CHAPTER 5

STRESS FACTORS IN THE WORKING ENVIRONMENTS OF
WHITE-COLLAR WORKERS

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Research in recent years has improved our knowledge of the importance of
stress factors in the working environment and their influence on workers'
well-being and health. In the modern view, the concept of the working en-
vironment, which was formerly above all concerned with physical aspects, has
come to comprise the total environment of the employee. Therefore, a discus-
sion of hazards in the working environment can no longer be confined to the
traditional occupational hazards that may be caused by physical, chemical,
biological or ergonomic factors or accident risks. As the new concept of the
working environment gains ground in practice, efforts will also have to be
made to evaluate the psychological and social potentialities of the workplace
and to chart the risks arising out of the shortcomings of the psychosocial
environment. Physical factors in the environment have long been known to be
capable of injuring the health and well-being of employees, and preventive
measures have, therefore, focused above all on traditional occupational hazards.

Today a discussion of the importance of the psychosocial functions in the
working environment can be based on a fairly comprehensive body of research.
It is perfectly clear that psychosocial factors can affect satisfaction and
well-being in the work situation, and connections with mental and physical
functional disturbances have also been established. The role of the psycho-
social factors in the origin of direct organic injuries, analogous to the
role of physical factors, has not yet been fully proved. But the modern view
of the working environment as a total environment embracing physical and
psychosocial factors - a view founded on the knowledge we possess today -
should occasion preventive measures, not only for the prevention of injury
and disease but also to achieve a positive work experience and job satisfac-
tion. This view implies that both physical and psychosocial factors in the
working environment should be explored and analyzed in connection with evalua-
tion measures and preventive programs.

In its definition of health, adopted in 1946, the World Health Organization
(WHO) speaks of health as a state of bodily, mental and social well-being.
With this in mind, the principal aim of measures for the improvement of the
working environment should be the promotion of health in the broad sense. Al-
though working life is aimed at the production of goods and services and at
giving workers an income, these matters should not be ends in themselves but
rather means whereby as many people as possible can achieve health, well-
being and a quality of life, these latter conditions are to be regarded as the
overriding objectives of working life.

The importance of the above thoughts concerning the psychosocial environment has been brought out in recent years in a large number of national and international contexts. Both the International Labor Organization (ILO) and the WHO have initiated action programs in the sphere of psychosocial factors and health.

At the national level, these new tendencies in the working environment sector have acquired various manifestations. In the Scandinavian countries, working environment legislation is being drafted which includes physical, psychological and social factors in its definition of the working environment. The greatest progress in this sector has been made by Norway, but the same approach can be seen in the new Work Environment Bill that has been drafted in Sweden. The report of the Swedish Commission on the Working Environment, which contains the draft text of the next legislation, also includes an appendix in which a number of prominent experts on psychosocial conditions in the working environment have described relevant factors and their practical significance in the legislative context.

An Industrial Injuries Insurance Act recently passed in Sweden opens up possibilities of compensation for completely new types of injury besides those previously incorporated in the concept of industrial injuries. Among other things, compensation is now payable for mental or psychosomatic injuries at work. The rules of evidence concerning mental and psychosomatic diseases, however, are stricter than those applying to the harmful effects due to physical factors in the environment and occasioning compensation.

Further manifestations of the broader concept of the working environment can be found in the collective agreements recently concluded in the Swedish labor market. Working environment agreements were concluded both in the private and in the public sector in 1976. These agreements govern working environment activities at individual work places, the tasks of the safety committee and the safety delegates and the organization of industrial health services. The agreements emphasize that both physical and psychosocial factors in the environment are to be included in the scope of safety organization and industrial health services. In the public sector, a decision has been taken to include in the organization of employee health services a social function of personnel welfare which, parallel to medical and technical activities, will above all be concerned with charting and evaluating psychosocial factors in the environment.

It is understandable that the widening concept of the working environment and the consequences, thereof, should have increased the commitment of salaried employees and their associations in matters concerning the working environment. It is of course important to emphasize that psychosocial factors do not exclusively concern salaried employees, but can affect all employee categories. Relatively speaking, though, the psychosocial factors in the environment weigh heavier in the salaried sector, and this is probably the reason salaried employees have taken such a vigorous line on the subject. Recent years have witnessed a transformation of the working conditions and working environment of large groups of salaried employees, often quite a drastic transformation. Organizational changes, administrative rationalization, the introduction of computer systems, and automatic routines have brought changes in work content,

in relations at work and in the allocation of roles between different groups of employees.

