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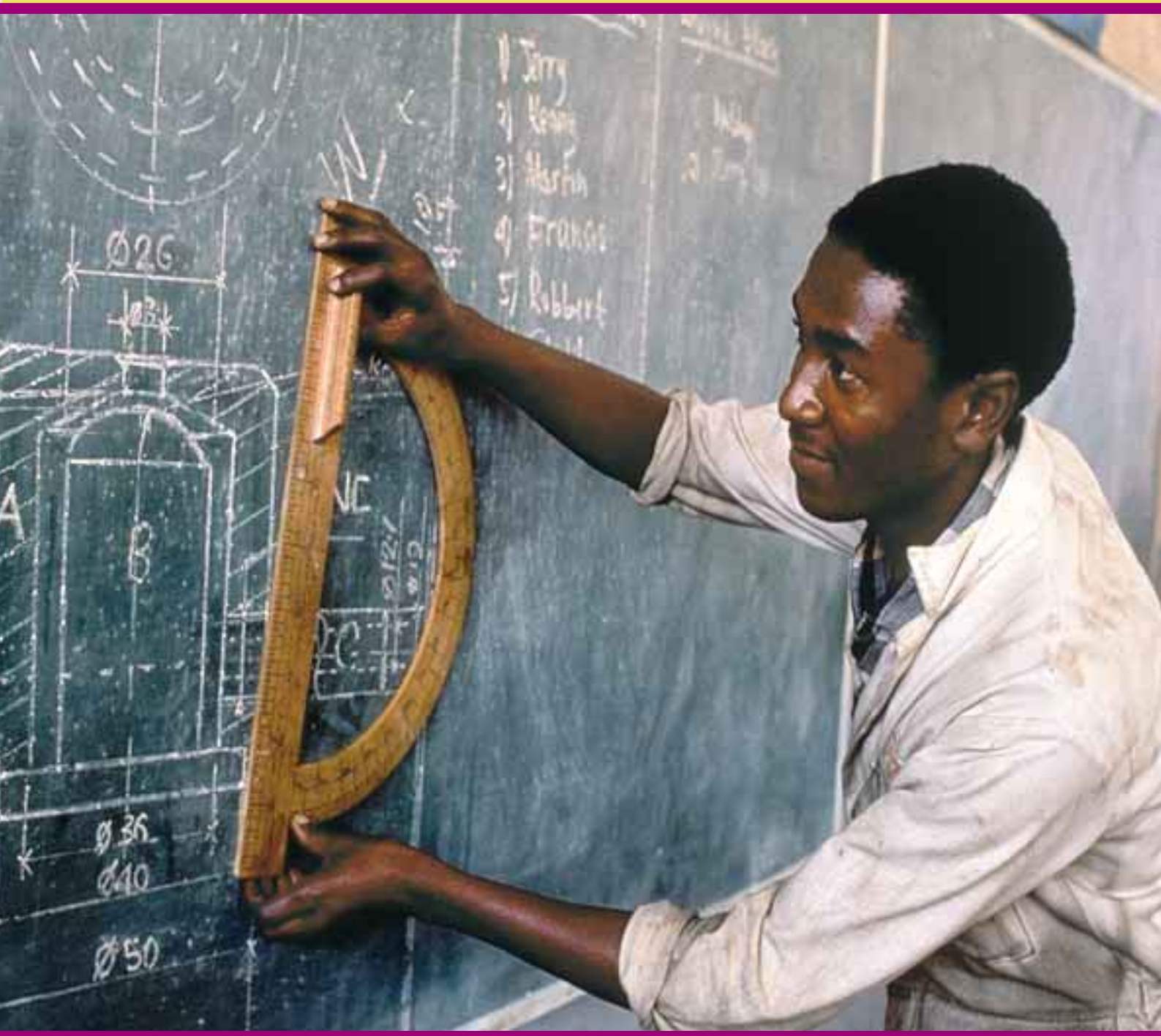

Psychological stress and well-being

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Psychosocial factors at work are becoming increasingly important in the field of occupational health and safety, as globalization of the market economy and information technology proceed. When optimal, psychosocial factors promote individual well-being and job satisfaction, whereas the effects of psychosocial stressors are manifested as an increase in stress symptoms such as fatigue, irritability, and job dissatisfaction. In the long run, the adverse effects of psychosocial stressors at work can lead to increased sickness absenteeism and depression, and can also contribute to musculoskeletal disorders and cardiovascular diseases.

Time pressure is the most common psychosocial stressor in many jobs. When it is combined with low possibilities to control the work pace or one's own work situation in general, and with low possibilities to use one's skills, it can lead to excessive fatigue and lowered well-being. In the EU countries, 56% of the employees reported to experience great haste in 2000. As compared to 1995, the percentage was somewhat higher. In Finland, a corresponding trend has been evident, but not in all branches of economy. Psychological stressors are more common especially among health care personnel and teachers, and the trend is increasing.

Social interaction at work is another major source of psychosocial stressors. When the psychosocial factors are positive, they can promote well-being, whereas in negative cases they lead to strain and job dissatisfaction. Both co-worker relations and supervisory practices are important elements in social interaction.

Supervisory social support and task-oriented leadership are key issues in the supervisor's behaviour. Social stressors lead especially to lowered job satisfaction but also to a strained work atmosphere. The nature and frequency of various psychosocial factors depend on the branch of economy, the work organization, and type of work.

Bullying is the most dangerous negative social interaction. Interpersonal conflicts of this kind can lead to severe mental health problems, such as depression or even suicide.

The recent advances in production technology and especially in information and communication technology have changed the nature of work and the qualifications needed in many occupations in the industrialized countries. Due to these changes, a large proportion of manual and assembling work has been transferred to less industrialized countries. In many cases the restructuring of industrial production brings along also a lot of subcontracting with small firms.

Part-time work and short, temporary work contracts are often associated with job insecurity for the employees. Especially during slow economic growth or a recession, the risk to lose one's job increases. In times of economic growth the time pressure at work and long working hours increase, and during an economic decline job insecurity and lay-offs increase.

A general goal in promotion of psychologically and socially good working conditions is to implement the principles of the so-called healthy work organization at the workplace level as a part of organizational development and occupational health and safety services. The characteristics or practices of the healthy work organization are ones which promote at the same time employee well-being and competence, and also the productivity of the enterprise. In the long run, this can guarantee sustainable development of the workplace and the well-being of the workers.

The idea of the healthy work organization implies value-based decision making and managerial practices. Its underlying principle is the valueing of each employee as an individual and giving him/her possibilities for sufficient control in planning the way and order of performing the work tasks. Individual learning and growth should also be possible at work. The structural and functional change processes at the workplace should be conducted so that training for new kinds of jobs is given. Especially the balance between work, family and private life should be taken into account and possible solutions should be available. In the globalized work life, the diversity of the employees should be seen as a positive resource. The existence of well functioning occupational health and safety services at the workplace is a good guarantee for creating a healthy work organization. In a more advanced approach, also the life-long perspective for individual health and work ability are taken into account.

These healthy work organization principles are ambitious, indeed, but quite possible and realistic when people's health and well-being are seen as valuable goals. A recent trend in globalized companies is to implement the so-called social responsibility activities. These can focus on environmental safety, training resources for local people, etc. In some cases they support the sustainable development of the local community. This responsibility sector should cover also the workers' health and well-being.

It would be important to have a monitoring system at the national level to gather information regularly also about the psychosocial stressors at work and the indicators of a healthy work organization. Such a system would bring information which is necessary in the planning and implementing of nationwide programmes in order to promote the workers' health also in view of their psychosocial needs.

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Psychological stress and well-being at work

Brigitte Froneberg
ILO

War is the father of all and reins all. War will lead some to be gods, some to be humans, some to be slaves, some to be free.
(Heraclites)

Not everything that matters can be measured.
(Albert Einstein)

The last decades have brought an ever-increasing competition among nations, among regions, among enterprises on a global scale. Globalization is the great challenge of our times and sets free an enormous amount of human creativity. To stay ahead and to stay in business requires swift adaptation to fast changing customer requests and circumstances. The option seems to be either growth and gain or disappearance from the scene of action altogether.

The option for growth and survival most often meant for larger enterprises to restructure themselves by downsizing their workforce and outsourcing all but core functions. To further enhance flexible response to market changes and customer request, enterprise hierarchies were flattened and management responsibilities were transferred downwards, and where possible, traditional employment practices and contracts were replaced by hire of temporary workers and contract labour. Not surprisingly the development was paralleled by a steady increase of small-scale enterprises, competing among each other more or less successfully for contracts, and also by a continuous rise of unemployment, all this also on a global scale (1) (Table 1). Challenge, stress and strain of intense competition was thus passed on to the workforce at large, where it can be seen replicated in a quasi-fractal way.

