

Reducing occupational stress in air traffic control

[Environment](#), [Air](#)



Recommendations and Conclusions

Introduction

In this chapter, the researcher has formulated a set of recommendations based on data found in the finding and analysis chapter in line with the objectives of the dissertation to help in reducing occupational stress in air traffic control.

Improving job planning and reliability of the work systems

According to Giovanni Coasta (1995), from the past technical means to present support, under full radar coverage of air space, is the key factor which allows a “ jump in quality”, not just in terms of work competence, but likewise in terms of stress levels, by decreasing cognitive, memory and communicative loads along with uncertainty and unforeseeability of the situations. The more technological passage to function under “ multi-radar” assistance permits an additional rise in levels of reliability and safety as well as a reduction in stress levels.

These improvements allow for well planning of air traffic and, subsequently, a more balanced workload among individual ATCs. These improvements may also subsequently reduce the possibility or the seriousness of many unforeseen situations, by allowing for more reliable information and more time for solving problems and making decisions, while eliminating many stressful and risky traffic peaks.

Reduction of working times and arrangement of working teams and rest pauses in relation to the workload

The mental strength required maintaining the maximum level of attention and vigilance, as well as to securely and efficiently facing the duty in terms of cognitive and memory load that can differ usually in relation to air traffic concentration and connected problems. Therefore, to guarantee the best level of performance efficiency avoiding excessive mental stress and fatigue, particular attention has to be paid to arranging duty periods.

Duty periods:

- The length of the duty period should not exceed ten hours (extendable to 12 hours in special circumstances), and should be adjusted according to the workload;
- An interval of no less than 12 hours should be scheduled between the conclusion of one period of duty and the commencement of the next period of duty;
- Overtime should be an exception.

Breaks during operational duty:

- No operational duty shall exceed a period of two hours without there being taken, during or at the end of that period, a break or total break not less than 30 minutes;
- During periods of high traffic density, the possibility of having more frequent short breaks (ten minutes) should be provided;
- A sufficiently long break for meals should be allowed, providing adequate canteen facilities to assure hot and good quality meals.

Arrangement of shift schedules according to psycho-physiological and social criteria

Shift work, in particular night work, is a stress factor for the ATCs due to its negative effects on various aspects of their lives. This stress can be eliminated by adopting a rapidly-rotating shift system, changing work shifts every one or two days instead of every week. Moreover, reducing the number of consecutive night shifts as much as possible and having a day's rest after the night-shift period. This prevents accumulation of sleep deficit and fatigue, and allows a quicker recovery. Delaying the beginning of the morning shift (e. g. at 07: 00 or later) to allow a normal amount of sleep. Preferring the forward rotation (e. g. morning-afternoon-night) to the backward one (e. g. afternoon-morning-night) to allow a longer period of rest between shifts). Adjusting the length of shifts according to the physical and mental workload that is day shifts should be shorter, whereas night shifts could be longer if the workload is reduced and there are sleeping facilities.

Improving the work environment

1. Lighting

Taking into consideration that the ATC's task is performed almost exclusively in front of a visual display unit, particular attention should be paid to providing lighting conditions which favor an optimal visual performance.

Inside the towers, the opposite is the problem. It is necessary to avoid excessive illumination levels due to external bright light using both anti-reflection glass and curtains; it is also important to have the possibility of positioning and shielding the visual display units to avoid indirect glare due to bright reflections on the screen.

2. Noise

The main sources of noise are represented by conversations, manual operations (e. g. manipulations of strip supports) and office machines (printers, telephones, photocopiers, etc.). Therefore particular attention has to be paid in order to stop background noise from exceeding 45-50 dB by installing quieter office machinery, arranging work sectors in order to have better sound protection from each other, and installing more insulating headsets and more sensitive microphones.

Arranging workplaces according to ergonomic criteria

1. Workstation design

It is also important to arrange the layout of the workplace in order to avoid glare caused by excessive brightness contrasts between different objects and surfaces; it causes discomfort and hampers the comprehension of the information. The displays should be shaded and the surfaces matte, avoiding the use of reflective materials and bright colors on table-tops and consoles. Data displays containing flight information should preferably be located beside the radar screen.

2. Sitting postures

A prolonged, constrained sitting posture causes muscular-skeletal discomfort and pain, particularly at the level of the neck, the shoulders and the lumbar tract. In order to avoid or alleviate such disturbances, it is important to use suitable chairs which allow a comfortable sitting posture while working, as well as useful muscle relaxation while on stand-by or resting in front of the screen.

Individual ways of coping with stress

First of all, people should avoid ineffective ways of coping, which can have an apparent short term positive effect but, in the long run, can cause further problems in health and well-being. We refer in particular to smoking.

Increasing smoking (for smokers) is sometimes seen as a way of obtaining a sense of relief and calmness. Of course, apart from short-term relief, there are many adverse effects both on performance efficiency, due to interference with the upper nervous system activities, and on health, due to increased risk of lung tumors and chronic bronchitis from smoking.

Secondly, maintaining good physical fitness and emotionally stable psychic conditions are the best aids in fighting and overcoming stress. To stay in satisfactory condition, people should pay particular attention to physical exercise, eating habits, sleeping patterns, relaxation techniques and leisure activities.

Relaxation techniques are becoming more and more popular among people who feel to be under stress. Massage, yoga, meditation and autogenous training are all useful exercises which help to control restlessness, anxiety, muscular tension, inability to concentrate, insomnia and other symptoms of stress.

Training

The aim of training is at teaching occupational and particular coping strategies in order to improve the capacity of event appraisal and problem solving, so that ATCs learn how to cope with emotional effects of stressful events and improve the capacity of control. Air traffic controllers should be

trained to develop action-oriented and problem-focused coping abilities. Positive acceptance and reappraisal of stress situations, active coping, seeking to social support for instrumental and emotional reasons must be strengthened, while inclination towards restraint coping, behavioural and mental disengagement should be restricted.

Conclusion

Air traffic controllers are the working groups having to deal with very stressful and tough job and are widely recognized as an occupational group which has to cope with a highly demanding job that involves a complex series of tasks, requiring high levels of knowledge and expertise, combined with high levels of responsibility. According to this research, it can be seen that most of air traffic controllers rate the level of stress as extreme.

Moreover, this level of stress is caused due to several factors such as duration of break that the controllers have, the shift hours they usually worked and the workload. Stress can be due to conflict arising from workplace and private life also. According to survey, 63% of air traffic controllers have conflict arising from workplace and private life. 50% of controllers agreed that stress is caused due to their nature of the job and responsibilities.

Air traffic controllers must be trained to have high stress resistance and must be able to take best decision in difficult condition and on behalf of the pilot. Training should be given in order to improve the capacity of event appraisal and problem solving, so that ATCs learn how to cope with emotional effects of stressful events and improve the capacity of control. Moreover, it is

important to have a stress management system in place in the work place to help controllers deal with suffering a loss of separation incident or accident.

- Reference:

Professor Giovanni Coasta (1995). Occupational stress and prevention in air traffic control. Institute of Occupational Medicine: University of Verona.