Already in the 1920s industrial psychologists were criticizing the philosophy underlying assembly-line production and "scientific management." They were convinced that this type of industrial production had negative effects on people's well-being and health. Scientists have tended to discuss industrial developments in terms of three levels of mechanization, ranging from a low level of mechanization, craftsman production, to automatic and remote-controlled processes. At an intermediate level between these two extremes we have the theories of scientific management, rigidly segregated, short-cycle jobs, usually conducted on some sort of piece-work basis.

More often than not, technical rationalization today involves the transfer of monotonous jobs to machines and the appointment of workers as machine supervisors and specialists instead. Research has shown that job satisfaction in various types of production tends on the whole to describe a U-shaped curve, i.e., it is high in craftsmanship production, low in monotonous assembly line jobs,and tends to rise again in jobs involving machine supervision or process control.

Researchers who have thus investigated the effects of technical progress on job satisfaction have studied mainly manual workers. The salaried sector has no clear counterpart to mechanization, although organizationally speaking one can identify a corresponding pattern of development in this sector too. At the lowest level of mechanization, the craftsmanship stage, salaried employees are relatively few in number and have such duties as bookkeeping, supervision and sales. At a medium level of mechanization, line/staff organizations emerge, bringing with them specialist functions employing salaried staff, e.g., personnel department, finance department, production department,and sales department.

During this period there is a steep rise in the number of salaried employees, but the number declines at the third and highest level of mechanization, at the same time as the demand for specialist qualifications increases. New routines, especially those based on computerization, can render traditional knowledge worthless and create widespread redundancy among elderly salaried employees. There is an increase both in the need for adaptability and the risk of unemployment. Where other groups of salaried employees are concerned, the new organization means a fragmentation and thinning out of duties in a process reminiscent of a medium high level of mechanization in manufacturing industry.

Thus, paradoxically, modern organizations can both generate a need for growing numbers of specialists and increase the number of humdrum, machine-controlled routine tasks. These tendencies may be presumed to create various kinds of psychosocial problems in the working environment of the salaried employee. Structural changes and rationalization processes are a threat to job security. Organizational changes and technical rationalization lead to frequent changes in working conditions, style management, and work organization. These changes can cause the skill acquired within a narrow subject sector to become completely obsolete.

Promotion prospects are often regarded as a benefit in the salaried sector. On the other hand these prospects demand, by definition, efforts to achieve promotion, and failure in this respect can be disastrous to the self esteem of the individual. Our society is dominated by the competitive ethos. Social pressure compels young salaried employees to work overtime as a matter of routine in order to become eligible for promotion. It forces good teachers to look for administrative positions, it forces able engineers to try to become managers. As a rule, there is no chance of stopping or of climbing down one step. Instead, one is forced to go the whole way.

Career systems can lead to social isolation, because one does not readily discuss personal problems with competitors one's own age, with managers who are to choose new managers or even with subordinates, in relation to whom one has a position of authority to maintain. This underlines the fact that relationships at a workplace are for the most part a reflection of the scheme of work organization applying there. A problematic psychosocial environment causes problems in human relations.

The salaried sector provides many examples of role conflicts or buffer roles, an intermediate position at work between groups which are liable to have contradictory interests. The work situation of the foreman is a classic instance of role conflict. Most foremen are recruited from the shop floor and appointed to direct their former mates. The foreman has to match up to the employer's demand for efficient production and the workers' expectation of fair and humane supervision. Many surveys have identified the role of the foreman as a situation of psychosocial risk.

In the medical sector, the work situation of the nurse often implies competition between conflicting interests. The employer organizes the ward, work schedules and personnel pool, the patient expects continuity of care and human contact. The actual business of medical work is fragmented by a host of paperwork routines, as a result of which the nurse barely recognizes the profession she has been trained for. At the same time her situation as a foreman involves problems because she is often forced to delegate responsibilities to personnel who are not trained for their tasks.