Employees now have to face and to cope with leaner working conditions, increased flexibility, with decentralized responsibility and more direct customer contact, with time pressure and longer working hours due to narrowing deadlines, and altogether with increased workload demands, at the same time being aware that jobs are no longer so stabile, that work is becoming precarious, and unemployment, indeed, a very real threat.

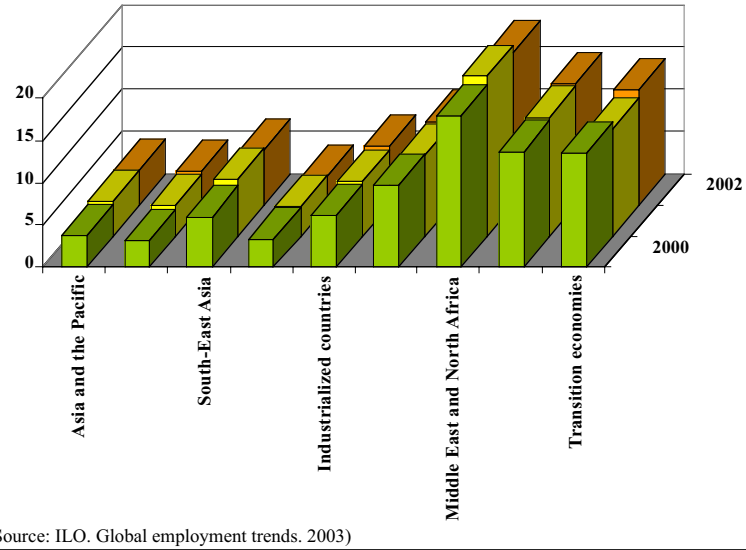
As well known from sciences like history and biology, humans as any living being under surmounting stress will either find extraordinary (innovative) ways to cope, else to either attack or to evade the painful situation, depending on circumstances and their own unchangeable make-up. Hence not surprisingly, we currently see mounting violence (2,3) in our societies, often directed towards minorities, towards females, towards disabled or not well-integrated individuals. We are faced with large-scale waves of migration (4) within and across nations with all its sequelae and consequences, both at the place of departure and of arrival.

There is a huge body of scientific evidence, that stress surpassing personal coping limit is no longer perceived as a stimulus or challenge, but as wear and tear resulting in accidents (5) or accident-prone behaviour, leading to chronic fatigue and depression (6), to withdrawal (7) and auto-aggression (8), to adoption of unhealthy lifestyle habits (9), to ill-health and disease (10), to increased morbidity, mortality (11), unemployability and early retirement (12).

Given, that much of our current knowledge is based on self-reported data, quite easily the question is raised, if not e.g. individuals who have a low threshold for perceiving or reporting stress are also likely to have a similar low threshold for perceiving or reporting symptoms of suspected cardiovascular disease, which would of course imply, that much of what we are dealing with are not really facts, but fears and biased recalls of unrelated events, and that science is highlighting and possibly magnifying perceptions and prob-

Table 1.

Unemployment rates by region, 2000-2002



(Source: ILO. Global employment trends. 2003)

lems that merely exist in some peoples' minds.

But if so, at least to some extent, it should also be considered, what are the sequelae and consequences of unemployment. They appear to be not very different (13): we find similar behavioural changes, aggressive or auto-aggressive in nature, the same patterns of mental disturbance and ill-health, and also a rise of morbidity and premature mortality – which still persists when corrected for confounding factors such as unhealthy lifestyle habits (14).

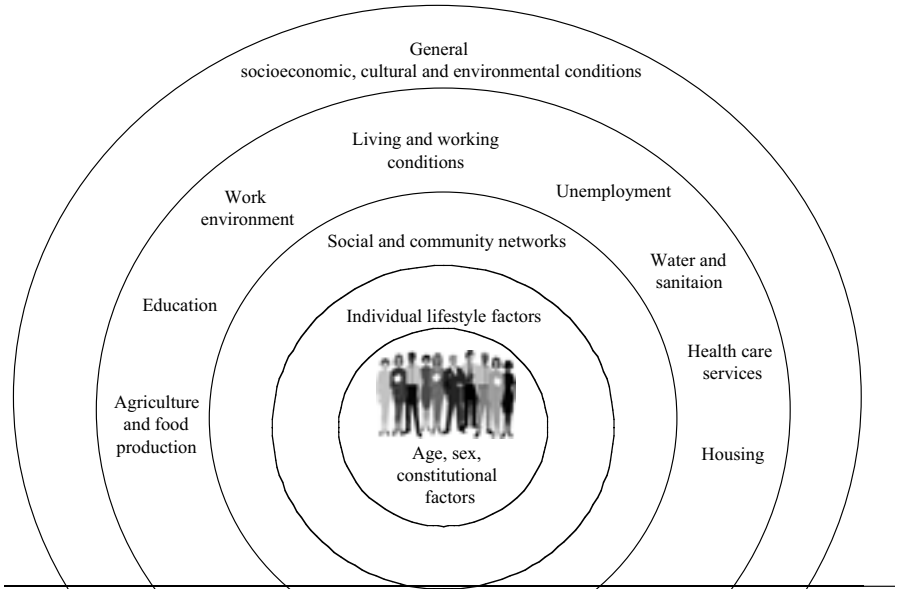
What then are we left with?

Globalization, liberalization of trade and open markets and societies, in itself are neither good nor bad, they provide for both, and also, they will not simply go away. The same applies to competition and to stress. What we are currently observing, though, seems to be a considerable power imbalance with far too many poorly equipped people at the receiving end of the stick. Thus striving for better balance at all levels and by all means may provide the only possible, fair way out.

Even if we have to recognize, that our understanding of stress, stress at work, its causes, its effects, especially the complex interaction of person and workplace, is still incomplete and more targeted research will be needed (15,16,17), and even if we have to acknowledge, that our instruments to carry out risk assessments of occupational stress which then could inform the design of intervention (and be used systematically in a control cycle, where the hazard is identified, quantified, managed and continuously controlled) are by no means perfect (18) and always will warrant adaptation to the specific circumstances, we certainly do already know enough to act and to improve work situations.

Complaints about work-related stress, health effects, economic cost due to absenteeism and early retirement virtually from all corners of the earth have prompted large-scale attempts to assess character and magnitude of the problem and at the same time to develop preventive strategies, to provide guidance for various actors and to offer access to a growing collection of good practice examples and success factors. Recent publications providing a broad overview of current knowledge and state of the art, are available from the United Nations Organizations such as the World Health Organization (19) and the International Labour Organization (ILO) (20), from the European Union (21,22,23,24,25), and from a great number of national occupational safety and health institutions and bodies worldwide. Much of this (multilingual) information can be accessed through the web portal of the European Agency for Safety and Health at Work.

Factors enhancing or disturbing health and well-being



To summarize current knowledge:

- We have good evidence, that prevailing levels of stress are affecting too many individuals, more susceptible ones first, in various ways.
- We have some understanding, how stress acts on individuals and that we are dealing with complex interactive processes between complex and unique individuals and just as complex and unique environmental conditions. We increasingly (but not quite well enough) understand that coping is a key issue.
- We have sufficient knowledge of causative agents and conditions at work, many of which could be controlled or mitigated. Prime target are work organization and related issues.
- We have considerable evidence, that too much stress is not only harmful on an individual level, but also costly to enterprises and society at large (26).
- We have numerous instruments available to assess and to manage stress, though generally adaptation to local working conditions will be required. Since most enterprises are rather small, support will be needed e.g. from labour inspection services, social partner organizations, regional or sectoral bodies or networks or similar. Management commitment and worker participation in the whole process of stress management is essential.
- We have (even online) access to a growing number of good practice examples that describe concrete circumstances and actions that may fit and prove helpful in comparable work situations, that help identifying success factors and, in addition, raise public awareness and transport a message of hope that even painfully distorted work situations can be successfully managed and adjusted.
- There is also a growing awareness that schooling in factual knowledge will not suffice in the years to come. Curricula will have to include concepts and empowerment strategies, such as keeping up one's qualifications (life-long learning), knowing how to stay healthy and safe (basic occupational safety and health issues; promotion of healthy lifestyle habits), and how to better cope with stress, from the very beginning.

