Demographic Variables

<i>Item I.D.</i>	<i>Description</i>	<i>Demographic Variable</i>	<i>Significance Level</i>
1.	Too little authority to carry out responsibilities.	Age Group	0.030 ^a
3.	Opportunities for advancement are unknown or unclear.	Position	0.032 ^a
4.	Work load is too heavy to be completed in an ordinary work day.	Age Group	0.029 ^a
5.	Fear that the conflicting demands of others cannot be satisfied.	Age Group Education Position	0.008 ^a 0.045 ^a 0.018 ^a
7.	Superior's evaluation of one's performance is unknown.	Having children Marital status	0.021 ^a 0.021 ^a
8.	Lack of information needed to carry out the job.	Type of organization	0.020 ^a
10.	Feeling of not being liked and accepted by others at work.	Degree earned	0.017 ^a
13.	Think that the work load may interfere with the work quality.	Position	0.002 ^a
14.	Feel that one is not fully qualified to handle the job.	Age ($r = -.2210$) Degree earned	0.007 ^b <0.001 ^a
15.	Feel that one's job interferes with one's family life.	Age ($r = -.2591$)	0.002 ^b

^a Based on chi-square test of independence.

^b Based on Student's t test about correlation coefficient.

Table 4. Factor Loadings and Commuality Estimates

<i>Item I.D. Statement</i>	<i>Item Abbreviation</i>	<i>Factor Loadings*</i>					<i>Common- ality</i>
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
9. Unable to influence the actions or decisions of superior.	INFL	0.829					0.724
7. Superior's evaluation of one's performance is unknown.	PERF	0.664					0.495
8. Lack of information needed to carry out the job.	INFO	0.643					0.553
10. Feeling of not being liked and accepted by others at work.	PEOP	0.549					0.491
11. Not knowing what people you work with expect of you.	PEER	0.520					0.566
6. Forced to do things against one's better judgement.	JUDG	(0.440)		(0.412)			0.460
4. Work load is too heavy to be completed in an ordinary work day.	WORK		0.818				0.703
13. Think that the work load may interfere with the work quality.	Q.Q.		0.780				0.712
15. Feel that one's job interferes with one's family life.	FAMI		0.751				0.568
5. Fear that the conflicting demands of others cannot be satisfied.	DEMD		0.641				0.511
2. Scope and responsibility of job are unclear.	RESP			0.780			0.681
1. Too little authority to carry out responsibilities.	AUTH			0.767			0.722
3. Opportunities for advancement are unknown or unclear.	ADV N			0.746			0.575
12. Fear of making wrong decisions that affect people's lives.	D.M.				0.756		0.606
14. Feel that one is not fully qualified to handle the job.	QUAL				0.756		0.607
	Variance Explained:	4.342	2.216	1.265	1.149		8.972
	Percent of Variance:	28.947	14.773	8.433	7.660		59.813

* The loadings smaller than 0.40 are omitted.

Cluster Analysis

All 146 respondents were grouped together using the Euclidean distance as the criterion. The dendrogram from the centroid linkage clustering, generated by the BMDP software, suggests that all the cases should be in one big cluster. Stopping the last few steps of grouping processing will result in one big group and some other very small (one or two-case) groups. We therefore used the Shaded Distance Matrix to help delineate the boundaries of related clusters. The grouping process follows that of Rogers, Li and Shani.²⁴ The subjects were finally classified into three groups.

For each item in each group, the group mean was compared to the entire sample mean (i.e., the grand mean) for that item. Those group item means that were above or below the 95% confidence interval points of the item's grand mean were labeled as high or low. Table 5 reflects a summary of the groups and the high/low labels attached to the means.

The *stress index* of each group was defined as the overall mean of all 15 items within each group. The items in the high or low category were arranged in descending order of their significance level. The groups were labeled in sequence as: 1) Self-Actualization Centered, 2) Achievement Centered, and 3) Job/Work Centered. These labels were created based upon an examination of the high/low labels attached to each item within each of the three groups. Each label represents the behavioral characteristics inherent in the group. Furthermore, cross-tabulations were performed between the demographic variables and these three groups to see whether there are any significant differences in demographic characteristics among the three groups. No significant difference was found at the 0.05 level based on the chi-square test.