Policemen, too, occupy an awkward intermediate position in modern society. They carry out the decisions of a democratic community but are often accused of going by undemocratic principles of their own. They are exposed to menaces, danger, and insults, all of which are often directed at their families as well as themselves. Both the nursing profession and the police are characterized by a high standard of loyalty to their employers and to third parties, and this results in frequently recurring overtime and inconvenient shift work. Sweden is seriously discussing the introduction of three shifts in the nursing sector.

The work situation of teachers is also characterized to a great extent by a conflict of roles. Teachers have to strike a balance between the demands of their pupils, the expectations of parents, and the varying curricula introduced by school authorities. In addition to this balancing trick, the teacher is expected to cope with a classroom situation which can often be very pressing.

The above arguments are illustrated by the report of a survey carried out in 1971 by the City of Stockholm Personnel Committee concerning working conditions and health. Company doctors pointed to the following factors as particularly important causes of stress in the work situation:

- excessively wide-ranging duties

- excessively qualified duties

- insufficiently qualified duties

- teamwork, for elderly persons who are unable to match the working pace of younger colleagues or do not share their values

- concern for the future in connection with reorganization processes

- contact with the general public in controversial social questions, in social welfare or in nursing

- heavy demands for co-operation with superiors and subordinates.

I have no intention here of giving a detailed account of the comprehensive research which has been devoted to problems of stress in working life, but I would like to emphasize that a number of research programs have played a very important part in the planning of TCO's survey of the working environment in the salaried sector. Investigations carried out at the Institute of Social Research of the University of Michigan by French, Kahn, Kaplan and their co-workers, among others, and also by Kasl, Cobb and their associates, are immensely interesting because they raise and test hypotheses directly applicable to the working environment. The Swedish research projects led by Assistant Professor Bertil Gardell at the Institute for Psychology at Stockholm University and by Assistant Professor Lennart Levi at the Stress Research Laboratory of the Karolinska Institute in Stockholm are also highly interesting, focusing as they do on practical changes to the working environment.

Thus, the TCO survey of work environment conditions of salaried employees may be said to have been based on experience and on a solid foundation of research. The survey was conducted in 1975 and 1976 and was partly financed by research grants from the Workers' Protection Fund. It was carried out by Dr. Ingrid Wahlund of the Institute for Psychology of the University of Stockholm and TCO, together with Dr. Gunnar Nerell, a TCO medical expert. Work in connection with the survey is being led by a steering group of trade union representatives and scientists, the latter including Assistant Professor Bertil Gardell, Assistant Professor Lennart Levi, and Dr. Ricardo Edström.

The main points of inquiry are as follows:

- To what extent do different salaried groups experience satisfaction and involvement in their work? Which factors contribute to this?

- To what extent is work experienced as physically strenuous? Which factors contribute towards this?

- What connections are there between working conditions, work experience and various medical complaints and absenteeism?

The theoretical structure of the survey is based on previously formulated hypotheses, particularly the research program carried out by the French-Kahn group. The aim of the survey is to chart the influence of different conditions in the objective working environment, e.g., occupation, pay, type of work, employer, type of workplace and size of workplace, on work experience, i.e., the subjective working environment.

An investigation is also made of reactions to objective and subjective working environments. These reactions may be psychological, behavioral or medical, e.g., an experience of physical strain at work, unease or distaste at the thought of going to work, absenteeism, psychosomatic symptoms, and suchlike. The final stage of the research strategy involves an analysis of connections between reactions to the work environment and more long-term changes in the employee's state of health. Both individual-based factors and social background conditions are being used as interacting variables.

The survey has been carried out in the form of a postal questionnaire comprising about 100 questions which has been sent to a random sample of every seventieth registered member of the various TCO associations. The size of the sample, about 12,000 persons, has been justified by the wide range of occupations and working conditions covered by the survey. The response frequency is 87%, which is very satisfactory for a survey of this kind. During the statistical analyses, the respondents have been studied with reference to pay, age, and association membership.

To facilitate a further comparison of the working conditions of different occupational groups, the respondents have also been divided into 17 job groups, as described in the report. In order to find out what influences stress among salaried employees, one has to start by finding out whether they experience mental stress at work. Our survey showed that roughly one-third experienced work as very often or quite often mentally strenuous, while a quarter replied that they seldom or never found their work a strain. Experienced mental strain is common among teachers, policemen and journalists (60, 49, and 48% of respondents respectively).