Even keeping in mind that much of what we know stills needs translation into practice and that some research, especially intervention research is missing, one feels quite compelled to follow the overall conclusions of Tom Cox and his colleagues (22): "While stress at work will remain a major challenge to

Key facts on stress

- Work-related stress is now the second most common occupational health problem, affecting 28% of workers — more than 40 million people in the European Union (EU).
- The number of people suffering from stress-related conditions caused or made worse by work has more than doubled since 1990.
- It has been estimated that this costs the EU more than 20 billion EURO in lost time and health costs.
- Four per cent of European workers report having been exposed to violence from outside the organization, and 9% claim to have been bullied at work, in the previous 12 months.
- In addition to the negative effects on the economy, we must not forget the human cost of work-related psychosocial risks: these issues are known to affect physical and psychological health in a variety of ways, from cardiovascular and gastrointestinal diseases to mental health problems

(Source: Website of the European Agency for Safety and Health at Work)

occupational health, our ability to understand and manage that challenge is improving. The future looks bright." That is, if we, as occupational health professionals, should stay within the limit of our profession. Being citizens of various nations and looking at our global employment trends, though, we will not be quite so appeased.

Work and well-being are closely interrelated in our perception. Fair international trade is regarded as a guarantee of general growth and stability. This is also well reflected in the history, tripartite structure and mandate of the ILO, being the only surviving organization of the League of Nations created 1919 through the treaty of Versailles and also the first specialized agency of the United Nations in 1946. As laid down in the Declaration of Philadelphia (27), it is the main goal of the ILO to promote full-employment at safe and decent working conditions to all at equal opportunity, irrespective of inherited conditions beyond personal control such as gender or race, in order to ensure material well-being, spiritual development, social stability and progress. Unemployment, poverty and widening of the social gap are very well recognized as a source of ill-health, unsocial behaviour and general insecurity and instability as more recently outlined in the Decent Work Agenda (28) of 1999.

Much of ILO thinking is clearly a reflection of the spirit of the Enlightenment and the then intense discussion of the "social contract", e.g. as argued by Rousseau, that the state of nature is not a state of war, but a state of individual freedom where creativity flourishes; that a fully mature person is a social person, hence a social contract is established to regulate social interaction; that this contract between citizens establishes an absolute democracy which is ruled by the general will, or what is best for all people.

It has to be stated, that the interest in social contract theory declined in the 19th century with the rise of utilitarianism, a theory that proclaims that actions are right when they produce more benefit than disbenefit for society. At present it seems no longer so easy to decide who represents this society that supposedly benefits, and consequently what is right or wrong. At a global scale, better commonly agreed-upon steering towards less inequality and more fairness seems urgently needed.

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Occupational stress and well-being at work – An overview of our current understanding and future directions

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Michael Ertel, GERMANY

"The larger the island of knowledge, the longer the shoreline of wonder."
**Ralph W. Sockman, (American Minister)*

Introduction

It is commonly known that well-being at work is essential for a productive and satisfactory work life. What we would like to explore in this article is first of all the current situation and our understanding of well-being and occupational stress, before we go on to discuss the state-of-the-art of research, and where researchers believe we should be going next.

The World Health Organization defines health as a state of complete physical, mental and social well-being and not merely the absence of diseases. In this context, Levi (1992) claims that 'the individual's subjective assessment is the only valid measure of well-being available' (1). This means that well-being, the subjective expression of health, may basically be seen as how people experience, judge and perceive their lives and life events. This may obviously be in a positive or negative way. Well-being has therefore a physical, a psychological and a strongly subjective dimension.

A balanced state of well-being can be disturbed by external circumstances which do not coincide with generally accepted human needs and aspirations. Work-related stress may be one of these circumstances.

"Work-related stress can be defined as a pattern of emotional, cognitive, behavioural and physiological reactions to adverse and noxious aspects of work content, work organisation and work environment. It is a state characterised by high levels of arousal and distress and often by feelings of not coping" (2).

Research into occupational stress has only scarcely been undertaken in developing countries or countries in transition. What seems evident, however, is that effects of globalisation increase work-related stress in these countries via intensified economic co-operation and exchange of goods, services and ideas between countries with different levels of socio-economic development and living standards. Whereas developing countries, even more so than countries in transition, still struggle to control traditional occupational health hazards, such as physical, biological and chemical hazards, they are now also confronted with modern hazards, which include psychosocial and ergonomic problems. This constitutes a double burden to a large extent. In industrialized countries, the curve for traditional hazards actually descends to quite a low level, while the curve for modern hazards rapidly increases.

Another issue that may be evoked, is the fact that in the developing world the largest part of the production takes place in the informal sector. This sector includes the most vulnerable working population, who are women and children, and workers without any protective legislation whatsoever. Nevertheless, although occupational stress is still low or non-existent on their agenda and seemingly more urgent problems need to be dealt with (including draughts, famines and wars), raising awareness about occupational stress has also commenced in these countries. Some projects, which the WHO Network of Collaborating Centres in Occupational Health undertakes in this area, will be presented at the end of this article.

The current situation

Nowadays, to enable companies to keep up competitively, production takes place with minimal staffing and work is becoming more stressful, when management strives for faultless and consumer-oriented production with higher demands being placed on the workers. In addition, in many, especially European, countries the workforce is ageing.

The greatest change for the working population concerns the psychosocial work environment. Many workers find their jobs stressful, mainly because of the fast pace with which they have to keep up. Many also become worried about the prospect of losing their jobs, thereby being exposed to constant psychological pressure.

60% of the European workers have monotonous jobs where repetitive movements make up the majority of their working day and 40% are unable to choose when to take a break. The pace at which work has to be done has increased, and so has occupational stress. Repetitive, monotonous work has not disappeared, despite the entire debate on new ways of organizing work in the past few years. In addition, such workers are often subject to poor working conditions, having to lift heavy loads or working in painful positions. They are much more likely to be temporary workers (3). Temporary workers (employees with short-term and insecure contracts) do continue to report more difficult work situations than permanent employees. The precarity of their working conditions adds feelings of insecurity concerning their future. While unemployment has well-known and significant effects on health and psychological well-being, insecure jobs also appear to have health consequences. Even if the effects on individuals are not as serious as unemployment – and this is yet to be demonstrated – the overall effect of precarious employment appears to be negative (4).

The use of more sophisticated information and communication technology is affecting the work life in several ways. One is through globalisation, since companies are operating increasingly in global markets and often practise cross-border division of labour. The other is that they are operating more via networks. Knowledge has become their most important resource. Growing dependence on computer technology, which once was thought to improve the work life, has in the experience of many workers led to greater workload and performance pressure, although this may be mainly due to the way the work process is organized, and not be an inherent facet of the new technology itself.

For many working people it is all too frequent that the work environment is where they spend most of their waking hours, perform activities that they perceive as demanding, constraining, and otherwise stressful. Mental health problems and other stress-related disorders are recognized to be among the leading causes of early retirement from work and overall health impairment.

All these facts underline that well-being is not primarily a matter of finding a personal harmony and balance, but also a matter of having meaningful and challenging work to do, having the opportunity to apply one's skills and knowledge and to advance professionally, being able to work in harmony with colleagues, having the possibility to find a balance between work and private life, and being treated fairly within a group or a work team.

The erroneous belief that work and non-work activities are unrelated in their psychological, physiological and health effects, has been described as the 'myth of separate worlds' by Kanter (1977) (5). Achieving balance requires an individual to understand two things. The first is to be aware of one's self; our core emotions, aspirations, and recognize interests that provide satisfaction. The second is to recognize the priorities in one's life that best provide us with the satisfaction, such as family, relationships, writing, reflections, hobbies, and so on. Balance in the context of workplace well-being is when the workplace meets personal priorities and contributes to the overall satisfaction with oneself.

Cardiovascular diseases and occupational stress

Cardiovascular disease, for which the stressful work environment is increasingly accepted as an important risk factor, is the major cause of morbidity and mortality in industrialized countries.

This year's World Health Report (www.who.int/whr/en) states evidence about work-related stress and coronary heart disease. Although quantification of the problem still represents a challenge, it has been recognized that there is a significant and substantial relationship between work-related stress and coronary heart disease.

Evidence for the relationship between work-related stress and coronary heart disease is mainly based on Karasek's demand-control model. This model states that high psychological demands (such as constant time pressure) and low control over work processes and decisions concerning one's job represent stressors that adversely affect health, and are, for example, connected with an increased risk for coronary heart disease. Especially shiftwork which tends to involve heavier work, more stress, less control, and less educated workers than regular day work, also increases risks. The World Health Report states that overall stress-related coronary heart disease is likely to be higher in blue-collar workers when the following factors are present: restricted discretion, shiftwork (particularly at night), imbalance between efforts and rewards, high demands, a poor psychosocial work environment, social isolation, physical inactivity, or occupational violence. These risk factors may be interactive.

Wilkinson and Marmot (1998) point out that – even in the richest countries – the better off live several years longer and have fewer illnesses than the poor: these differences in health are an important social injustice, and reflect some of the most powerful influences on health in the modern world. People's lifestyles and the conditions in which they live and work strongly influence their health and longevity (6).

