



Occupation and Health

**WORK ENVIRONMENT FACTORS WITH STRESS EFFECT ON
AGRICULTURAL WORKERS**

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ABSTRACT

The study was carried out during the period 2003 through 2004 on 64 agricultural workers in high-risk professions (vets, zoo-engineers, agronomists, animal breeders, milkmen, field workers, tractor drivers and machine operators) in the town of Stamboliiski and the village of Tsalapitsa (Pazardzhik region) in Bulgaria. A questionnaire was developed and filled out on voluntary and anonymous basis. The most significant and first-ranked responses were those bordering on psycho-social factors, such as, lack of work assurance and insufficient payment resulting in family problems, bad communication and support; and mutual respect in collective, daily and hourly contact with sick animals, owners, clients, buyers, suppliers, dealers, etc. Adverse factors of work environment comprised: noise, vibrations and dust (tractor drivers); noise and dust (stock keepers); work with biological hazards (vets, zoo-engineers and veterinary technicians). A large part of interviewed personnel (about 65%) thought that stress at work was one of the essential factors for the occurrence of some diseases. Professional stress in agriculture really affects personnel engaged in the main professions in this branch.

Key words: stress factors, work environment, agriculture

INTRODUCTION

Significant changes in economic structure have been observed in Bulgaria during the last 10-15 years. Work conditions in newly established or existing units of production and the social sphere have equally changed. These changes have been thought to influence workers' health, a fact that has to be expected and accounted for in matters relating to health and safety conditions of work, professional diseases and accidents (1, 2).

Accidents with lethal outcomes in agriculture, in absolute values, are 11, the coefficient of death frequencies (K4 df) is 1,46 or 50% higher than the total for the country (0,73) (3). From this point of view the levels of labour traumatism and professional diseases account for about 15% over the average at production activity in agriculture, despite the low country indices (4). The

investigation by different authors (5, 6, 7) showed that stress at work is very complicated and multifaceted. It is considered that a person in stress is prone to accident (8).

During the work process stress appears periodically and this stress becomes visible at moments when a particular individual is under high pressure and cannot manage well with usual work. The reasons for the appearance of stress situations are numerous but the most of them are connected with psychosocial factors, factors resulting from the work process of work environment (9, 10, 11, 12).

There are at least four basic questions, the clarification of which will contribute to a better understanding of stress at work:

1. What is the nature of work-related stress?
2. How are the health and safety of the individuals affected?
3. How is the application of the existing scientific data in the area of management of work connected with stress?
4. Is there a necessity for health risk evaluation in the work place?

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Stress at work could be caused by three main groups of factors (13; 14):

- Factors of work environment - the physical factors of work environment outside their specific influence (extra aural influence of noise); chemical factors of work environment acting as stress outside their specific effect (risk work is potentially dangerous environment).
- Factors of work process – content of work tasks (difficulty of tasks in quantitative and qualitative attitude, responsibility, control of situation, etc.); presence of shifts and regime of work and rest periods.
- Organisational factors (poorly defined task, authoritarian decisions, responsibility transfer, conflicts, loss of work and many others).
- Psycho-social factors – social support, possibility for professional realisation, rate of salary and financial stimulus, family problems related to work, etc.

The aim of this study was to review the stress causing factors in workers from main professional groups in agriculture.

MATERIALS AND METHODS An enquiry was carried out during the period from 2003 through 2004 with 64 agricultural workers. The questions of this enquiry examined stress during work in the town of Stamboliiski and the village of Tsalapitsa (Pazardzhik region). The following high-risk professions in the present study were observed: veterinary doctor, zoo-engineer, agronomist, animal breeder, milkman, field worker, tractor driver and machine operator.

An inquiry was developed and filled up on voluntary and anonymity basis (**Table 1**). It comprised the groups of factors concerning the presence and frequency of stress factors in the work place; determination of stress-factors of work environment and work place; subjective complaints about health problems; subjective complaints about the family climate, difficulties in providing means of livelihood, monotonous and varied work, etc. The results were processed statistically by the ANOVA method using the Statistica computer packet.

RESULTS AND DISCUSSION

For the real assessment of risks of trauma, work accidents and professional diseases in agriculture it was first necessary to clarify what the specific base concepts were in

relation to work process in agriculture, based on the interviewee's perspective:

Work activity – work for creation of customer value of the work object by means of production, expressed through purposeful relationships between personnel, equipment, materials and energy for the implementation of a specific work task at the work place in the work system at a defined work environment. Each differentiated succession of such interactions was defined as work process.

Work process – the work process in which the agricultural worker is included is very dynamic with regard to work tasks. These work tasks are realised in different and rapidly changing work environments. This makes it unpredictable as far as the possibilities for realisation of a hazardous work situation with different degree of traumatism or accidents with lethal exit.

