

# Perceptions of Organizational Stress Among U.S. Military Officers in Germany

## AN EXPLORATORY STUDY

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This article reports the results of an exploratory study of perceptions of organizational stress among U.S. military officers stationed in Germany. The sample data were analyzed by item comparisons, factor analysis, and cluster analysis. Work load, work design, job qualifications, performance evaluation, and organization structure were identified as stress precipitators. The cluster analysis yielded three groups of individuals with different stress-frequency patterns. These groups were labeled achievement-centered, organization-centered, and self-actualization-centered. Directions for future research are discussed within the context of an increasing rate of change in military organizations.

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The topic of stress in work organizations has been receiving a great deal of attention during recent years as evidenced by the growing number of articles in both the popular press and in academic journals (e.g., Bedeian & Armenakis, 1981; Beehr & Schuler, 1982; Cooper, 1981; Jayaratne & Chess, 1984; Jick & Payne, 1980; Rogers, 1983; Shirom, 1982; Van Sell, Brief, & Schuler, 1981). The impetus for many of these and other studies was the appearance of a number of important early investigations that link certain characteristics of a person's job, such as role conflict, role ambiguity, and role overload, to poor employee health (Adams, Quigley, & Schmithorst, 1985; Matteson & Ivancevich, 1979), psychiatric disorder (Kasl, 1978), and negative organization consequences such as decreased performance (Davidson & Cooper, 1981; Rogers, 1977), decreased

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organizational effectiveness (Cupta & Beehr, 1979), and increased absenteeism (Bhagat, 1983). Despite the growing recognition of the critical nature of stress in organizations, many aspects of the topic remain unknown (Cooper, 1985; Jamal, 1984; Kahn, 1981).

A wide variation in the medical, biological, psychological, and organizational literature in the conceptualization of stress is evident. In this article, the conceptual framework rests on the foundation initially formulated by the Institute for Social Research (ISR) group (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), and further developed by others (House & Rizzo, 1972; Ivancevich & Matteson, 1980; Rogers, 1977, 1983). *Stress* is viewed as an interaction between environmental forces and events called *stress precipitators*, which appear threatening to the person and the person's reaction to the threat. Being concerned only with social psychological stress, the focus of our interest is on individuals' perceptions of their stress precipitators in work organizations.

A brief scanning of the existing body of knowledge on the stress phenomenon reveals that the reports vary greatly in the targeted work organization being studied: university professors (Eberhardt & Eberhardt, 1984); college students (Caplan & Jones, 1975); hospital medical staff (Ivancevich, Matteson, & Preston, 1982; Jamal, 1984); mine workers (Powell, 1973); government agencies (Coburn, 1975; Cohen, 1980); construction corporation (Theorell, 1976); kibbutzim (Shirom, Eden, Silberwasser, & Kellermann, 1973); saw-mill plants (Gardell, 1976); assembly plants (Frost, Wakely, & Rhu, 1974; House, Wells, Landerman, McMichael, & Kaplan 1979); food processing corporation (Parasuraman & Alutto, 1984); public utility company (Nicholson & Goh, 1983); police department (Kroes, Hurrell, & Margolis, 1974; Gaines & Jermier, 1983); and high-tech corporations (Roger & Larsen, 1984) to mention a few. Surprisingly, very little has been published on the stress phenomenon in the military organization, although military organizations exist in all nations.

The military, like other organizations today, faces complex challenges in accomplishing its mission in the rapidly changing social, technological, economic, and political environment (Pasmore, Shani, & Mletus, 1982). The history of management theory

and practice began with borrowing from military models (Cherns & Clark, 1972). Concepts such as *line and staff*, *span of control*, *chain of command*, and so on derived from military practices. Modern management theory and practice, however, have developed away from these models. From the outside, the military appears stereotypically as having characteristics that are different from those of civilian organizations: highly structured, inflexible, and a hierarchical bureaucracy (Sabrosky, Thompson, & McPherson, 1982) in which individuals are commanded to perform like machines and are treated with no more respect than interchangeable parts, to mention a few. Turney and Cohen (1978) note that the military structure is explicit and visible; that most support systems for housing and other services are run by the military and create a company town atmosphere; that the military is plagued by the constant turnover of personnel at all levels; that conflict often exists between military and civilian personnel who are governed by different rules; and that the objectives of the military shift from maintaining readiness in peacetime to performance of specific missions in wartime. Mulder, Ritsema, and DeJong (1971) note that in crisis situations, military leadership becomes even more directive and supervisory-subordinate relationships become even less positive than at other times.