Future directions from two meetings

Some future directions were outlined at the 27th International Congress on Occupational Health (ICOH) in Iguassu Falls, Brazil, that took place from 23–28 February 2003, as well as at the Conference of the American Psychological Association (APA) in Toronto, Canada, from 20–22 March 2003 ("Work, Stress and Health: New Challenges in a Changing Workplace").

As a general remark, picked up from

the APA Conference, researchers said that dealing with and talking about occupational stress is easier when dealing with an organization, than when we talk about seemingly only personal problems such as depression and burnout, which are still at large subject to stigmatization (7).

It was further mentioned, that on the one hand, one of the main dilemmas in this area of study is that research has to be timely and relevant, and sometimes for governments, studies that take a long-term focus may not be so relevant or appropriate for legislation implementation purposes. On the other hand, policy implementation and the will to undertake policy changes need to rest on sound scientific evidence often obtained via longitudinal studies. Cross-sectional studies more often evaluate risks on a factor by factor approach, although exposure is mostly multi-factorial, which may pose specific problems to our understanding of cause-effect relationships. At both conferences, researchers asked for more longitudinal designs and more elaborate experimental designs. The example of triangulation was provided. The principle of triangulation holds that a potential psychosocial or organizational hazard must be identified by cross-reference to at least three different types of evidence (for example, self-reports, performance and psychophysiological data).

Also at both conferences, the collection of more quantitative data was called for. Moreover, it was mentioned that it should not be tried to compensate for weak study designs by applying sophisticated statistical analyses. Professor Michiel Kompier stressed in Brazil that the study design and data collection and not statistical tools permit (causal) inferences. He also called for increasingly crossing traditional borders to facilitate multidisciplinary collaboration necessary to broaden our understanding of such a complex phenomenon as occupational stress.

An ongoing longitudinal study on fatigue at work (1996–2004) underlines our current understanding that short-lived episodes of stress may not be hazardous to a person's health in contrast to long-lived episodes. It is being conducted by The Netherlands Organisation for Scientific Research and was presented at the ICOH Conference. The group specifies that acute fatigue may be distinguished from chronic fatigue. Acute fatigue is characterized by reversibility, task-specificity, and the functional use of particular compensation mechanisms, such as detachment or disengagement. In contrast, prolonged fatigue has different consequences. Acute fatigue disappears after a period of rest, when tasks are switched, or when particular strategies are used, such as working at a slower pace or using less demanding information processing strategies. Prolonged fatigue, in contrast, is much less reversible or only in the long run. It is not task-specific, and the compensation mechanisms that proved to be useful in reducing acute fatigue are no longer effective. The Dutch group states that the study of the effectiveness of various interventions is one of the main challenges for science.

In the context of research into the interrelationship between psychosocial and physical stress and injury, a suggestion for a common framework of both psychosocial issues and ergonomic factors was made at the APA Conference. It was stressed that physical and psychological problems often occur together, and that there may be no sense in separating them. Increasingly, a holistic view is being adopted, which depicts our growing understanding of the strong interdependence between body and mind. Ill-being in one sphere will often result in ill-being in both spheres, unless a balance can be re-established.

Research indicates that mediating variables such as *social support* play an important role in how we perceive stressful situations and how they eventually affect our health. Social support at work may take several forms, primarily we think of esteem and support by colleagues (solidarity), or common problem solving, but the concept also covers assistance and help by superiors. Interestingly, social support may not only exert short-term positive influence. In the context of stress research, social support was found to act as a health resource, in particular as a protective factor against myocardial infarction (Theorell 2001) (8). However, when we think of increasing mobility of many people and the growing number of temporary jobs, social support is expected to deteriorate because under these conditions it will be difficult to build and to maintain steady social relationships at work. It is questionable whether social support based on families, friends or neighbourhood relations will then supersede work-related social support.

At the Toronto Conference, it was mentioned that one of the trends in work life that deserves attention is that (specific) *job* strain appears to be superimposed by (more general) *employment* strain, particularly in the case of precarious employment.

Furthermore, the model of effort-reward imbalance (Siegrist, 2001) postulates that a *sustained discrepancy* between effort spent at work and rewards received (for example, low pay in an insecure position despite hard work, long working hours) elicits negative health reactions and substantially increases the risk for cardiovascular diseases (9). Against the background of a more fragmented work life, job insecurity, high unemployment and forced occupational mobility, the explanatory power of this model generally also applies to conditions outside highly industrialized countries. Effort and reward are, however, concepts that need to be defined within the context in which they are being studied. An exotic example from the APA Conference is that clergymen do perceive the idea of reward rather differently from other workers. In the case of clergymen, reward is not expected to be immediate and rarely in their lifetime, although it needs to be underlined that the majority of workers would surely not be patiently waiting for such heavenly rewards. In a more general sense, it may be relevant to attach importance to the role that internal belief systems may play (as resources) in the context of stress prevention or when coping with adverse consequences of stress on well-being and health.

Some very down to earth questions were also asked in Toronto. For example, the Human Resources Director from Volvo in Sweden asked *How do you deglorify 'too much to do'*? Workaholism in the sense of organizational rather than individual pathology, is still an accepted working attitude in many companies and its negative effects have been recognized as potential problems for the psychological and physical health of the working person, as well as the potential to negatively affect family life.

In a recent approach Levi (2002) outlines several European initiatives that coincide in their aim to prevent or to combat stress at various levels and with different approaches (10). At the international level, the Collaborating Centres of the Occupational Health Programme in WHO are very active in the area of prevention.

The Network of WHO Collaborating Centres in Occupational Health

The Network Work Plan of the WHO Collaborating Centres in Occupational Health includes a Task Force on Psychosocial Factors at Work. Awareness raising in developing countries is in-

creasingly being taken seriously. Several projects are ongoing of which the following is a selection:

- UCLA and University of California at Irvine target occupational health professionals, academics, government agencies involved with worker health in developing countries with the production of a Spanish-language book to provide background information on psychosocial factors in the workplace and associated deleterious health outcomes. It compiles the studies and findings of current research in Mexico and proposes an agenda for future training and research.
- The Chilean Collaborating Centre is publishing a book on mental health and stress at work in Chile targeted at managers, personnel managers, prevention experts, union officials, occupational health professionals and other personnel involved in health and safety activities in private and public organizations. This book will introduce and promote basic knowledge regarding the prevalence and effects of stress and mental ill health in the workplace, and provide recommendations and methodological elements to include mental health promotion activities in workplaces.
- A study of the mental and physical burden in Tunisia aims at evaluating the mental and physical burden, and to identify their causes. Based on the research results, the researchers would like to propose recommendations for improving working conditions.
- The Polish Collaborating Centre devised a study to assess the relationship between job stress indicators and chosen individual characteristics (personal trait, risk factors), and stress-related disorders (ischæmic heart disease, duodenal ulcers, neurosis and mental health status) in Polish policemen and prison personnel. The project will allow for preparation of occupational health service personnel to protect workers against psychosocial stressors, and will be of great value in the process of development of good practice standards in occupational medicine in Poland.
- The Colombian Collaborating Centre targets decision-makers, planners and managers, and occupational health staff in the Ministry of Social Protection (Health and Labour), employers and Trade Unions, directors, managers, team leaders and occupational health staff of companies and enterprises, exposed to violence. The project will allow defining preventive actions and early interventions. Considering violence is the first cause of death and the worst public health problem in Colombia, the project's final report will include the description of the different types of violence that converge at the workplace.
- The Dutch Collaborating Centre is in the process of preparing a brochure, in the series *Protecting Workers' Health*, on raising awareness of work stress in developing countries.

The Network has recently published two brochures addressing psychosocial issues at work in the *Protecting Workers' Health series* on *Psychological Harassment at Work* and on *Work Organizaton and Stress*. The brochure on psychological harassment was presented at the ICOH Conference. These publications are available in hardcopy from the Occupational Health Programme or in electronic format from the website (www.who.int/oeh) under the *WHO OSH Documents* section.

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Stress, job satisfaction and well-being among policewomen in Uganda

P. Baguma
UGANDA

Introduction

This study set out to assess both the stress levels using the Occupational Stress Indicator (OSI) (1) and the predictors of physical ill health, mental health and job satisfaction among policewomen. Random sampling was used to select a sample of 50 policewomen from seven police stations in Kampala City.

Stress has been a difficult concept to define although researchers agree that it is increasing among employed and non-employed people (2). Lazarus and his colleagues recognized the limitations of the stressor and strain approach in defining stress, and defined stress as a multivariate process (3). Most definitions of stress have remained vague. Cox (4) defines stress as imbalance between environmental demands and perceived ability to cope with these demands. However, all these definitions fail to portray stress as a dynamic process.

Hart, Wearing and Headey (5) proposed a dynamic equilibrium theory, which defines stress in terms of two conditions: (a) a state of dis-equilibrium must exist within the system of variables relating people to their environment (e.g., personality characteristics, coping processes, and both positive and negative work experiences); and (b) this state of dis-equilibrium must bring about change in the person's normal level of psychological well-being. Stress is said to occur only when these two conditions are met.

