WORK STRESS AND JOB PERFORMANCE

Variables in Occupational Stress

Tobias Brocher, MD

Hans Selye devoted his last edition of "Stress in Health and Disease"

> "To those who are under the exhausting nervous strain of pursuing their ideal--whatever it may be. To the martyrs who sacrifice themselves for others, as well as to those hounded by selfish ambition, fear, jealousy--and worst of all by hate. For my stress stems from the urge to help and not to judge."

This authoritative scientific volume, based on research beginning during the thirties and earlier, reflects a basic dilemma: Everything is possible under stres--physiological reactions with secondary psychological consequences; as well as psychological, psychosocial, and sociocultural stressors which can cause psychosomatic and physiological changes and stress adaptation syndromes.

Since newspapers, magazines, and other media teach us daily about stress and its consequences, the public seems to have become more expert than the physician. In some professions it seems to be the confirmation of aggressive, successful ambitiousness when an executive can diagnose himself as a "Type A personality." The ambivalence between pride and repressed fear of potential health hazards from this modern self-diagnosis reveals more clearly a certain oversimplification of any typology. The latter fits our need for stereotypes, but it distorts the complexity of the multifactorial sources for stress.

The information to be presented here is based on more than 20 years of experience with workers who attended the former Menninger Seminars for Industrial Mental Health, founded by Dr. William Menninger in 1956. During this time, more than 20,000 workers from all walks of life participated in intense five-day seminars, three-day workshops and individual and organizational consultations. The average U.S. worker in 1977 is different from the average

executive in 1956 because the work environment, value system, and life conditions have radically changed.

From our regular seminars for occupational physicians (since about 1957), we have recognized two factors that are related to specific stress within this profession:

1. the relatively short training in modern psychiatry and the difficulty in coping with psychological elements,
2. the lack of time, which would ease the decision that management wants to convey to a given individual under medical scrutiny.

Whatever happens, the accountability rests with the physician. One of the best examples for such a double-bind situation is the responsibility of the flight surgeon to diagnose the amount of stress which a 32-year-old air traffic controller claims as the reason for early retirement or vocational change after 5 years of service.

If we expect to obtain reliable data from an investigation of stress conditions, the study must be based on:

1. a general health survey,
2. a personal history survey, including early childhood and psychosocial development data, and
3. an organizational survey (i.e., methods of performance evaluation, patterns of supervision, degree of job satisfaction, perception of work conditions, potential for career development) (1).

Within this framework will be numerous variables related to specific health factors, elements of personal history, or organizational conditions that can lead to various stress syndromes. Although general folklore alleges that the pressures of decision-making in management positions inevitably cause stress which then leads to cardiovascular syndromes, we have sufficient evidence that this general assumption cannot be validated. Depending on various factors, stress syndromes usually are seen to be related to:

1. The particular position within an organization (i.e., operations, staff, or management) and the specific functions within substructures of the position (e.g., the linkage between different groups, sub-leadership functions, and/or degree of accountability). For example: Job

satisfaction and job performance are interrelated only for workers in nonstimulating jobs, while there is higher satisfaction but lower performance level in stimulating positions (1).

2. Qualitative differences in stress tolerance based on the individual sociocultural background, which also includes differences of age, sex, and education as well as the individual personality history (i.e., traumatic factors in various life events, sequence of life change units (2), prevalent mood, and defense patterns).

Recent research has confirmed five main hypothetical types of stress symptoms related to specific organizational work tasks and/or positions:

1. varying degrees of emotional distress without physical symptoms,
2. cardiovascular conditions in different progressive stages,
3. gastrointestinal disorders of varying degrees,
4. respiratory allergy, and
5. medication use or abuse (3).

Our primary task is to identify which stress factors are directly work-related, which are the result of organizational pressures and/or specific subgroup dynamics, and which are carried over from personal conflict situations in the family or during crucial development periods of the life cycle. Throughout the years we have found certain typical constellations in various age groups. As a principle, we have observed periods of higher stress symptoms in younger ambitious workers who are striving for achievement and recognition. Reaching the expected goal is usually followed by a higher intensity of stress symptoms, especially in case of promotions and/or new task assignments. Although the subjective perception of job satisfaction increases, the uncertainty of the new work situation prevails until sufficient adaptation has been reached. Missing the expected goal leads to increasing stress symptoms through frustrated aspirations. A vicious circle develops when the reality perception is distorted and the efforts to accomplish the envisioned goal neglect given limitations. The self-inflicted stress can lead to unconscious self-destructive attitudes.