Table 1. An example of inquiry form

Personnel information	Occupation /profession			Age
	Significance of factor			
Groups of factors	High	Intermediate	Low	No significance
	Factors of work environment:			
Physical hazards:				
Chemical hazards:				
Biological hazards:				
Factors of work process:				
Content of work task:				
Shift work and regime of work and rest:				
Organizational:				
Psycho-social factors:				
Social support:				
Possibilities for professional realization:				
Salary/payment:				
Family problems related to work:				
Other factors according to the inquired persons:				
Health problems:				

Area of work activity – covers the space where one makes, stays or passes in relation to

the work realisation. From this point of view the agricultural worker defines that he stays in a space with heterogeneous nature.

Work place – the area of work activity of one or more workers, which is characterised by equal work conditions of all work elements, sameness of work place, sameness of prophylactic measures and activities. The work places of agricultural workers were outside or inside of buildings, premises and cabins.

Work equipment – was defined as animals, forages, chemicals (pesticides, fertilisers, additives, etc.), tools, machines, installations, transport means, devices, furniture, etc, used for work.

Prophylactic measures and activities – intended to prevent hazards and risks for people and equipment.

Work conditions in agriculture contain a lot of general elements: nature of work, biological hazards of work environment, toxic substances, microclimate, noise, illumination, vibrations, psycho-social factors, stress, etc. that is why here, in this study, only part of results related to risk factors leading to stress in the above mentioned professional groups were shown.

Eighty percent of the interviewed persons determined their work as stressful. Forty-five percent considered that stress at work was permanent, daily occurrence. Negative emotions, and related to them conflict situations, were indicated as a main factor in developing stress.

The interviewed people thought that a conflict situation was possible to appear as a result of breached ethical and socio-legal standards, dynamic life or as a consequence of the negative influence of a number professional factors – air pollution, higher noise value or vibrations, monotonous work, psycho-social factors as isolation, alienation, shift work, insufficient payment, bad relationships, etc.

Interviewees specified that in their daily work stress occurred any time pressure increased and they did not succeed in managing it quickly, especially in the light of poor social support from colleagues, managers and family members.

What were the reasons for occurrence of stress at work?

Data obtained implicated the following factors:

- Psychosocial factors;
- Factors resulting from the work process;
- Factors of work environment.

The most significant and first-ranked were the **psychosocial factors**. These were lack of work assurance and insufficient payment resulting in family problems, bad communication and support, and mutual respect in collective, daily and hourly contact with sick animals, owners, clients, buyers, suppliers, dealers, etc. Most of them expressed aggressive behaviours toward one another, increased quality requirements at decreased number of personnel and frequent organisational changes, high responsibility at less autonomy.

Second were the factors, related to the **work process**. The most important place in this group was covered by factors of work management – defects of personnel management, bad definition of work tasks, dictatorial decisions, and unexpected changes in the organisation.

Inconvenient work pose was a leading risk factor by significance for tractor-drivers, milkman, and field workers. Thirty percent of them think that the monotonous and continuously repeated work was a stress factor because of the need of high concentration and responsibility.

Second was the factor “work difficulty” in quantitative (tractor-drivers, animal breeders) and qualitative (vets, zoo engineers, agronomist, veterinary technicians) aspects. The problem of systemic extension of work time and absence of a physiological regime of work and rest, and conditions for changing and alternation of the activities was taken seriously.

Forty five percent of interviewees reported that they faced frequent interruptions at their primary sites of work resulting in inability to conclude effectively their daily routines. This situation was particularly true among the animal breeders, tractor drivers and field workers.

Tractor drivers faced the problem of obsolete tractors, bad roads, infringement of traffic regulations, necessity to work on difficult terrains.

The following were shown as factors of **work environment**:

- noise, vibrations and dust (tractor drivers);
- noise and dust (animal breeders);
- work with biological hazards (vets, zoo-engineers and veterinary technicians).

A large part of the interviewees (about 65%) thought that stress at work was one of the essential factors for the occurrence of some diseases of the cardio-vascular system

(infarctions, hypertonic disease, etc), digestive system (ulcer, colitis) and some nervous disorders (depression, neurosis). Subjective complaints varied from light tenseness, anxiety, and poor co-ordination to different psychosomatic diseases. The vegetative changes are typical, manifested by rapid pulse, sweating of the palms, feeling of weakness, restlessness, emotional instability, pale skin, tremor of limbs, etc.

CONCLUSIONS

Professional stress in agriculture really exists and affects many personnel in this sector.

Our study determined three groups of factors implicated in stresses at work for agricultural workers: psychosocial factors; factors resulting from the work process and factors of work environment.

Psychosocial factors ranked first among these factors.

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