Discussion

As an exploratory survey study, we need to note several characteristics and possible weaknesses of the methodology used. First, the indicators of stress precipitators were measured by self-report responses to questionnaire items. It has been suggested that more objective measures of stressful environmental variables be made.²⁵ However, other arguments have been advanced emphasizing the greater relative importance of perceived stress precipitators over objectively measured stress-producing variables in determining dysfunctional personal and organizational consequences.²⁶ Therefore, the use of a self-report instrument measuring stress precipitators appears to be appropriate.

Table 5. Group-Centered Behavior Constellations

<i>Group</i>	<i>N</i>	<i>Stress Index</i>	<i>Std. Dev.</i>	<i>High /Low</i>	<i>Item I.D.</i>	<i>Group Mean</i>	<i>Group Label</i>	
2	34	2.79	0.19	High:	04. WORK	***4.24	Job/Work Centered	
				13. Q.Q.		***3.50		
				05. DEMD		***3.44		
				15. FAMI		***3.29		
				12. D.M.		***3.26		
				11. PEER		***2.59		
				10. PEOP		***2.53		
				06. JUDG		*** 2.38		
				02. RESP		** 2.29		
				03. ADVN		* 2.56		
				14. QUAL	* 1.94			
3	41	2.70	0.57	High:	15. FAMI	*** 3.24		Achievement Centered
				08. INFO		*** 2.79		
				01. AUTH		*** 2.72		
				09. INFL		*** 2.69		
				10. PEOP		*** 2.53		
				07. PERF		** 2.67		
				04. WORK		* 3.67		
				03. ADVN		* 2.55		
1	69	2.30	0.35	Low:	04. WORK	***3.01	Self-Actualization Centered	
				05. DEMD		***2.77		
				13. Q.Q.		***2.70		
				15. FAMI		***2.55		
				08. INFO		***2.20		
				01. AUTH		***2.12		
				10. PEOP		***2.00		
				06. JUDG		***1.93		
				11. PEER		** 2.10		
				03. ADVN		** 2.04		
				07. PERF		* 2.26		
				14. QUAL		* 1.67		
All	144	2.53	0.45	Minimum = 1.13 Maximum = 3.67				
*** p 0.001		** p 0.01		* p 0.05				

A weakness of this study lies in its exploratory nature. The underlying assumption of the exploratory approach is that the more one knows about the issue, the more effectively the data can be used in the formulation of hypotheses and direction for future study. "Skepticism" and "openness" are two of the major principles in an exploratory inquiry;²⁷ skepticism of the measures used and openness about the analyses and initial interpretations of the data collected. As such, the exploratory mode does not have clearly stated hypotheses, nor does it have a confirmatory mode of statistical analysis.

Finally, a few comments should be made concerning the sample population in this study. The sample was based on a list of SES female employees in the U.S. government furnished by the Office of Civilian Personnel Management. A review of the respondent characteristics indicates that the majority is between 40 and 50 years of age, is married, and does not have children at home. Some 81.5% have advanced degrees (many have law degrees), and there are significantly more respondents in the service and law enforcement categories than in the military services.

Analysis of Items

This study showed significant associations of stress items with demographic variables. Age (average was 45), position, education, degree earned, marital status, having children, and type of organization, all showed significant correlations. The items correlated with age included perceptions of external demands as high precipitators as well as perceived lack of authority, job qualifications and work load. The individual's position in the organization was associated with the stressors regarding promotional opportunities, work load, and the demands of others. Education was associated with role conflict, while the type of degree was correlated with "how the individual felt she was accepted by others." The type of organization one was associated with showed a significant correlation with "the lack of information to carry out the job." Finally, marital status and having children showed a significant association with feelings of uncertainty about how one's performance was evaluated.

Factor Analysis

The factor analysis identified four stress-precipitator factors. These factors in sequence of their significance, were labeled as Performance, Work Load, Organization Design and Responsibility/Authority, and Decision Making. The Performance factor essentially establishes how the individual perceives her ability to influence the actions of her superiors; how she is perceived by her colleagues, subordinates, and superiors; and how she performs on the job. The Work Load factor includes all aspects of how the individual perceives her ability to carry out her job, the quality as well as the quantity of work, how much it interferes with her family/personal life, and the fear of not being able to satisfy the various conflicting demands of the jobs and of other people. The Organization Design and Responsibility/Authority factor addresses perceptions of authority, responsibility, job definition, and career progression. In other words, how the individual perceives her place in the organization in terms of her authority, responsibility, scope of the position, and advancement opportunities.