We have previously assumed that the place of work is causally related to stress. This may be true for certain work conditions such as excessive noise, vibration, chemical pollutants, and so forth. Contradictory to this common previous medical belief are two other assumptions:

1. When we assume that stress in an organization is merely the same for all occupational groups (i.e., operations, staff, and management), we have to conclude that the differences in stress tolerance and stress reactions result exclusively from varying personality components. The individual differences in coping with stress would make it unnecessary to consider organizational factors or occupational conditions.

   The older theories of human engineering put the right person in the right place and shaped the working conditions as much as possible to the hypothetical capacity of the individual worker. We know now that many more psychological factors are involved, especially when we consider the opposite; namely, that the type of work can shape the personality through identification with roles. Although we assume that work deals mainly with production and products, it is really related to changing relationships with other people. Within this framework the need for self-esteem, automomy, and self-actualization have a higher priority then money and social contact. As Herzberg (4) has pointed out repeatedly, the real satisfaction comes from work itself. Neither more money nor better fringe benefits nor improved working conditions necessarily increase motivation or happiness, although they are somewhat relevant as so-called "hygiene factors." However, motivation, job satisfaction and reduction of stress symptoms depend on feed-back mechanisms which confirm the individual self-concept as a reward.

   Without going into details, our observations confirm that the most important changes (i.e., any crucial change in a person's work role--promotion, reward, and status; as well as demotion, being sidetracked, or transferred to a lower status job and less challenging assignments) usually occur during the ages of 35 to 45. The individual's basic sense of insecurity and inadequacy, the secret fear of failure, increases at the same time when he may also be confronted with disturbing psychosocial problems characteristis of the mid-life transition. Bennis says, "In any organization, leadership becomes the object of various fantasies, projections, devaluations, and idealizations." This apparent dependency upon leadership or defiance against leadership is based on irrational basic assumptions of a persistent family model that permits all kinds of highly unconscious transference repetitions. Most organizations are still

structured as hierarchies that follow the family principle of authority, with linking-pin functions between the various levels.

2. Specific tasks, occupational positions, and the organizational environment produce different degrees of stress. Therefore, we would expect to find relevant differences in symptom rates among various occupational groups which are not related to personality factors.

Zaleznik et al. (6) has discussed four elements in an empirical study which elucidate specific connections between organizational structure and the rate of stress symptoms. He points out that the maturity effect, the vulnerability effect, the bureaucratic effect, and the power effect have a hypothetical relevance for the development of stress symptoms which differ among professional groups in organizations. The assumption that management is psychologically healthier and more mature than the operation and staff group has proven to be wrong; yet the vulnerability effect, based on stress reactions, caused by traumatic and unstable life histories could not explain the differences in stress reactions among the principal occupational groups. Differences instead among these three groups are the consequences of bureaucratic processes in organizations (7,8). Managers have some protection from simple and quantified measures of work performance and are "less anxious about evaluation and control," while staff and operations groups "experience considerable pressure, high accountability and uncertainty, and feel far more exposed to performance evaluation." (3). The fourth factor, power effect, hypothesizes that the ability to change organizational conditions through the possession of power to make relevant decisions, creates a different psychological environment with a greater tolerance for uncertainty and ambiguity.

The main stress factor in organizations--expressed as emotional distress, cardiovascular symptoms, gastrointestinal disorders, respiratory allergies, and medication use or abuse--seems to be based on the double bind of dependency needs versus dependency fears. Both factors are related to self-esteem and the need for acceptance. Thus, it comes as no surprise that during the crisis of mid-life transition with its crucial experience of self-confrontation and changing reality perception, it can become difficult "to keep

one's private life from spilling over into one's public life and vice versa." (9) However, the conflict between individual needs and organizational needs leads to increasing stress reactions when the environment does not offer the expected gratification. We have seen many executives who tried to escape from family problems by increasing their work load up to more than seventy hours a week in order to avoid conflicts with their adolescent children. Stress symptoms reach a peak when the discrepancy between reward and need is perceived as being outside of the individual's control either in the occupational or in the family constellation. The individual type of stress symptoms may depend mainly on extra-organizational factors, the prevailing defense mechanisms, their flexibility and maturity, and the stages of psychological development throughout the life cycle. However, we would be mistaken if we try to define the causes for stress symptoms solely in the personality inventory without recognizing the specific conditions within the organizational structure.