The definition of police stress is even more elusive, mainly because of the limited research in this area. Goldfarb (6) defines police stress as "that feeling and desire along with the ensuing bodily effects, experienced by a person who has a strong and true longing to choke the living shit out of someone who desperately needs it but you can't". To Goldfarb, this definition is funny, but it reveals a lot about the nature of police work. It points to the fact that police work calls for continued, draining restraint. Goldfarb (6) further reported that police work is the highest rated profession, followed by air traffic controllers and dentists, in that order.

Sources of police stress

The present study adopted the model of stress devised by Ivancevich and Matteson (7), which takes stress to be a result of intra-organizational and extra-organizational stressors. According to the model, stress leads to physiological and behavioural outcomes. Outcomes lead to consequences, which include diseases of adaptation, such as coronary heart disease. However, individual differences, demographics and behaviour mediate the experience of stress, stress leading to outcomes, and outcomes leading to consequences.

The causes of police stress are organizational and operational in nature (8). As regards operational stressors, the nature of police job involves a lot of restraint. Killing someone in the line of duty, having your partner killed in the line of duty, and the daily grind of dealing with the stupidity of the public are among the stressors reported. The organizational-level stressors reported include lack of support by the departmental boss, shift work and disruption in the use of time and in family rituals (6).

Hart and Wearing (9) identified hassles in police work to include the type of administration, communication, supervision, ratings, co-workers, morale, workload, complaints, activity, external frustration, victims and danger. Various features of police work – such as dealing with offenders and victims, supervision, amenities, administration, co-workers, work load and decision-making – were also reported. This indicates that some events may lead to both positive and negative experiences.

Some stressors are particular to policewomen. These include discrimination in terms of promotion, harassment, being picked at night for sex, humiliation, poor evaluation, and limited further training (10). Most studies have been conducted in the Western world; only a few have been done in Africa and hardly any in Uganda. There is no doubt that stressors exist in the Ugandan settings.

The civil service in Uganda (including the police force) faces the following problems, among others: (a) inadequate pay and benefits (the monthly salary earned is about US 70), long working hours, and shift work; (b) poor management skills; (c) dysfunctional civil service organization; and (d) inadequate personnel management and training.

These problems have led to abuse of office and misuse of government property, moonlighting and corruption, lack of discipline, erosion of rules and regulations, obsolete procedures, lack of appropriate systems, thin managerial and technical skills, poor public service attitudes, and massive bureaucratic red tape (11, 12, 13). All this has taken place during an era of economic decline. In the African culture, a worker is part of an extended family and would be expected to provide relatives with social support. For example, a worker is expected to earn enough money to cater to the financial obligations of dependants. Some of these factors influence the level of stress experienced by professionals in Uganda.

Effects of police stress

Stress has enormous effects on police personnel. They suffer a high divorce rate that ranges from 60 to 75% (6). Marriage is therefore one of the casualties of police work. Police personnel develop attitude problems. They become more cynical than other professionals do. Police work has a serious effect on children as well. The police officer has no time for the family and therefore for the children. In consequence, the role of parenting is diminished. Alcoholism, depression and failure to seek psychosocial help have also been reported.

Cancers, suicide, and heart disease are among the reported effects of stress. Between 1934 and 1960, police suicide rates were half of the corresponding rates among the general population, but between 1980 and the present, police suicide rates have doubled in the USA. In 86% of the suicide cases, divorce was responsible (6). The website *http://www.geocities.com/stressline.com_contents.html (a site on Yahoo)* lists panic attacks, stress disorder, and sleep deprivation as effects of stress. Rogers (14) reports that posttraumatic stress disorder (PTSD) is common among police officers.

Coping with police stress

Research on coping with stress among police personnel is limited. Lazarus (3) defines coping to mean what the nurse did to reduce the stress. The efforts comprised both action-oriented and intrapsychic measures to manage (master, reduce, tolerate or minimize) environmental and internal demands and the conflicts between them (see also reference 15).

Research on coping with stress has taken different directions in different settings (16, 17, 18). All these studies point to two major ways of coping with stress: emotion-focused coping, which includes cognitive efforts that change the meaning of the situation without changing the environment; and problem-focused coping, which includes efforts aimed at eliminating the stressor. Hart, Wearing and Headey (8) found that personality correlates with coping among police personnel. For example, neuroticism was associated with emotion-focused coping that led to the experiencing of police hassles, while extraversion was associated with problem-focused coping and the experiencing of uplifts.

Hypothesis

It was hypothesized that personal and organizational variables and the way of coping would predict behavioural and psychological outcomes among policewomen. The independent variables included in the study were:

Having experienced a major event in the past three months that had a negative impact, extra hours worked, good health, illness, having experienced ongoing pressure for the past three months, job level, work arrangements, number of hours actually worked, number of hours one is supposed to work, and organizational tenure. Other variables included work load, relationships at work, recognition, organizational climate, personal responsibility, managerial role, the balance between home and work, and the experiencing of daily hassles. Coping variables included a problem-focused approach, the balance between personal life and work, and social support. Job satisfaction, physical well-being and mental well-being were the dependent variables.

Methodology

Participants

The sample for this study was policewomen. The present study employed an exploratory survey design that had both quantitative and qualitative aspects. Out of the 60 questionnaires distributed, 50 were returned, comprising a response rate of 83%. This was a high response rate.

The distribution of the respondents was as follows: ten respondents from Jinja Road Police Station, nine from the Central Police Station (CPS), six from Old Kampala Police Station, six from Makerere Police Station, twelve from Wandegeya Police Station, five from Katwe Police Station and two respondents from Kibuli Police Station participated in the study. They were randomly selected to participate in the study.

Participants indicated their job titles as either police constables or police officers. Organizational tenure, job tenure, number of hours worked per week, and the number of hours one was supposed to work in a typical week were recorded as given and treated as continuous variables.

The occurrence of a major event, the current state of health, mental and physical well-being, illness during the past three months, being subjected to ongoing pressure for more than three months, and work arrangements were also assessed. For non-continuous variables, dummy variables were created.

All measures were assessed by means of a stress questionnaire based on that of Cooper, Sloan and Williams (1). In addition to the above variables, the questionnaire assessed organizational stressors including workload, peer relationships, organizational climate, recognition, personal responsibility, managerial role, the balance between home and work, and daily hassles. Coping was also assessed with items evaluating problem-focused coping, the balance between personal life and work, and social support as a means of coping.

Procedure

Permission to conduct research was obtained in each of the seven police stations. The questionnaires were administered at the chosen police stations. Those who wanted to take the questionnaires home were allowed to do so; they were returned four to seven days later. However, in some police stations – Jinja Road Police, the Central Police and Old Kampala Police Stations – the questionnaires were given to policewomen by the officer in charge stations. The officer in charge of the stations would then collect the completed questionnaires and returned them to the researcher on the agreed day and time. The questionnaires were edited and then the coding was done.

Data analysis

The data collected were entered into the computer using the SPSS; dummies were created and the analysis was done using stepwise multiple regression with the forward selection method. This made it possible to identify the variables that significantly influenced stress among the policewomen.

Multiple regression is a statistical method, which relates a given set of independent variables to a given set of dependent variables. The equation produced from a multiple regression analysis gives the optimum prediction of the dependent variable, based on the set of independent variables. Stepwise multiple regression analysis was used in this study, since it determines the independent variables that would give the optimum prediction equation for the dependent variable and eliminates independent variables accounting for minimal variance to be added to that equation. The cut-off point for inclusion of one independent variable in the equation is determined by two statistical criteria: the overall F ratio for the equation is significant and the partial regression coefficient for the individual independent variable being added is statistically significant. Below this point both the coefficient and the amount of variance contributed by each additional variable is very small.

Results and discussion

Key sample characteristics

The participants' key sample characteristics are presented in Table 1.

Table 1. Sample characteristics

Has a major event happened to you in the past three months	Frequency	%
Yes	19	38.0
No	31	62.0
Reason for doing extra hours		
Through choice	0	0
Expected to do extra hours	17	34
To get the job done	33	66
Would you say you are in good health		
Yes	38	76
No	12	24
Have you had any major illness in the past 3 months		
Yes	10	20
No	40	80
Job title		
Police constable	35	70
Police officer	15	30
Have you been subjected to any ongoing pressures for more than 3 months		
Yes	11	22
No	39	78
Work arrangements		
Full-time	45	90
Contract	5	10

Advanced statistical analysis

To test the hypothesis, a set of stepwise multiple regression was computed.