Segal, Lynch, and Blair (1979) collected data that indicate that today's soldiers are less satisfied with their jobs than their World War II counterparts. A study by Porter and Mitchell (1967) indicated that need fulfillment was lower for military officers than for their civilian counterparts. Johnson and Marcum (1968) indicate that need fulfillment is higher for officers than for enlisted men. The combat-readiness phenomenon in military organizations facilitates the emergence of unique characteristics (Shirom, 1976). Furthermore, military demands on the group and the individual are *real ones* in which coping with a severe environment is necessary (Greenbaum, 1979). The social system characteristics, the twenty-first-century technological weapon system sophistications, and the environmental context within which the armed forces function make the military organization the ideal target for inquiry into the stress-precipitators phenomenon. This article reports on an *exploratory study of precipitators of stress among U.S. military officers stationed in Germany*. The intent of the study is to examine: (1) the stress precipitators fostered by the military environment and (2) the

potential groupings of military human resources with similar stress-frequency patterns.

## METHOD

### SUBJECTS

As an exploratory study, the inquiry was performed with several different small groups of U.S. military officers stationed in Germany. Subjects for this study were 73 officers (51 army and 22 air force), who participated in a graduate program (master's degree) offered under the auspices of the U.S. Army. The officers represented three primary military ranks: first lieutenant (4%), captain (89%), and major (6%). This exploratory research, therefore, deals essentially with the managerial core of the military services, namely, the equivalent of the middle manager in industry.

### MEASURES

A self-reporting instrument originally developed by Kahn et al., (1964), the Job-Related Tension Index (JRTI), was used. The JRTI was used and validated by the ISR group. The instrument was found applicable, valid, and reliable in a large variety of organizations and industries. The psychometric properties of these scales have been examined and have received strong support (Jamal, 1984; MacKinnon, 1978; Rogers, 1977, 1983). The JRTI consisted of 15 items. Subjects were asked to indicate how true various conditions of the work situations were, on a 5-point scale. However, it should be noted that the JRTI is a self-reporting instrument that measures stress 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 given to 112 officers that participated in the graduate program in Germany. The cover letter provided a brief explanation of the nature of the questionnaire and instructions for its completion. Subjects (anonymously) returned the completed questionnaires to the first author. In total, 73 usable questionnaires were obtained (65% return rate).

## STATISTICAL ANALYSES

The matrix of item correlations that resulted from subjects' responses to the set of items used was examined individually. The reliability measure (Cronbach, 1971) was found to be .78—higher than the level recommended by Nunnally (1978). Data were further factor analyzed by the method of principle components. Unities were entered on the diagonals. Five factors for the items were extracted and rotations to an orthogonal varimax criterion of simple structure were examined (Kaiser, 1959). Individual factors were identified by those items loaded highly (.50) on the factors resulting from the rotation. In addition, cluster analysis was utilized in investigating the existence of heterogeneous subgroups within the total sample.

## RESULTS

### COMPARISON OF ITEMS

The frequency distribution of responses to the 15 questionnaire items, along with their means and standard deviations, are presented in Table 1. To investigate the distributions of responses a nonparametric chi-square test was performed. Estimates of theoretical frequencies were computed by averaging the frequencies of the 15 items one score at a time. 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 QUAL, WORK, PEOP, ADVN, Q.Q., and PEER (see Table 1 for the complete item statements) were significantly different from the estimated theoretical frequencies.

Although items QUAL, PEOP, ADVN, and PEER reflect relatively large observed frequencies at the lower end of the stress scale, items WORK and Q.Q. are at the upper end. Therefore, the means for the former items are relatively low, and relatively high for the latter items.