A typical example which we see in numerous variations may elucidate the problem: A 43-year-old executive has reached his preset goal to become division manager and vice-president in a large corporation. He has been married for 15 years, his oldest child has reached adolescence, two other children are two years apart. His new position demands more travel and he increases his working time, thereby neglecting his family more and more and producing increased tensions and arguments at home. His wife is from a small town and feels inhibited and inferior at social events where she has to meet with the wives of the president and chairman-of-the-board. She expresses her frustration simply: "I married a school teacher and I am not prepared to deal with all these big wheels--I hate it." With the increasing alienation in marriage and the husband's secret concern about his diminishing libidinal capacity, he begins an extramarital affair, but feels guilty about it. His job performance declines and he faces a possible demotion. A six-year younger executive, his former subordinate and protegee, is delegated as his support. The vice-president begins to develop increasingly competitive feelings, sometimes slightly paranoid, with increasing resentment against the younger executive. His expectation of being involved in a new project and expansion is turned down, the project is assigned to another, older division

head. The stress symptoms start with sleeplessness. He takes "downers" in the evening, vitamins and benzedrine and megavitamins in the morning. However, depression, moodiness, and irritability increase. Eight months after his promotion he has the first cardiovascular symptoms. Within the following two months he has a car accident, develops a drinking problem, his marriage is on the brink of divorce, the 14-year old daughter becomes involved in a youth gang and is arrested for possession of marijuana. Eleven months after his promotion he survives a heart attack that is primarily misdiagnosed as an intestinal disorder. A fringe benefit of the heart attack is his confrontation with reality which slows him down and leads to drastic changes in his life cycle. Although this sounds like a happy ending, he is now suffering from the increasing independence and emancipation of his wife.

We see similar histories regularly in seminars and individual executive consultations. Two quotes seem to be symptomatic: The question, "Who is the person you can talk to about your personal internal problems and concerns?" is typically answered, "I don't want to burden my wife. She does not understand my business problems and she wants to talk about her world when I come home--in fact, there is nobody I could really trust." One executive added, "...and when I want to talk to my dog, he runs away!" The most common complaint of 45% of executive wives is: "My husband never talks. I hear the things which happened from others weeks later at social meetings."

In the interest of time I shall not discuss typical stress symptoms of the mid-life transitional phase; although this period does not necessarily have to become a crisis. Of more importance is the growing number of female executives in an all-male world who are in isolated positions, surrounded by men who are either courteous in a stereotyped but phony way, or openly hostile and derogatory in their competition. Ulcers, gastrointestinal disorders and emotional distress prevail in these women as a result of common male prejudice.

Another quote that our profession has heard more often relative to the annual physical exam: "These doctors look into each orifice

of my body. The only thing they are not interested in is what is going on in my head!" This statement should alert the occupational physician that he is often perceived as being in a functional part of the organization. Thus, to reveal personal problems or emotional distress to him is to potentially jeopardize one's career. As a consequence, early stress symptoms are either repressed or denied until later they become somatized and can be treated as a real illness.

There seems no doubt that the stress symptoms mentioned above influence performance and productivity in various degrees, but of more importance are new findings that the traditional hierarchical pyramid structure in an organization increases stress unnecessarily. Although many organizations are looking for remedies through training in relaxation and stress reduction methods, no gimmick can resolve the structural problem which causes stress symptoms as long as there is insufficient recognition of the psychological organizational conditions which either recognize or ignore the importance of positive feed-back, reassurance of self-esteem, and acceptance. The more we use medication as a remedy for organizational stress, the more we contribute to medication abuse and emotional distress as symptoms. Although the occupational physician will meet much serious resistance, within most organizations it is necessary to continuously underline the impact of structural dependencies which increase the feeling that the disparity between need and reward remains outside of one's control. Vocational training has thus far neglected using negotiating capacities to deal with those factors. The individual who develops the ability to continuously renegotiate the conditions of his psychological contracts through autoplastic, as well as alloplastic adaptations, seems less prone to stress reactions.