Having experienced a major event in the past three months that had a bad effect, extra hours worked, level of health, level of illness, having been subjected to ongoing pressure for the past three months, job level, work arrangements, number of hours actually worked, number of hours one is supposed to work, and organizational tenure were entered as independent variables.

Additional organizational factors – including work load, relationships at work, recognition, organizational climate, personal responsibility, managerial role, the balance between home and work and daily hassles – and ways of coping – including problem-focused coping, the balance between personal life and work, and social support – were also entered as independent variables. Job satisfaction, physical well-being and mental well-being were entered (individually) as dependent variables. Stepwise multiple regression was then computed. Table 2 (on next page) shows the results regarding variables that predicted physical well-being.

Table 2 shows that significant predictors of physical well-being included relationships at work and having had no major illness in the past three months ($p = 0.00$). The importance of social relationships at work has been documented previously (19). Nor is illness as a source of stress among policewomen surprising, especially these days when the Uganda public service is severely hit by HIV/AIDS (15, 20). Furthermore, these results support previous findings which indicated that coping influences employees' work outcomes (2, 5). Table 3 shows results for predictors of mental well-being.

Table 3 shows that significant predictors of mental well-being included recognition at work, social support as a way of coping, organizational climate, and being in good health at the moment ($p = 0.00$). These results are in line with the findings of previous research. Hart and Wearing (9) noted the important role organizational climate played in stress. Organizational climate includes recognition at work (21). Folkman and Chesney (17) pointed to the importance of social support in dealing with stressful situations. These results also support previous research findings that coping influences employees' psychological outcomes (2, 8). Table 4 shows results for predictors of job satisfaction.

Table 4 shows that significant predictors of job satisfaction included being in good health at the moment, the use of problem-focused coping strategies and a balance between personal life and work ($p = 0.00$). The results in Table 4 again highlight the importance of being in good health for policewomen in Uganda. Health problems at work have been exacerbated by HIV/AIDS (20). Being female, the police officers also experience dual career problems, which need to be managed properly (22). The transactional theorists have emphasized problem-focused coping in managing stress (17). It is thus not surprising that these three predictors were found to be significant. Furthermore, these results support previous research findings, which indicate that coping influences employees' psychological outcomes (5, 8, 9).

Conclusions and recommendations

As hypothesized, it seems that personal factors (being in good health, having had a major illness in the past 3 months), and organizational factors (relationships with other people, especially co-workers; recognition, and organizational climate) significantly predict behavioural and psychological outcomes among policewomen. Coping factors (social support, problem-focused coping and the balance between personal life and work) also significantly predict behavioural and psychological outcomes among policewomen in Uganda.

A variety of interventions are useful in reversing the present unhealthy situation as concerns the problems faced by policewomen. Ivancevich et al. (23) indicate three levels of stress management intervention. These are primary, secondary and tertiary. Primary interventions occur at the workplace, where the environmental or situational stressors are modified. Secondary interventions emphasize altering the appraisal of the stressor. Tertiary interventions focus on coping strategies. The types of interventions can focus on the individual, the department, or on the interface between the individual and the department.

Along these guidelines, the police department should set up training programmes for policewomen as a group. Individual interventions, such as counselling regarding police work, should be

Table 2. Stepwise multiple regression analysis of factors loading the policewomen's physical well-being

Variable	R^2	R^2 change	F-test
1. Relationships with other people, especially co-workers	0.22	0.22	13.31
2. Had a major illness in the past 3 months	0.30	0.08	10.15

Table 3. Stepwise multiple regression analysis of factors loading policewomen's mental well-being

Variable	R^2	R^2 change	F-test
1. Recognition	0.27	0.27	17.56
2. Social support as a way of coping	0.40	0.13	15.92
3. Organisational climate	0.49	0.09	14.68
4. Being in good health at the moment	0.55	0.06	13.58

put into place. Training on how to cope, especially training for policewomen, is recommended. Training should focus, for example, on how to match coping strategies to stressful situations and soliciting for social support.

The interventions should consider the fact that developing a supportive organizational culture rather than changing the demands is more effective especially in the operational work of police personnel (2, 8). In line with this observation, it is recommended that the police department should develop programmes aimed at fostering good co-worker relationships at work and promoting recognition. In Uganda, the public does not take police work seriously. This attitude of the general public must be changed by implementing customer and public relations programmes.

There is a need to strengthen the occupational health programmes for police personnel. In the Public Service of Uganda, and especially in the police department, the incidence of HIV/AIDS is high. The Public Service of Uganda has started programmes to offset the serious impact of HIV/AIDS in the service in general. It is hoped that the police department will benefit from this health intervention. A variety of interventions, devised to reduce stress in other professions, might be used for police personnel as well (24).

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Table 4. Stepwise multiple regression analysis of loading factors influencing the policewomen's job satisfaction

Variable	R^2	R^2 change	F-test
1. Being in good health at the moment	0.19	0.19	11.04
2. Problem-focused coping	0.26	0.07	8.40
3. Balance between personal life and work	0.36	0.10	8.46

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African Session at ICOH2003

Photo by S.Lehtinen

Right after the ICOH2000, held in Singapore in August-September 2000, the planning of the sessions for the ICOH2003 was started. The ICOH Scientific Committee on Occupational Health and Development (SCOHDev), and particularly in the beginning its Chair, Mr. Kaj Elgstrand, was active in proposing various sessions for the Brazilian Organizers of the ICOH2003. One of these sessions proposed was intended for Africa.

African Session

Mr. Franklin Muchiri, Regional Secretary for Africa, took the task of organizing the African Session. Several consultations were made among Nairobi, Kenya and Helsinki, Finland in order to finalize the list of speakers and the programme of the Session. Franklin Muchiri made all the arrangements with the speakers and planned the Session contents. Without the financial support of ICOH this Session could not have been realized.

The International Commission on Occupational Health organized its 27th World Congress on 23–28 February 2003 in Iguassu Falls, Brazil. The Congress brought together 2 000 participants from all over the world.

The African Session gathered some 45 participants. After the presentations, the speakers answered a large number of questions, comments and ideas that were put forward by the audience. The interaction among speakers and listeners was lively. The Session was chaired by Mr. Franklin Muchiri from Kenya. Five presentations were made by Franklin Muchiri, Mr. Paul Obua of Uganda, Dr. Edith Clarke of Ghana, Mr. Andrew Okimait of Uganda, and Dr. Nelson Mwaniki Kiama working currently in Botswana. Three of these papers are now published here in order to allow as wide readership as possible. The remaining two will be published in the forthcoming issues of the African Newsletter.

SCOHDev Website

The Internet provides a handy and useful tool for disseminating information among the members of a scientific committee, but at the same time providing that information to all those interested. The ICOH website address is www.icoh.org.sg. You can access the SCOHDev website at http://www.occuphealth.fi/e/icoh/. We would very much appreciate all feedback, both to improve the technical layout of the website but also to complement and add to it more information of interest.

This African Newsletter is also accessible through the SCOHDev website, or directly at www.ttl.fi/Internet/English/Information/Electronic+journals/African+Newsletter/

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Photo by S.Lehtinen

Dr Edith Clarke made a presentation in the African Session.

Occupational health and development in Africa

Challenges and the way forward

F.K. Muchiri
KENYA

Overview

The development of occupational health and safety in a country depends to a very large extent on its economic and technological development. According to the Economic Commission for Africa (ECA), Africa will not reach the 7% growth rate necessary to meet the Millennium Development Goal of reducing poverty by half by 2015. Furthermore, half of Africa's school-aged children are not attending school; the rate of school attendance is lower in rural areas and among girls. This does not bode well for the future in a situation where 20% of the population subsists below a poverty line of less than USD 20 per month.

Future prospects are further confounded by health challenges, such as efforts to eradicate malaria and prevent HIV/AIDS, the two main killers that are far from being under control. HIV/AIDS is on the decline elsewhere in the world, while in Africa it has reached pandemic proportions, threatening to wipe out the continent's fragile social and economic gains and thereby shifting our priorities.

Moreover, the labour force is growing while the numbers of formal jobs are declining, mainly as a result of structural adjustment programmes that have brought about retrenchments and a growing informal sector. Workers have reacted by fighting for job security while neglecting the need to promote the quality of work life even though the provision of a safe and healthy work environment is a human rights issue, and even though investment in occupational safety and health yields improved working conditions, higher productivity and a better quality of goods and services.

Since the 1980s, most African countries have invested ever more in the provision of occupational health and safety services even in the face of declining resources. The impact, however, may not be adequate, largely because of economic crisis and other competing factors, which during the same period have led to the breakdown of social services throughout most of Africa.