### FACTOR ANALYSIS

Bartlett's sphericity test (Bartlett, 1950) was performed to determine whether the correlation matrix should be factored. The null

TABLE 1  
Item Distribution

Item Number	Statement	Item Abbreviation	Mean	Standard Deviation	Frequencies of Score <sup>a</sup>					Chi-Square
					1	2	3	4	5	
(1)	Too little authority to carry out responsibilities	AUTH	2.795	.897	4	24	30	13	2	3.245
(2)	Scope and responsibility of job are unclear	RESP	2.795	.881	6	19	32	16	0	10.139
(3)	Opportunities for advancement are unknown or unclear	ADV N	2.260	1.000	14	39	9	9	2	23.891
(4)	Work load is too heavy to be completed in an ordinary work day	WORK	3.233	1.000	3	17	24	18	11	42.429
(5)	Fear that the conflicting demands of others cannot be satisfied (at work)	DEMD	2.918	.829	1	23	32	15	2	9.174
(6)	Forced to do things (make decisions)	JUDG	2.521	.868	7	32	23	11	0	2.859
(7)	Superior's evaluation of one's performance is unknown	PERF	2.534	.883	5	37	19	11	1	4.267
(8)	Lack of information needed to carry out the job	INFO	2.890	.859	1	26	28	16	2	7.001
(9)	Unable to influence decisions of superior	INFL	2.630	.736	1	34	30	7	1	9.022
(10)	Feeling of not being liked and accepted by others (at work)	PEOP	2.123	.706	9	50	11	2	1	32.350
(11)	Not knowing what people at work expect of you	PEER	2.466	.801	2	44	21	3	3	17.334
(12)	Fear of making the wrong decision	D.M.	2.871	.765	4	25	35	9	0	9.013
(13)	The heavy work load interferes with the quality of work	Q.Q.	3.151	.953	2	16	30	19	6	20.691
(14)	Feeling that one is not fully qualified to handle the job	QUAL	1.986	.842	22	34	13	4	0	55.040
(15)	Feeling that job interferes with family life	FAMI	2.890	1.113	10	15	26	19	4	15.480
Total			39.843		91	435	362	172	35	261.935
		Grand Mean	2.658	Theoretical Frequency	6.07	29.00	24.13	11.47	2.33	

a. Measured on 5-point Likert scale with 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = all the time.

hypothesis was rejected at the 0.01 significance level, and the principal components method was used to extract factors from the correlation matrix of the 15 items. The use of an eigenvalue cutoff point of 1.0, as suggested by Kaiser (1959), resulted in five factors. The factors were then rotated using varimax rotation. The factor loadings for the five factors are exhibited in Table 2. Loadings of 0.50 or larger have been underlined.

The first factor identified was composed of three items (i.e., work load is too heavy to be completed in an ordinary work day, fear that the conflicting demands of others cannot be satisfied at work, and fear that the heavy work load interfered with the quality of work) and was labeled *work load*. *Job performance*, the second factor, consisted of three items (superior's evaluation of one's performance is unknown, fear of making the wrong decision, and feeling that the job interferes with family life). Four items (scope and responsibility of job are unclear, opportunities for advancement are unknown or unclear, there is a lack of information needed to carry out the job, and not knowing what people at work expect of you) constituted the third factor, which was labeled *Work Design*. *Job Qualification and Acceptance*, the fourth stress-precipitator factor identified, was made up of two items: feelings about being qualified to handle the job and feelings of acceptance by others. The final stress precipitator identified was labeled *Organization Structure* and included two items, namely, the feeling that one is unable to influence the decisions and actions of one's immediate superior and the perception that one's authority was inadequate to carry out one's responsibilities. This factor was also influenced by peer group considerations.

### CLUSTER ANALYSIS

All 73 respondents were grouped together using the Euclidean distance as the criterion. The dendrogram from average linkage clustering, generated by using the Biomedical Computer Program (BMDP), 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.