Finally, Decision Making was the fourth stress precipitator. This includes how the individual perceives her qualifications to make decisions and how much she fears making wrong decisions.

Cluster Analysis

The cluster analysis yielded three groups of women who experienced similar stress patterns. Each group was labeled based on the level of response and the degree of stress as indicated by a stress-index number. In terms of degrees of stress, the highest group was the Job/Work Centered Group. This group represented 24 percent of the total respondents. The individuals in this group exhibited high stress in such items as: work load, work quality, demands from others, family responsibilities, and fear of making wrong decisions among others. The second group, representing 28 percent of the total respondents, was the Achievement Centered Group. The individuals in this group exhibited high stress in such items as: family responsibilities, information to carry out the job, authority to carry out responsibilities, influencing actions of superiors, acceptance by coworker, concern about performance, etc. Finally, the largest group (48%) was the Self-Actualization Centered Group. This group exhibited low stress in the same items that precipitated high stress in the other two groups. While this group individually represents more individuals than either of the other groups, it is significant to note that on a combined basis, more than half (52%) of all respondents are in the two high stress groups.

Conclusion

This study examined perceptions of stress precipitators in a sample of executive-level females employed by the federal government. Several demographic characteristics were found to be correlated with various stress precipitators. Factor analysis revealed five distinct dimensions in the set of stress precipitators. These dimensions included concerns about individual job performance, heavy workloads, suboptimal organizational design and concern over decision-making required by the job. Three sample subgroups were identified through cluster analysis. These groups were composed of individuals with relatively homogeneous stress precipitator profiles. The group with the highest overall level of perceived stress appeared to be most concerned with stress precipitators stemming from the workload, the job itself, and the conflicting demands placed on them by others. A second group appeared to perceive stress associated with their achievement of work goals and ability to influence their superiors. The third (and largest) group perceived relatively less stress on workload and achievement items, and was characterized as self-actualization centered. The limitations of exploratory research were noted along with characteristics of the sample which might limit the generalizability of study findings.

Notes

¹P.A. Obrist, *Cardiovascular Psychophysiology: A Perspective* (New York: Plenum, 1981).

²S.B. Manuck and D.S. Krantz, "Acute Physiologic Reactivity and Risk of Cardiovascular Disease," *Psychological Bulletin*, 96, (1984), pp.435-464.

³See, for example, the following:

M.J. Davidson and C.L. Cooper, "A Model of Occupational Stress," *Journal of Occupational Medicine*, 23, (1981), pp.564-573.

Rolf E. Rogers, "Components of Organizational Stress Among Canadian Managers," *Journal of Psychology*, 95, (1977), pp.265-273.

Rolf E. Rogers, "Perceptions of Stress Among Canadian and American Managers: A Cross-Cultural Analysis" in Hans Selye, Editor, *Stress Research II*, (New York: Van Nostrand Reinhold, 1983), pp.107-117.

Rolf E. Rogers, Eldon Li, and A.B. Shani, "Perceptions of Organizational Stress Among U.S. Military Officers in Germany," *Group and Organization Studies*, 12, 2, (1987), pp.189-207.

⁴N. Gupta and R.A. Beehr, "Job Stress and Employee Behaviors," *Organizational Behavior and Human Performance*, 23 (1979), pp.373-387.

⁵R.S. Bhagat, "Effects of Stressful Life Events on Individual Performance Effectiveness and Work Adjustment Process within Organizational Settings: A Research Model," *Academy of Management Review*, 8 (1983), pp.660-671.

⁶R.C. Becker and J.S. Alpert, *Cardiovascular Disease in Women*, (New York: Karger, 1990).

⁷S.G. Haynes and M. Feinleib, "Women, Work, and Coronary Heart Disease: Prospective Findings from the Framingham Heart Study," *American Journal of Public Health*, 70 (1980), pp.133-141.

⁸D.I. Nelson, J.C. Quick and M. Hitt, "What Stresses HR Professionals?" *Personnel*, (August 1990), pp.36-39.

⁹See, for example, the following:

J. Johnson, "Female Clerical Workers," *Women and Health*, 15 (1989), pp.61-73.

A.I. Meleis, et.al., "Stress, Satisfaction, and Coping: A Study of Women Clerical Workers," *Health Care for Women International*, 10 (1989), pp.319-334.