The average practices of performance evaluations are usually a narrow one-way street. Although various successful pilot studies with performance evaluations from above and below have demonstrated the better potential for reduced organizational stress (10,11), most organizations continue traditional patterns, refuting the subjective evaluation of their supervisors. The two-way performance evaluation may be possible by a new generation who has grown up under different psychological premises. We have just begun to study the meaning and psychosocial conditions of work; thus,

it may be a long time before management will accept that coping with human beings is different from dealing with things and products. The future task of the occupational physician may be to study carefully the psychological factors of structural organizational stress conditions before their symptoms become observable in occupational groups. Highly technological societies tend to give lip service to the improvement in the quality of life, which raises serious doubts about how much we <u>really</u> care. Job performance depends on work satisfaction and content, which in turn are dependent on the self-concept: The hope for acceptance and the fear of rejection determine our self-esteem. Our future may depend on the ability to reestablish that human beings are different from things; they cannot be handled as objects without developing stress reactions.

We have observed that industry and business are continually searching for remedies through more training. Unfortunately, the larger part of such training concentrates on technological "nuts and bolts" courses. Thus, the statement of some of our participants is not surprising: "I have been to more than 30 or 40 training seminars; this is the first time I have learned something new about myself which helps me to better understand my relationship with others. It may be difficult and sometimes painful to change engrained patterns but I have got to do it." And one participant added, "...to save my life."

In closing, I want to return to Selye's opening statement which applies to most physicians in industry: "For my stress stems from the urge to help and not to judge."

REFERENCES

1. Baird, L. S. 1976. Relationship of performance in stimulating and non-stimulating jobs. J. Appl. Psych. 61:721-727.
2. Rahe, R. H. 1968. Life change measurement as a prediction of illness. Proc. Royal Soc. Med. 62:44-64.
3. Zaleznik, A., Kets de Vries, M. F. R., and J. Howard. 1977. Stress reactions in organizations: syndromes, causes and consequences. Behav. Science, 22:151-162.
4. Herzberg, F., Mausner, B., Peterson, R., and D. Capwell. 1957. Job Attitudes: Review of Research and Opinion. Psychological Service of Pittsburgh, Pittsburgh
5. Bennis, W. 1974. The Learning Ivory Tower. Jossey-Bass, San Francisco.
6. Zaleznik, A., Dalgon, G. W. and L. B. Barnes. 1970. Orientation and Conflict in Career. Division of Research, Harvard Business School, Boston.
7. Merton, R. K. 1957. Social Theory and Social Structure. Free Press, Glencoe, Ill.
8. Crozier, M. 1964. The Bureaucratic Phenomenon. Univ. Chicago Press, Chicago.
9. Dolgoff, T. The psychological meaning of work. Menninger Perspective. 7:5-10.
10. Jacques, E. 1951. The Changing Culture of a Factory. Tavistock Publications.
11. Rice, A. K. 1958. Productivity and Social Organization. The Ahmedabad Experiment. Tavistock Publications.

NIOSH

OCCUPATIONAL SAFETY AND HEALTH SYMPOSIA 1977

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health

OCCUPATIONAL SAFETY AND HEALTH SYMPOSIA

1977

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Technical Services
Cincinnati, Ohio 45226

June 1978

For sale by the Superintendent of Documents, U.S. Government
Printing Office, Washington, D.C. 20402

DISCLAIMER

The contents of this report are reproduced herein as received from the contractor except for minor editing. The opinions, findings, and conclusions expressed herein are not necessarily those of the National Institute for Occupational Safety and Health, nor does mention of company names or products constitute endorsement by the National Institute for Occupational Safety and Health.

NIOSH Project Officer: Loren L. Hatch, DO, PhD
Principal Investigators: Theodore C. Doege, M.D.
Robert H. Wheater, M.S.

Contract #210-77-0088

DHEW (NIOSH) Publication No. 78-169