Legislation

Most African countries have comprehensive legislation on occupational safety and health though for many, the laws have not been updated and they aren't flexible enough to meet the current challenges of free-market economies and globalisation. In some countries, however, review of legislation is under way, at different stages. Thus South Africa currently has some of the latest legislation in occupational safety and health while Uganda, Kenya and Tanzania are now in the process of reviewing and harmonizing their legislation. Some of the present challenges and shortcomings arising out of these laws include

- Workers and the public in general are now more aware of their rights and are demanding better quality of the work life
- Most of the laws do not cover all the sectors of economic activities
- The penalties provided for in these laws are so low that they are no deterrent to employers
- In many cases, enforcement is not effective, owing to a lack of adequate resources
- The prosecution and court processes are laborious and time-consuming, yet inspectors are often expected to argue cases, facing against lawyers
- Many countries do not have regulations and rules for certain classes of hazardous work situations; this makes it more difficult for employers to comply with the law.

To overcome some of these challenges and shortcomings, governments need to develop a strategic policy framework for the promotion of occupational health and safety services in all sectors of the economy, including public service. The goal should be for the strategic policy framework to be integrated into the social and economic programmes so that it is indistinguishable from any development agenda. In addition, the framework should be entrenched in the national constitution in order to ensure that it is not relegated in return for cheap investments by those without dignity and respect for equity and fair play.

Efforts to address these challenges and to ensure that occupational health and safety issues are given due priority should not lie merely with governments but should also aim both to strengthen the bipartite participation at enterprise level and to build a safety and health culture at the national level.

Top priority should, however, be placed on the adoption of adequate occupational safety and health legislation that is complemented by an effective inspection system. The legislation adopted should incorporate the provisions reflected in international instruments such as the International Labour Organisation Conventions Nos. 155 and 161, despite the fact that very few African

countries have ratified them. The legislation should also enjoy politicians' positive support and should be well aligned to the prevailing economic policies in order to assume its rightful place as a promotional tool to economic development rather than a deterrent. The legislation should therefore be flexible in order to meet the emerging issues in occupational safety and health adequately while also being dynamic in meeting technological, social and economic needs.

The tripartite approach should be the guiding principle in creating the law. It should be easy to understand at all levels and in the various sectors, in order to enhance voluntary compliance. Countries should also invest in creating regulations and codes of practice as accompanying tools for promoting compliance. The production of summarized pocket-sized versions that can be used by workers, highlighting special areas where more attention should be focused, would help promote safety and health at workplaces.

Consideration should also be given to the introduction of specialized labour courts or tribunals so there would be an appropriate appellate system for dealing with complex occupational safety and health issues.

Inspection services

Owing to the complexity and diversity of the various types of hazards and risks encountered in the work environment, countries are challenged to have multidisplinary inspection teams that carry out both general and specialized inspections and that also have the capacity to deal with new and existing risk factors. This has not been achieved in many African countries because of the lack of resources to train, recruit, retain and support personnel for an effective enforcement and inspection system. It is virtually impossible for any of our governments to support an effective inspection system that requires strong back-up from information and research facilities and training as well as providing inspectors with good remuneration as required under ILO Conventions Nos. 81 and 129. The reason is that national exchequers face other, competing needs for limited funds. Additionally, countries are not able to employ enough officers to carry out regular workplace visits and to have the required impact on both formal and informal workplaces. Moreover, in the recent past, many countries have been applying structural adjustment programmes that have meant a reduction in the number of such officers in consequence of restructuring, rightsizing and downsizing.

There is therefore a need to come up with new approaches that will reduce the direct burden on governments' resources while at the same time building lasting structures from within enterprises. This can be accomplished by placing the emphasis on the bipartite system for in situ inspection systems that allow workers' effective and equal participation. To this end, legislation should stipulate the establishment of safety and health committees that supplement the work of occupational safety and health officers. This approach is working well in Mauritius and South Africa, and is soon to be implemented in Kenya. The approach gives officers time to engage in more complex inspections, enforcement activities and prosecution. It also leaves officers scope to provide advisory services, to take part in the policy formulation and the preparation of guidelines for new initiatives, to plan and evaluate programmes, to conduct research, and to carry out other activities in support of the overall policy.

In general, there is a need to centralize these services at one focal point. Centralization maximizes the use of available resources, avoids duplications and inconclusive work, and improves accountability and effectiveness.

Lack of comprehensive occupational safety and health policy, poor infrastructure and funding, an insufficient number of qualified occupational safety and health practitioners, and the general lack of adequate information are among the main drawbacks to the provision of effective enforcement and inspection services in most African countries.

The challenges to the provision of occupational safety and health services in Africa are further amplified by, among others, growth of the informal sector, child labour, HIV/AIDS, and lack of information and research.

Informal sector

The ever-growing informal sector is putting enormous pressure on an already overstretched system. This is because informal sector enterprises are widespread in both rural and urban areas and they generally are not registered as businesses, thus making them difficult to reach. For example, in 1999 Kenya had 1.3 million informal sector enterprises with 2.4 million employees, i.e. one or two employees per enterprise. By the year 2001, the number employed in this sector had grown to 4.2 million, and currently the informal sector constitutes over 43% of the total labour force of 10.3 million, including those working in agriculture. Whether the laws cover this sector or not, informal sector workers nevertheless do not benefit from occupational safety and health (OSH) services as they should. The sector does not have the capacity to comply with the OSH legislation, nor are informal sector enterprises aware of the benefits of doing so.

The way forward is for governments to provide an enabling environment for the survival and growth of informal sector enterprises while also demonstrating to them that OSH pays. There is a need for simplification of OSH legislation, in order to ease interpretation and implementation, as well as for the provision of social security and compensation for occupational injuries. The sharing of resources and facilities should be promoted, and the exchange of information, especially information on affordable solutions to workplace hazards, should be promoted. OSH needs to be linked to other management goals and to be integrated into other activities, including integration with the development of technologies for the informal sector.

Child labour

Over 30% (> 80 million) of the working children are in Sub-Saharan Africa, and most of them work in hazardous conditions. This poses a great challenge to the continent as it translates into overall underdevelopment in the future as well as a deepening of the poverty cycle, illiteracy and lack of competitiveness. Africa must re-examine its core priorities. Free and compulsory primary education must be made a top priority if the economic recovery agenda is to be realized.

Cost-benefit studies carried out during the past decade in 16 African countries suggest that the social rates of return for investment in education are 26% for primary education, 17% for secondary education and 13% for higher education. Hence, there is a strong base of evidence indicating that free and compulsory primary education alleviates child labour.

Political will, commitment, and support for bold actions are needed at all levels. Moreover, it must be ensured that interventions vis-à-vis child labour go hand in hand with poverty eradication programmes. Social attitudes must be modified, to orientate both parents and would-be employers to the values of developing the intellectual capacity of children instead of seeking short-term economic gains. In addition, support for social "policing" is needed.


Photo by V. Ruohotie

Governments need to come up with policies for elimination, withdrawal, rehabilitation and social integration of those affected. In addition, ILO Conventions Nos. 138 and 182 must be implemented.

HIV/AIDS

25 million of the 40 million people infected with HIV/AIDS are workers between 15 and 49 years of age. It is estimated that, in countries with a high HIV/AIDS prevalence, the labour force will be between 10–30% smaller by the year 2020. Furthermore, the HIV/AIDS pandemic has a heavy impact on African economies. In Tanzania, for example, the World Bank predicts a 15–25% fall in GDP as a result of HIV/AIDS.

There is an urgent need for political commitment and for the allocation of adequate resources for prevention and advocacy at all levels of society. This should be supplemented with a strong policy and legislation to deal with HIV/AIDS. In this connection, the ILO Code of Practice should be mainstreamed as a preventive tool, especially at the workplace level, alongside information and counselling services. Most of all, there is a need to adapt and apply the approaches used in successful programmes, in order to help our nations eradicate this peril.

Agriculture

The farming sector in Africa is composed of smallholders using family and other unpaid labour. In almost all African countries, however, there are large-scale commercial farms.

The problems encountered in the agricultural sector include exposure to pesticides, long working hours, and diverse working conditions. In general, agricultural workers suffer markedly higher rates of accidents and fatal injuries than other workers, and their coverage by OSH services and compensation systems is the worst.

Our challenge is to provide comprehensive OSH services for the agricultural sector so that all workers would be covered. These services should be integrated with the public health care system in order to contribute effectively to an overall reduction in the disease burden. In this regard, there is a need to re-engineer our strategic plans in order to accord priority to the agricultural sector, with particular focus on prevention and provision of information. There is also a need to review national policies progressively in order to extend the legislation and inspection system to the agricultural sector. The provision of training and information should aim at promoting the participation of farmers and workers in order to enable them to protect themselves and to seek the right assistance.

The establishment of a scheme for pre-selection and classification of pesticides for use in various areas and for various crops, with the participation of key stakeholders, would take up the concerns pertaining to pesticide use, especially those relating to OSH that are otherwise neglected. In general, occupational health and safety professionals should build linkages with other service-providers in the agricultural sector in order to integrate OSH into their domain and build synergy.