¹⁰M.A. Morell, "Psychophysiological Stress Responsitivity in Type A and B Female College Students and Community Women," *Psychophysiology*, 26 (1985), pp. 359-367.

¹¹R.L. Warner and B.S. Steel, "Affirmative Action in Times of Fiscal Stress and Changing Value Priorities: The Case of Women Policing," *Public Personnel Management*, 3 (1989), pp.291-306.

¹²Nelson, "What Stresses HR Professionals?" pp.36-39.

¹³See, for example, the following:

Margaret Fenn, *Making it in Management: A Behavior Approach for Women Executives* (Englewood Cliffs, New Jersey: Prentice-Hall, 1978).

J. Hunsaker and P. Hunsaker, *Strategies and Skills for Managerial Women* (Cincinnati: Southwest Publishing, 1986).

J.I.A. Rowney and A.R. Cahoon, "Individual and Organizational Characteristics of Women in Managerial Leadership," *Journal of Business Ethics*, 9, 4 (April 1990), pp.293-298.

¹⁴R.L. Kahn, et.al., *Organizational Stress: Studies in Role Conflict and Ambiguity* (New York: Wiley, 1964).

¹⁵P. Allan and S. Rosenberg, *Public Personnel and Administrative Behavior* (North Scituate, Mass.: Duxbury Press, 1981).

¹⁶Kahn, *Organizational Stress*.

¹⁷J. Wholey and K. Newcomer, *Improving Government Performance* (San Francisco: Jossey-Bass, 1989).

¹⁸R.M. Kelly, *Promoting Productivity in the Public Sector* (New York: St. Martins Press, 1987).

¹⁹Allan, *Public Personnel*.

²⁰Kahn, *Organizational Stress*.

²¹See, for example, the following:

Rolf E. Rogers, "Components of Organizational Stress," (1977), pp.265-273.

Rolf E. Rogers, "Perceptions of Stress," (1983), pp.107-117.

N.J. MacKinnon, "Role Strain: An Assessment of a Measure and Its Invariance of Factor Structure Across Studies," *Journal of Applied Psychology*, 63 (1978), pp.321-328.

M. Jamal, "Job Stress and Job Performance Controversy: An Empirical Assessment," *Organizational Behavior and Human Performance*, 33 (1984), pp.1-27.

Rolf E. Rogers, "Perceptions of Organizational Stress," (1987), pp.189-207.

²²L.J. Cronbach, "Coefficient Alpha and the Internal Structure of Tests," *Psychometrika*, 16 (1951), pp.297-334.

²³M.S. Bartlett, "Tests of Significance of Factor Analysis," *British Journal of Psychology*, 3 (1950), pp.77-85.

²⁴H.F. Kaiser, "The Application of Electronic Computers to Factor Analysis," *Symposium on the Application of Computers to Psychological Problems*, American Psychological Association (1959).

²⁵Rolf E. Rogers, "Perceptions of Organizational Stress," (1987), pp.189-207.

²⁶M. Van Sell, A.P. Brief and R.S. Schuler, "Role Conflict and Role Ambiguity," *Human Relations*, 34 (1981), pp.43-71.

²⁷See, for example the following:

R.J. House and J.R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in an Model of Organizational Behavior," *Organizational Behavior and Human Performance*, 7 (1972), pp.467-505.

J.M. Ivancevich and M.R. Matteson, *Stress and Work* (Glenview, IL: Scott, Foresman, 1980).

S. Parasuraman and J. Alutto, "Sources and Outcomes of Stress in Organizational Settings," *Academy of Management Journal*, 27 (1984), pp.330-350.