To arrive at a picture of the distinctive features of work involving mental strain, the two groups with high and low mental stress respectively have been compared in different respects.

Confinement to work, i.e., difficulties in getting away from one's job for a short while or in taking half a day or a whole day off at short notice, proved to be connected with experienced mental strain. Almost three times as many people in the "frequent stress" group as in the other group are unable to leave their duties for five or ten minutes. Twice as many of those experiencing their work as mentally strenuous feel that they are unable to leave their place of work for half an hour to an hour or take a day or so off at short notice.

The possibilities of making one's own decisions about the planning and conduct

of work play a very important part in work experience. The number of persons feeling that they are too closely controlled in their everyday work is twice as large in the mentally strenuous group as in the other group. The differences between these two groups are still more pronounced concerning questions as to whether work is excessively controlled by customers, patients, pupils, superiors, or authorities. Thus, six times as many among those who often feel mental strain at work consider their work to be overly controlled by these conditions.

Respondents finding these conditions particularly troublesome are to be found among members of the armed forces, policemen, teachers, and nursing staff.

There are also salaried groups who find their work excessively controlled by conditions other than those mentioned above – for example, by instructions from superiors, demands for adjustment to co-workers and excessive control of work by computerized routines. These types of control, unlike the factors mentioned earlier, are closely connected with the experience of work as monotonous and as affording little scope for individual initiatives and decisions.

Great responsibility at work, opportunities of exerting influence and decision-making are often considered to be prerequisites of good job satisfaction. But these intrinsically positive factors can also contribute towards mental strain at work. Presumably, this happens when demands for decision-making and responsibility exceed the optimum level for the individual (overstimulus, overutilization).

This is above all experienced by handling officers, administrative personnel, ("decision-makers"), foremen, nursing staff, members of the armed forces, policemen, teachers, and journalists. Large groups of salaried employees are responsible for ensuring that certain duties are performed, regardless of time input, indisposition, or illness. When the employee is absent from work, there is nobody else who can do his job, so that eventually he returns to a pile of work on his desk. Even if it comes as a positive experience to many people to feel that they are indispensable, this too can constitute a stress factor, and it may be the reason why many employees, to use the term which Lennart Levi has coined for this phenomenon, are "delusively healthy."

The classical epitome of stress is the company president tearing from one meeting to another, puffing at big cigars, and answering several phones at once. We have learned that stress diseases are by no means the prerogative of senior management, and that they are not even commonest at this level. On the other hand factors such as shortage of time for the completion of duties and a large volume of tasks at work are universal stress factors. Often, too, people state that the department is understaffed in relation to its duties and that this is a cause of mental strain at work. Comparing the above mentioned high mental stress and low mental stress groups, one finds that seven times as many in the former group answer that they are often short of time in which to complete their duties; administrative handling staff, teachers, engineers, and policemen bulk large in this group.

If an attempt is made to arrange in rank order the factors the respondents feel are the main causes of mental strain at work, heavy responsibility and

and the need for close concentration are among those occurring most frequent-
ly. These are followed by shortage of time, excessive work load,and the de-
mands and expectations of outsiders, e.g.,customers, patients, pupils and the
general public.

Many scientists would say that opportunities of experiencing work as meaning-
ful and conducive to development are important prerequisites of job satisfac-
tion. Above all, industrial psychologists have warned of the effects which
industrial work has proved capable of producing in the form of sensations of
monotony, futility,and alienation from work. This type of attitude to work,
alternatively known as alienation or an instrumental attitude, implies that
the worker abandons his hopes of deriving satisfaction from his work and, in-
stead, sees in it nothing more than a means of satisfying his needs as a con-
sumer, as a way of making a living. Researchers such as Blauner, Kornhauser,
and Gardell have shown that this attitude towards work leads to a devaluation
of work as a source of satisfaction and also to such reactions as resignation,
absenteeism, loss of self-esteem and social spin-off effects, i.e. less re-
warding leisure, and a lower level of political and cultural activity. Pre-
vious views to the effect that people with tedious jobs were compensated by
the use they made of their leisure have proved to be mistaken.