**TABLE 2**  
**Factor Loadings and Community Estimates from Principal Component Analysis**

Item Number	Item Abbreviations	Factor Loading					Community	
		I	II	III	IV	V		
(1)	Too little authority to carry out responsibilities	AUTH	.428	-.132	.263	-.231	<u>.570</u>	.648
(2)	Scope and responsibility of job are unclear	RESP	.302	-.146	<u>.665</u>	.393	.233	.640
(3)	Opportunities for advancement are unknown or unclear	ADV N	-.042	.117	<u>.703</u>	-.109	-.030	.522
(4)	Work load is too heavy to be completed in an ordinary work day	WORK	<u>.790</u>	-.004	.091	-.096	.001	.642
(5)	Fear that the conflicting demands of others cannot be satisfied (at work)	DEMD	<u>.790</u>	.213	.031	.110	.159	.708
(6)	Forced to do things (make decisions)	JUDG	.374	.410	-.093	.404	.261	.548
(7)	Superior's evaluation of one's performance is unknown	PERF	-.146	<u>.684</u>	.125	.010	.322	.609
(8)	Lack of information needed to carry out the job	INFO	.172	.039	<u>.600</u>	.277	-.047	.470
(9)	Unable to influence decisions of superior	INFL	.116	.132	-.008	.047	<u>.827</u>	.717
(10)	Feeling of not being liked and accepted by others (at work)	PEOP	-.009	.487	.111	<u>.532</u>	-.286	.614
(11)	Not knowing what people at work expect of you	PEER	.105	.177	<u>.588</u>	.210	.402	.592
(12)	Fear of making the wrong decision	D.M.	.350	<u>.615</u>	-.066	.151	.049	.530
(13)	The heavy work load interferes with the quality of work	Q.Q.	<u>.731</u>	.142	.188	.214	.164	.663
(14)	Feeling that one is not fully qualified to handle the job	QUAL	.043	-.036	.204	<u>.851</u>	.025	.769
(15)	Feeling that job interferes with family life	FAMI	.289	<u>.670</u>	.301	-.215	-.201	.709
Variance explained			2.482	1.870	1.804	1.649	1.577	9.382



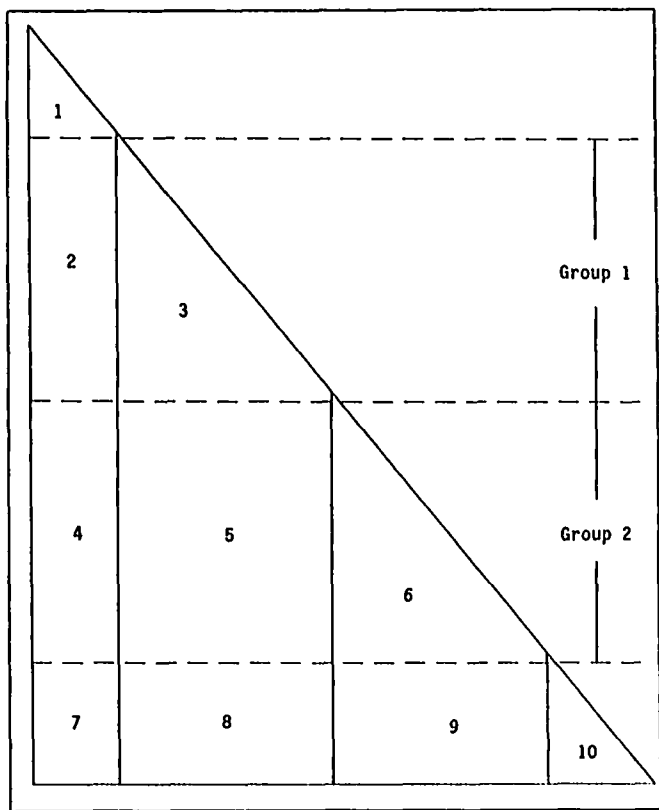


Figure 1: Partitions of the shaded distance matrix.

The first step in the group selection is to identify the dark triangular area in the shaded distance matrix. The darker the shade is, the closer the distance between objects. This gives us roughly the area between cases 4 and 41 having 52 objects. Second, we identified the darkest area as the first group of respondents with additional consideration of the group size. We decided to create a

boundary between case 62 and case 61 having 25 objects in group 1 and 27 in group 2. The grouping process resulted in partitioning the entire shaded distance matrix into 10 regions, as shown in Figure 1. Although region 3 contains the distances among group 1 members, region 6 shows the distance among group 2. Distances among group 3 are exhibited by regions 1, 7, and 10. Distance between groups 1 and 3 is represented by the shades of regions 2 and 8. Similarly, the shades of region 4 and 9 represent the distance between group 2 and 3. Notice that the region of group 1, that is, region 3, has the darkest shade.

For each item in each group, the group mean was compared with the entire sample mean for that item. Those group item means that were above or below the 95% confidence interval points of the grand mean were labeled as high or low. Table 3 reflects a summary of the groups and high or low labels attached to means.