F. Hartwig and B.E. Dearing, *Exploratory Data Analysis* (Beverly Hills, CA: Sage Publications, 1979).

References

- Allan, P. & Rosenberg, S. *Public Personnel and Administrative Behavior: Cases and Text*. North Scituate, Mass: Duxbury Press, 1981.
- Bartlett, M.S. Tests of significance of factor analysis. *British Journal of Psychology (Statistical Section)*, 3, (1950), 77-85.
- Becker, R.C. & Alpert, J.S. *Cardiovascular Disease in Women*. New York: Karger, 1990.
- Bhagat, R.S. Effects of stressful life events on individual performance effectiveness and work adjustment process within organizational settings: A research model. *Academy of Management Review*, 8, (1983), 660-671.
- Cronbach, L.J. Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, (1951), 297-334.
- Davidson, M.J. & Cooper, C.L. A model of occupational stress. *Journal of Occupational Medicine*, 23, (1981), 564-573.
- Fenn, M. *Making It in Management: A Behavior Approach for Women Executives*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.
- Gupta, N. & Beehr, T.A. Job stress and employee behaviors. *Organizational Behavior and Human Performances*, 23, (1979), 373-387.
- Hartwig, F. & Dearing, B. E. *Exploratory Data Analysis*. Beverly Hills, California: Sage Publications, 1979.
- Haynes, S.C. & Feinleib, M. Women, work, and coronary heart disease: Prospective findings from the Framingham Heart Study. *American Journal of Public Health*, 70, (1980), 133-141.
- House, R.J. & Rizzo, J.R. Role conflict and ambiguity as critical variables in a model of organizational behavior. *Organizational Behavior and Human Performance*, 7, (1972), 467-505.
- Hunsaker, J. & Hunsaker, P. *Strategies and Skills for Managerial Women*. Cincinnati, Ohio: Southwest Publishing, 1986.
- Ivancevich, J.M., and Matteson, M.T. *Stress and Work*. Glenview, IL: Scott, Foresman, 1980.
- Jamal, M. Job stress and job performance controversy: An empirical assessment. *Organizational Behavior and Human Performance*, 33, (1984), 1-27.
- Johnson, J. Female clerical workers. *Women & Health*, 15, (1989), 61-73.
- Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D., & Rosenthal, R.A. *Organizational Stress: Studies in Role Conflict and Ambiguity*. New York: Wiley, 1964.
- Kaiser, H.F. The application of electronic computers to factor analysis. *Symposium on the Application of Computers to Psychological Problems*, American Psychological Association, 1959.
- Kelly, R.M. *Promoting Productivity in the Public Sector: Problems, Strategies and Prospects*. New York, New York: St. Martins Press, 1987.

- MacKinnon, N.J. Role strain: An assessment of a measure and its invariance of factor structure across studies. *Journal of Applied Psychology*, 63, (1978), 321-328.
- Manuck, S.B. & Krantz, D.S. Acute physiologic reactivity and risk of cardiovascular disease: A review and methodologic critique. *Psychological Bulletin*, 96, (1984), 435-464.
- Meleis, A.I., Norbeck, J.S., Laffrey, S., Solomon, M., & Miller, L. Stress, satisfaction, and coping: A study of women clerical workers. *Health Care for Women International*, 10, (1989), 319-334.
- Morell, M.A. Psychophysiological stress responsivity in type A and B female college students and community women. *Psychophysiology*, 26, (1985), 359-367.
- Nelson, D.L., Quick, J.C., & Hitt, M. What stresses HR professionals? *Personnel*, August, 1985, 36-39.
- Obrist, P.A. *Cardiovascular Psychophysiology: A Perspective*. New York: Plenum Press, 1981.
- Parasuraman, S. & Alutto, J. A. Sources and outcomes of stress in organizational settings: Toward the development of a structural model. *Academy of Management Journal*, 27, (1984), 330-350.
- Rogers, R.E. Components of organizational stress among Canadian managers. *Journal of Psychology*, 95, (1977), 265-273.
- Rogers, R.E. Perceptions of stress among Canadian and American managers: A cross-cultural analysis. In Hans Selye, *Stress Research*, Vol. II. New York: Van Nostrand Reinhold, 1983, 107-117.
- Rogers, R.E., Li, E.Y., & Shani, A.B. Perceptions of organizational stress among U.S. military officers in Germany. *Group & Organization Studies*, 12 (2), (1987), 189-207.
- Rowney, J.I.A. & Cahoon, A.R. Individual and organizational characteristics of women in managerial leadership. *Journal of Business Ethics*, April 1, 9(4), (1990), 293-316.
- Van Sell, M., Brief, A. P., & Schuler, R. S. Role conflict and role ambiguity: Integration of the literature and direction for future research. *Human Relations*, 34, (1981), 43-71.
- Warner, R.L. & Steel, B.S. Affirmative action in times of fiscal stress and changing value priorities: The case of women policing. *Public Personnel Management*, 3, (1989), 291-306.
- Wholey, J. & Newcomer, K. *Improving Government Performance: Evaluation Strategies for Strengthening Public Agencies and Programs*. San Francisco, CA: Jossey-Bass, 1989.