Experience in this sector mainly refers to industrial workers. It is there-
fore, interesting to note that the present survey of salaried employees shows
that no mean proportion of the respondents have an instrumental attitude to-
wards their work. Twenty-seven percent declared that earnings were the main
objective while 73% experienced job satisfaction. The instrumental attitude
is commonest among junior salaried employees, administrative and technical
personnel,and customs and police officers, while a larger proportion of people
among administrative handling personnel, nursing staff, teachers,and journal-
ists feel that their work affords them personal satisfaction. Those stating
that they derive personal satisfaction from their work also feel that work
content has an essential bearing on job satisfaction. In this group, the
factors felt to contribute most towards job satisfaction are the ability to
decide for oneself how work is to be done, the opportunity for a variety of
work and for responsibility at work, work which involves doing things a person
enjoys doing, and work which involves contact with people. Those regarding
work primarily as a means of making a living feel that the important factors
influencing satisfaction are helpful colleagues, the possibility of deciding
for oneself how work is to be done, good working hours, job security,and a
fairminded boss - in other words, factors which are connected with their sur-
roundings, rather than with their duties as such.

Three types of patterns of reaction to mental strain at work have been men-
tioned; namely psychological, behavioral,and medical.

Psychological reactions are clearly connected with perceived mental strain.
Twelve per cent of respondents in the high strain groups state that they often
feel uneasy or reluctant about going to work, as against 1% in the low strain
group. Forty-eight percent of respondents in the high strain group state
that they are too tired after work to engage in anything active, such as hob-
bies or meeting friends and acquaintances, as against 11% in the low strain
group. Forty-six per cent of respondents in the high strain group find it

hard to get their minds off their work during their leisure hours, as against 8% in the low strain group.

Behavioral reaction patterns are also found to be connected with mental strain. Of the people who often experience mental strain, 43% have seriously considered changing jobs as against 24% in the group of respondents seldom or never experiencing mental strain at work. The group often experiencing mental strain at work, moreover, takes more drugs - above all more sedatives and tranquilizers - and smokes more than the group experiencing little mental strain. There is no great difference between the two groups where sickness absence is concerned. The main difference concerns absenteeism said to be due to weariness or tiredness in connection with work; the high strain group reports three times as much absenteeism on this score as the low strain group.

Thus, although mental strain as such does not appear to produce greater absenteeism, one finds that there is a close connection between psychological reactions and absenteeism. For example, those very often feeling uneasy or reluctant about going to work are absent far more than those who do not display this attitude.

A far greater difference emerges if one compares those experiencing their work as satisfying with those who display an instrumental attitude. Those experiencing satisfaction in their work have a lower rate of absenteeism in terms both of the number of spells of absence and total duration of absence than those who are absent because of distaste or reluctance.

Concerning medical reactions to the working environment, one finds that those who often experience mental strain at work tend far more often than those who do not experience such strain to suffer from nervous complaints and back trouble. The differences are greatest with regard to nervous complaints, roughly four times as many people in the high strain group having definite complaints (15 and 4% for the two groups respectively). Those displaying an instrumental attitude to their work suffer from medical complaints to a greater extent than those who derive personal satisfaction from their work; they have twice the amount of gastric trouble, back trouble,and nervous complaints.

I have already mentioned distaste or reluctance and uneasiness about work, as well as,difficulties in getting one's mind off the job during leisure hours as being psychological reactions to mental strain at work. Persons reporting these psychological reactions, compared with those not reporting them, have a much higher frequency of medical complaints, above all in the form of gastric and nervous trouble. This suggests that psychological and psychosomatic reactions occur to a great extent simultaneously. One is bound to wonder whether persistent troubles of this kind give rise to manifest states of illness, mental illness, high blood pressure, cardiac infarctions,or peptic ulcers.

