Current problems in occupational and environmental health: overview

Wai-On Phoon
Professor of Occupational Health, University of Sydney, Pymble, NSW, Australia

Reports that among the major current problems in Asia-Pacific countries are those due to heat, heavy metals, organic solvents, pesticides, carcinogens, dusts, reproductive hazards, biological hazards, and psychosocial problems, including work stress. The relative importance differs from country to country.

For most of the countries in the Asia-Pacific region surveyed, the information concerning the prevalence or incidence of occupational or environmental diseases is either incomplete or very scanty. There is often unreporting of cases or incomplete coverage of preventive programmes for occupational diseases. This is similarly the case for health problems due to environmental factors.

However, as Table I shows, conditions from almost the entire range of occupational diseases, physical, chemical, biological and psychosocial, are reported as of considerable importance in all those countries.

Noise and vibration, followed by solvents, pesticides, dusts and musculoskeletal disorders, seem to be the most important problems which require addressing.

It is of interest that Japan and New Zealand, two of the developed countries in the region, had problems with most of the entities listed, likewise South Australia, one of the Australian states surveyed.

Accidents
Accidents remain one of the most important occupational health problems in the Asia-Pacific region. Under-reporting of occupational accidents is believed to exist in many of the less developed countries there, where low levels of literacy, unfamiliarity of the workers with modern machines, and lack of well-trained safety personnel all contribute to high numbers of such accidents.

Heat
Many of the countries surveyed are in the tropics. Heat stress may occur from the often high temperatures and humidities in those countries, in combination with other factors, such as sudden physical exertion. However, artificial sources of heat, such as furnaces and boilers, may also cause heat problems.

Noise and vibration
The technology for the control of noise and vibration hazards is quite well-known. It is therefore rather surprising that these are still problems in most Asia-Pacific countries. Sometimes the wrong ear protection is used. Sometimes the employer does not provide the equipment. At other times the workers do not use ear protection even when provided with it. The joint efforts of both employers, workers and the government are therefore essential (Chavalitsakulchai and Shahvanaz, 1989).

In Singapore, noise-induced deafness is the most prevalent occupational disease. Every year, over 500 new cases of this condition occur (Tay, 1996).

Metals
In Singapore, statutory medical examinations have been required since 1985 for workers exposed to special hazards. In 1988 such workers totalled 39,782. In 1989, workers exposed to lead numbered 786, to arsenic 144, to manganese 101 and to mercury 67, making a total of 1,098 exposed to metals. The largest number of workers exposed to lead were in telecommunications and those manufacturing electronic, plastic, storage and primary batteries. The most common exposure to arsenic was in the making of electronic products and components and the wood preservation industries (Chia et al., 1993).

Solvents
Exposure to organic solvent appears to be increasing in most Asia-Pacific countries. In a study on neurobehavioural symptoms among workers exposed over a long period of time to toluene, difficulties of concentration and sleeping, excessive sweating, fatigue, and tachycardia were 1.8 times more prevalent among the exposed group than controls, and the symptoms score was also significantly more in the highest exposed group than the lowest exposed group (Foo et al., 1988).

Neurobehavioural symptoms and performance tests were studied also in Chinese workers exposed to mixed organic solvents. These workers included printers, paint sprayers and paint production workers. The exposed workers had more fatigue, irritability, depression and poor memory, sleep
### Table I

**Important current problems as identified from responses to questionnaires**

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disturbances, orthostatic giddiness and sweaty palms and soles. Performance on most of the neurobehavioural function tests was generally poorer in the exposed group (Ng et al., 1990).

In Korea, an outbreak of haematopoietic and reproductive disorders occurred owing to solvents containing Z-bromopropane in an electronic factory. The chemical was a major component in a cleaning solution and was easily absorbed through the skin. Female workers had amenorrhoea and male workers decreased sperm counts. Platelets and leucocytes in the blood were reduced. It was concluded that the effects were most likely due to Z-bromopropane (Park et al., 1997).

Pesticides

Pesticide poisoning is a common problem in most Asia-Pacific countries. A collaborative study conducted in four such countries showed reported rates per 1,000 agricultural workers as 13.3 for Indonesia, 132.8 for Malaysia, 45.7 for Sri Lanka and 81.3 for Thailand. Organophosphate compounds were the most frequently responsible pesticides in Indonesia, Malaysia and Sri Lanka (Phoon, 1993).

Carcinogens

Australia probably leads the world in the reported incidence of malignant mesothelioma cases. About 80 per cent of all notified cases have a definite history of exposure to asbestos, mostly to crocidolite (Leigh, 1995).

During the period 1979-81, approximately 500,000 workers were exposed to benzene or benzene mixtures in China. Nine cases of leukaemia were found among those workers (Yin et al., 1987).

Workers in small-scale industries and the large numbers of child workers in developing countries often constitute two high-risk groups exposed to carcinogens (Forastieri and Mates, 1994).