The groups are ordered in terms of the *stress index*, which was defined as the overall mean of all items within each group. The items in the high or low category were arranged in descending order of their significance level. The classification of the three groups is based upon an examination of the high or low labels attached to each item within each group. The terminology selected represents the classification of the behavioral characteristics inherent in each of the three groups:

<i>Cluster Group</i>	<i>Behavioral Characteristics</i>
1	self-actualization-centered
2	organization-centered
3	achievement-centered

## DISCUSSION

Before discussing the results and implications of this study, several characteristics and potential weaknesses of the methodology employed should be noted. First, the indicators of stress precipitators were measured by self-report responses to questionnaire items. Recently, it has been suggested that more objective measures of stressful environmental variables be made (Van Sell et al., 1982; Jamal, 1984). However, other arguments have been advanced emphasizing the greater relative importance of perceived stress precipitators over objectively measured stress-producing variables

TABLE 3  
Group-Centered Behavior Constellations

<i>Group</i>	<i>N</i>	<i>Stress Index</i>	<i>Std. Dev.</i>	<i>Items</i>	<i>Classification</i>
3	21	2.80	1.10	High: D.M. ADV PEER WORK Q.Q.	Achievement-centered
2	27	2.72	.79	High: PERF RESP AUTH INFO	Organization-centered
1	25	2.47	.62	Low: PEER RESP INFO PERF AUTH ADV JUDG	Self-actualization-centered

in determining dysfunctional personal and organizational consequences (House & Rizzo, 1972; Ivancevich & Matteson, 1980; Parasuraman & Alutto, 1984). Therefore, the use of self-reports in measuring stress precipitators appears to be appropriate.

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 (Hartwig & Dearing, 1979); 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 subject population in this study. The sample was not randomly selected, nor was it stratified. Subjects were officers, the majority of whom were of captain rank, attending a graduate program while stationed in Germany. As such, they do not represent the entire officer population in the military nor do they represent the officer

population overseas. However, although the generalizability of the findings is questionable, the major purpose of this study was not to draw conclusions in regard to the entire army, but rather to conduct a preliminary inquiry into the stress-precipitator phenomenon in a military environment.

An examination of responses to the individual items revealed that on a comparative basis, work load was, for the majority of officers, the most frequently perceived source of job-related stress. This item includes not only considerations of the amount of work but also the quality of work in relation to its volume. Thus, stress might be activated when the amount of work is perceived to be more than can be effectively and efficiently completed in the time available. The magnitude of work load as a significant stress precipitator is reinforced by the results from the factor analysis. *Work load* as a stress precipitator is defined as concern about too much work to do and not enough time to complete it properly. This characteristic also indicates concern about the impact of the amount of work on its final quality as well as on satisfying requirements and standards. The findings support parallel studies in civilian organizations. Ivancevich, Napier, and Wetherbe (1983), for example, found that work was a major stressor among a large sample of management information system personnel. Rogers (1977) found work load to be the primary stress precipitator among Canadian middle and upper managers, but found this item to rank low as a precipitator of stress among American managers (Rogers, 1983). Shirom (1982), in an attempt to further explore this phenomenon, based on facet analysis, argues that "the duration of demands" and "the type of demand" that originates from "roles played by the employees, significant other, and organizational procedures" within "the work organization context" will result in the perception of high or low work load. Within the military setting, the existence of and the role that the above variables might play calls for further inquiry.

From the factor analysis, four additional stress-precipitator factors were identified. These factors were designated as job qualifications, job performance, work design, and organizational structure. *Job qualifications* as a stress precipitator was defined as the individual's perception of how well he or she is qualified for the job. This characteristic indicates not only the individual's feeling of

being qualified to handle the job but also the feeling of how "relevant" others perceive it. In the military establishment, the social system (i.e., relevant others), was found to play a critical role in individual performance (Eden & Shani, 1982; Porter & Lawler, 1975). Furthermore, combat motivation and combat performance of small groups were found to be correlated with individual's perceptions of the quality of training received (George, 1971). Shirom (1976) found that the variable most associated with the quality of combat performance of a soldier (in an aftermath study of the Yom Kippur war) was the social support individuals provided to others, not the support they received. The potential relationship between job qualifications as a stress precipitator and combat readiness and performance point toward the need for further investigation.