A high frequency of nervous complaints occurs in 11% of respondents. The corresponding figure among those experiencing their work as mentally strenuous is 19%, while among those not experiencing their work in these terms it is 5%. In the "perceived mental strain" group one finds an even higher frequency of nervous complaints among those feeling that their work is excessively controlled (24%), excessively tied to computer routines (29%) or excessively

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dominated by adjustment to a colleague's style and pace of work (30%). The same goes for respondents who find their work excessively monotonous (43%) or insufficiently qualified (44%) and those who feel that they have little opportunity of deciding for themselves how their work is to be done (39%). About 35% of respondents experiencing mental strain and uncertainty concerning the way in which work is to be done, unclear working instructions, and a conflict of roles suffer from nervous complaints.

The results suggest that monotonous and rigidly controlled jobs and jobs involving uncertainty and conflict lead to nervous complaints. The frequency of nervous complaints among these groups is greater than in the group with a general experience of mental strain and greater than for respondents as a whole. Perhaps these findings can be taken to imply that mental strain gives rise to medical reactions and sickness absence if the duties experienced as mentally strenuous do not afford scope for personal initiatives, the regulation of one's own style and pace of work and the personal assumption of responsibility.

Other results pointing in the same direction are those obtained from a comparison of the absenteeism figures of respondents feeling that they are definitely able to influence decisions concerning their work, and respondents who definitely have no such opportunity. Those who are unable to influence decisions heavily predominate, as regards both the number of spells of absence and total absence, and also as regards absence due to weariness or tiredness connected with their work. Similar differences exist between those who never experience responsibility at work and those who very often experience a great deal of responsibility at work. Underlying these results there is probably a combination of mental strain and intellectual understimulus.

The survey findings suggest that the hypotheses formulated in the survey model are essentially correct. Conditions in the objective work environment, in the organization of work and in job content influence the individual person's experience of his work and generate psychological and behavioral reactions as well as, medical complaints. The psychosocial working environment has repercussions on the employees' well-being and health. It is, however, important to remember that a cross-sectional survey, however well conducted, yields primarily statistical relationships. A single survey does not justify the inference that the statistical relationships are also causal connections.

Previous research, however, has furnished evidence to suggest that the type of connection described here is actually a causal relationship. Studies of this kind have been carried out by the research groups led by Lennart Levi and Bertil Gardell and have entailed longitudinal investigations of risk groups with comparable reference groups. There is good reason, therefore, to suppose that the connections found in this survey are real. This should be verified, however, and a follow-up survey is therefore planned. The follow-up will be based primarily on available statistics, and the following sources are conceivable:

1. Statistics from the National Social Insurance Board concerning sickness absence, diagnoses, and hospitalizations.

2. Medical statistics based on data from the National Social Insurance Board.

3. The register of causes of death maintained by the Central Bureau of
   Statistics.

Thus, the purpose of the follow-up survey will be to try to establish whether
the connections found in the cross-sectional survey can stand up to a longitu-
dinal investigation.

Discussion of following up the survey should not prevent the survey findings
from being used here and now. The survey verifies the views which TCO has pro-
pounded concerning the importance of the psychosocial working environment as a
field for preventive measures. Collective agreements and legislation are
slowly changing in this direction, and it is therefore important for the sur-
vey findings to be transmitted to local level, to individual workplaces. In-
terest in these measures has also been stimulated by the survey. For example,
discussion groups have been organized and information material compiled. Study
material is planned with the aim of providing safety delegates with properly
composed training, and this, finally, must be the principal aim of the survey -
namely, to transmit knowledge concerning the effects of the psychosocial en-
vironment to the local safety organizations so as to provide those organiza-
tions with a solid foundation for concrete improvements to the working environ-
ment.

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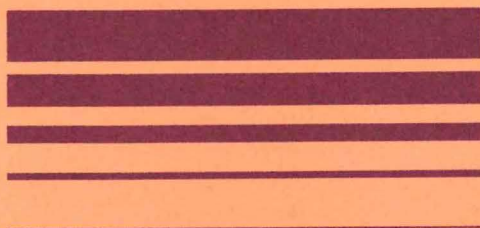
REDUCING OCCUPATIONAL STRESS

Proceedings of a Conference
May 10-12, 1977
Westchester Division, New York Hospital-Cornell Medical Center

Sponsored by
Center for Occupational Mental Health, Cornell Medical College
and the
National Institute for Occupational Safety and Health
with the cooperation of
International Committee on Occupational Mental Health
Permanent Commission and International Association on
Occupational Health
World Health Organization
Work In America Institute

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