Dusts

Byssinosis is still prevalent in some Asia-Pacific countries. Textile mills in India appear to still have a high prevalence of that disease. In a study of three textile mills, the mean prevalence in the blow section was 29.2 per cent and in the card section 37.83 per cent. In Shanghai, China, the overall prevalence of byssinosis in two textile mills was only 8 per cent, but no analysis of prevalence was provided for the different sections. In Hong Kong, two studies of carders gave prevalence rates of 59 and 74 per cent respectively (Parikh, 1992).

Silicosis is still probably the most common type of pneumoconiosis in the less developed countries of the region, but asbestos-related diseases are the most common in the more developed countries.

Reproductive hazards

Reproductive hazards in the region include "traditional" ones, such as lead, and more recent ones, such as visual display terminals.

In a Chinese study, the incidence of congenital defect in the offspring of female workers exposed to carbon disulphide was found to be significantly higher than in controls. The spontaneous abortion rate of female workers exposed to that chemical, as well as of wives of male workers so exposed, was also significantly higher than in controls (Wang and Zhao, 1987).

Biological hazards

In Thailand a reason for the upsurge of malaria cases in that country was found to be the migration of workers from non-malarial areas to the eastern region, an endemic area for multi-drug-resistant plasmodium falciparum infection (Kamol-Ratanakul and Prasittisuk, 1992).

Schistosomiasis is still a problem among fishermen in China. In Hunan, it was found that there was a prevalence of Schistosoma japonicum infection of 41 per cent in a fishing community located near a lake (Li and Yu, 1992).

HIV and the hepatitis viruses, B and C, are occasionally transmitted from patients to members of the health or rescue professions or vice versa through needlestick injuries but rarely by other means (Phoon, 1995).

Musculoskeletal problems

Backache and teno-synovitis of the upper limbs (sometimes called repetition strain injury (RSI) or occupational overuse syndrome (OOS)) are frequently reported, especially in the more developed countries. RSI was, quite wrongly, regarded as an "Australian disease" in the late 1980s. In fact, teno-synovitis has been known for hundreds of years in many other countries, albeit under different names (Quinlan and Bohle, 1991).

Psychosocial problems

Singapore was one of the earliest countries in the region to industrialize. In 1972 and a few subsequent years, outbreaks of mass hysteria
occurred among factory workers there. Other countries experiencing this problem, which is probably psychosocial in nature, included Malaysia and Thailand. It is believed that these mass hysteria outbreaks occurred largely because of the social pressures from rapid industrialization, including the enormous influx of workers from the rural areas into cities and the psychosocial problems afflicting many of them (Phoon, 1983). In recent years, such outbreaks appear to be comparatively rare, perhaps because of gradual stabilization of the industrialization process.

In recent years, there has also been an increasing number of shift-workers, and psychosocial and health problems have been reported among some of them.

### Work stress

The subject of work stress is gaining increasing prominence, especially among the more developed countries. The concern for improvement of working environment and development of action plans for the management of occupational health has also created an urgent need to consider the various psychological stressors adversely affecting the quality of working life (Gangopadha, 1996).

In Japan in recent years, the families of workers, usually in the executive ranks, who are adjudged to have died from severe work stress, are eligible to receive fairly large sums in compensation. In many states of Australia, workers’ compensation claims for work stress are mounting quite rapidly.

In Australia a recent survey by Worksafe Australia shows that teachers constitute the occupational group with the most number of workers’ compensation claims. Many of these claims relate to work stress.

### Environmental problems

There is an increasing concern in the Asia-Pacific about the contamination of the environment, waste of natural resources, extinction of plant and animal species, and the traffic jams, accidents, noise and the unhygienic state of may cities and towns (World Health Organization, 1992). Many of these problems could be ascribed to imbalance of the ecosystem.

However, ecological problems exist also in the rural section, although they may be different. A research was conducted in eight Indonesian villages in Java and Southern Kalimatan. A high intestinal parasite rate was found in West Java, because fish ponds were used as toilets. Among the Kalimatan villages, which were settled by transmigrants from Java, malaria was a problem, as the transmigrants came from non-endemic areas in Java. Conjunctivitis contracted through mud splashes while hoeing wet rice fields, and retardation in child growth, from malnutrition, were other common problems identified. Simple yet effective preventive measures through an ecological approach were devised (Susuki, 1987).

It is also wise to heed the warning contained in a scholarly and comprehensive monograph on “Climate change and human health”. “Various health events have indeed occurred recently that might be early signs of global climate change. They include the substantially increased number of heat-related deaths in India, midwest USA and southern Europe in 1995, and changes in the geographic range of some vector-borne disease” (World Health Organization, 1996). Certainly the “greenhouse gases” in the lower atmosphere, largely produced by fossil fuel combustion, appear to have had a significant effect on global warming.

References


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