The factor analysis yielded two additional factors: work design and organizational structure. *Work design* as a stress precipitator was defined as the individual's perception of his or her job characteristics (i.e., the job's actual content, structure, processes, and tasks). Hackman and Oldham (1980) argue that the job characteristics foster the individual psychological state that influences the individual's performance, motivation, and satisfaction. Pasmore, Nogami, and Shani (1980), reporting on a research study conducted with U.S. military stationed in Germany, found that in addition to supporting the existence of a similar relationship in a military setting, organization structure was identified as a moderating variable. *Organization structure* as a stress precipitator refers to the individual's perception of both organizational structure configuration and authority structure. A deeper inquiry indicates that the relationship and potential impact of structure and authority is not a simple one in a military setting (Sabrosky et al., 1982; Shani et al., 1982). With the exception of Milgram (1974) and Zimbardo (1969), there is little data on obedience itself. Although authority in the form of leadership is effective only to the degree that it sets an example and is seen as effective (George, 1971), Stouffer et al. (1949) found that a sound command structure will not carry out its mission effectively if group support is lacking. Furthermore, Milgram's (1974) experimental simulations showed that obedience to authority is seriously undermined when the person objecting to authority has even minimal social support. Thus, the need to

understanding in more depth the role that organizational structure and work design play as stress precipitators is critical both in peacetime and in wartime conditions.

The cluster analysis yielded three groups of officers who experienced similar stress-frequency patterns. Each group was classified based on the level of response and the degree of stress as indicated by a stress-index number. The highest stress group was termed *achievement-centered*. The individuals in this group exhibited high stress in such items as: fear of making wrong decisions, not knowing what advancement opportunities exist, too heavy a work load, and not knowing what people expected from them. The second group was titled *organization-centered*. The individuals in this group also exhibited high stress levels. Items included: not knowing how one's performance is evaluated, feeling unclear about one's responsibilities, feeling that one's authority to carry out the job is inadequate, and feeling that the information available to do the job is insufficient. The third group was titled, *self-actualization-centered*. This group exhibited low stress in the same items that precipitated high stress for the other two groups. However, there was one additional stress item for this group that was not present in the other groups. This item was the feeling (by the individual) that one was often forced to make decisions on the job that were against one's better judgment. By relating the cluster groups to the demographic variables, it was found that both age and marital status were relatively uniformly distributed over the three groups. Future inquiry might focus on a comparative examination of the different clusters among a variety of military units.

## CONCLUSIONS

Like other institutions of our day and age, the military is facing a rapidly increasing rate of change on a number of fronts. Changes by their nature foster stressful working environments. This exploratory study focused on organizationally based precipitators of stress among a group of U.S. military officers stationed in Germany. The exploratory investigation identified work load, work design, job qualifications, job performance, and organization structure as stress precipitators. Furthermore, the study identified three levels of individual stress clusters labeled self-actualization-centered, organization-centered, and achievement-centered.

The implications of this study and direction for future investigations, beyond those discussed already, should address the following issues. Assuming that Pasmore et al., (1982) are correct in their prediction that rapid change will result in the development of new and unique organizational forms, understanding the phenomenon of stress precipitators and coping responses not only would ease the ongoing transitions but also would aid in developing specific management actions. Therefore, the military should invest time and effort to discover not only what the stress precipitators are in a military environment across organizational and geographical boundaries but also how they could be reduced for better results toward a higher level of combat readiness.

Organization development practitioners—the organization effectiveness officers—have a critical role to play in addressing the stress phenomenon in the military environment. A wide array of available organization development interventions can be utilized at the organization design, work design, team design, and performance levels to reduce stress and increase productivity and readiness. Furthermore, addressing the issue of stress and its precipitators in training programs and seminars being offered to officers within the military institution might be a step in the right direction.

It is now generally recognized that work is a major stress contributor in Western society (Selye, 1983). Work, however, is only one aspect of the total stress syndrome. Social, cultural, environmental, family, marital, and personality variables influence behavior and the ability to cope with perceived dysfunctions in the work organization. Thus, the reaction of individuals to any organizational phenomenon is a function of their total personality constellation and is, therefore, influenced by each individual's ability to cope with specific stress precipitators. Further research investigating individuals perceived stress precipitators, their sources and outcomes in a variety of military organizations is needed for the development of a high-performing armed force.

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