Training and information

Countries site lack of adequate training and information as a major drawback to the development of OSH. The availability of training at various levels is scarce, mainly because there is a lack of resources, trainers, curricula and training materials. Sharing of expertise within the regional blocks, the introduction of OSH curricula in schools, as well as campaigns and programmes to promote good attitudes to OSH at all levels would have positive impacts on reducing the burden of occupational accidents and diseases.

Employers and workers, and their organizations, need to support government efforts, working together in a determined partnership towards improving working conditions and the work environment. Time limits with tangible targets should be set for this. In the words of the Nigeria Labour Congress, spoken with regard to Export Processing Zones (EPZs) in Calabar on 26 February 2003: "We shall no longer accept a slave camp in the name of promoting export; the Congress will work to humanize working conditions…". This should be taken as a wake-up call; the well-being of workers as a matter of priority should be taken seriously.

The regional labour administration centres in Harare and Abidjan are good focal points for training and exchange of experiences and information. They – the CIS and the ILO/WHO joint effort on occupational health and safety in Africa, *she.info.com* – should thus be strengthened and should serve as support centres for national focal points for occupational health and safety information. This calls both for the allocation of adequate resources by governments and for support from the social partners.

Conclusion

OSH providers should keep abreast of the rapid changes taking place in work environments and in technology. They should have the capacity to anticipate trends and developments and to understand their consequences so that they can promptly develop and implement new strategies for prevention and protection.

In this respect, we need to re-orientate our policies, to influence legislative reform, and to provide leadership in the implementation of OSH efforts. The emerging issues of "deregulation, privatization and globalization" should provide us with a driving force for innovation and growth.

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Contribution of occupational health and safety factors to the brain drain in the health sector

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Introduction

The problem of professionals leaving developing countries for greener pastures in Europe and America is well known. Ghana provides an example of a country in which the brain drain has assumed huge proportions. This paper describes the extent of the brain drain problem among health care workers in Ghana, examines the underlying factors, and explores the possible contribution of occupational health and safety factors. It also suggests ways of curbing the current trend.

Extent of the brain drain problem

Doctors, nurses and paramedics top the list of professionals migrating from Ghana. In the year 2002 alone, the country lost 64 doctors and 206 nurses. Unpublished data from the Ministry of Health show that each year, 60–70% of medical students leave the country within two years of completing their education. Three years ago, 1,400 registered doctors were working in the public sector of the country, but today they number less than l,000 despite the increased intake into medical schools. 1,850 doctors trained in Ghana are practising abroad. With regard to nurses, during the past ten years the number working in the country has dropped from 20,000 to 9,000. 66% of the attrition is from 'resignations and vacating of posts'. See Table 1 for attrition trends.

Consequences of health care workers' mass exodus

Owing to the mass exodus of health care professionals, most of the health facilities – including the country's leading teaching hospital – are operating with less than half of the required nurses and other health care staff. Staff–patient ratios are extremely high. For doctors it is 1:12,000 in the Southern part and 1:66,000 in the Northern part of country (compared to 1:500 in some Western countries). Despite these severe human resource constraints, the WHO reports an improvement in the delivery of basic health interventions based on such indicators as immunization coverage for children under 5 years of age. But the question this raises is: At what cost are such achievements being made? Health care workers are continuously overloaded and find themselves in a situation where their needs and aspirations are not met despite the effort they put into their work. Consequently, they feel helpless and experience their work as being meaningless. Many are burnt out. This is reflected in a lowered quality of care.

Evidence of a lowered quality of care abounds across the country, as was illustrated by the results of two client satisfaction surveys conducted in January 2003. These surveys investigated the perceptions of mothers with children under 5 years of age in three regions and the perceptions of a public forum in one region (those surveyed comprised market women, teachers, carpenters, tailors and opinion leaders).

The results of the first survey indicated that mothers with children under 5 years of age perceived staff members as follows: "unfriendly," "shout at them," "apathetic to client needs" and do not "communicate with clients adequately." As to the second survey, in addition to poor communication between service providers and clients, the public perceived that the waiting time is too long, clients are charged illegal fees, and the attitude of the staff is one of disrespect.

Underlying causes of the exodus

Among of the major causes underlying the exodus are the poor working conditions prevailing in the health sector. This can be translated into low remuneration (even in relation to earnings in other countries in the sub-region), inadequate opportunities for staff development, poor replacement policies for working equipment and tools, inadequate consumables for work, inadequate accommodation, inability to acquire basic social amenities such as housing, means of transport, etc., and Western countries'

Table 1. Estimated attrition of health workers, by year (Ministry of Health of Ghana)

Staff categories	Year, Staff leaving health sector				
	1998	1999	2000	2001	2002
Doctors	1	2	13	39	64
Nurses	10	64	134	211	206
Total staff (Drs, nurses & other categories)	11	71	164	295	2000+

Ministry of Health, Ghana Health Service, February 2003.

A total of over 2,541 of all categories of health workers left the public health sector between 1998 and 2002.

active canvassing for health care professionals.

Possible contribution of occupational safety and health (OSH) factors to the brain drain

Two studies were conducted by the Occupational Health Unit of the Ministry of Health between 2000 and 2002, one dealing with the health and safety of health care practitioners in one teaching hospital, two regional hospitals, two district hospitals, and two health centres; and the other focusing on musculoskeletal problems among nurses in a teaching hospital as compared with a control group of teachers.

In these studies, only 18% of the respondents claimed there was a comprehensive health and safety policy, though even these were not available for inspection. The most important hazards given were infections, stress and manual handling of patients. The perceived causes of morbidity reported were malaria, respiratory infections and hypertension, constituting 5–6% of ill health, and other infections (including hepatitis, meningitis, HIV/AIDS, and diarrhoeal diseases). At the teaching hospital, cervical spondylosis was the second commonest cause of morbidity after malaria. This is likely to be related to manual patient handling (carrying, pulling and pushing patients). A nurse is 21.5 times more likely to develop lower back pain than a teacher in the same age group, and 1.4 times more likely to develop upper back pain. Regular and systematic medical surveillance is not provided. (Table 2, Figure 1).

Pre-employment examinations were available to 58%, periodic health examinations to 15%, special examinations to 2% and exit examinations to none of the respondents. Though curative health services are generally available, under the cash and carry policy operating within the health care system, access to curative health services has been hampered by bureaucratic processes for refunding of the money spent.

Vaccination for vulnerable groups (Hepatitis B, etc.) is not generally available (only to 4%). Education on health and safety is minimal. Only 34% of the respondents claimed being aware of some aspects of health and safety. This was generally centered on infection control. Though laudable, infection control is very limited in terms of the scope of the occupational health issues addressed. As to the adequacy of occupational safety and health services, 6% of the respondents said it was adequate, 48% said it was poor and 33% said it needed to be improved.

Table 2. Hazards associated with musculoskeletal problems among nurses and teachers.

Hazard	Subjects affected (n=223)	
	Nurses	Teachers
1. Poor working postures	98 (24.3%)	40 (36%)
2. Psychological stress	87 (21.5%)	35 (31.5%)
3. Lifting of patients/pupils	100 (24.8%)	7 (6.3%)
4. Slips and falls	61 (15.1%)	7 (6.3%)
5. Haulage and transport	58 (14.4%)	22 (19.8%)
Total 404	**(100%)**	**111 (100%)**

From a study on nurses' musculoskeletal problems (Occupational Health Unit, Ghana Health Service, 2002).

Statistics on workers' health, which could be used to influence policy, are scant. Under 5% of the respondents were aware of the procedures for obtaining compensation for workplace injury or disease, or had followed these procedures; and 78% of the respondents were aware of situations in which no compensation had been paid.

During a focus group discussion (unpublished communication from the Occupational Health Unit, Ghana Health Service) among nurses who had resigned from public service, the following contributory factors, among others, were mentioned as reasons for resigning from their jobs: injuries sustained on the job, particularly back injuries; the inadequacy of systems of care for injuries or disease; financial difficulties in paying for health care; and lack or inadequacy of compensation.

Conclusions drawn from the studies

The OSH-related problems detected can be summarized as stress, infections, hazards arising from manual patient handling, difficulties in paying upfront for curative care, low levels of compensation, and difficulties in making claims. These problems are serious enough to cause staff members to lose their motivation and to desert the health service.

Some proposed solutions

In the face of a rapid dwindling of health care professionals as an outcome of these daunting circumstances, the following solutions are proposed in order to curb the current trend. Some of these are already being considered in Ghana.

The Government of Ghana should make every effort to pay realistic wages. Waste in the health sector and in other sectors should be eliminated, thereby freeing more resources for the health sector. Opportunities for staff develop-

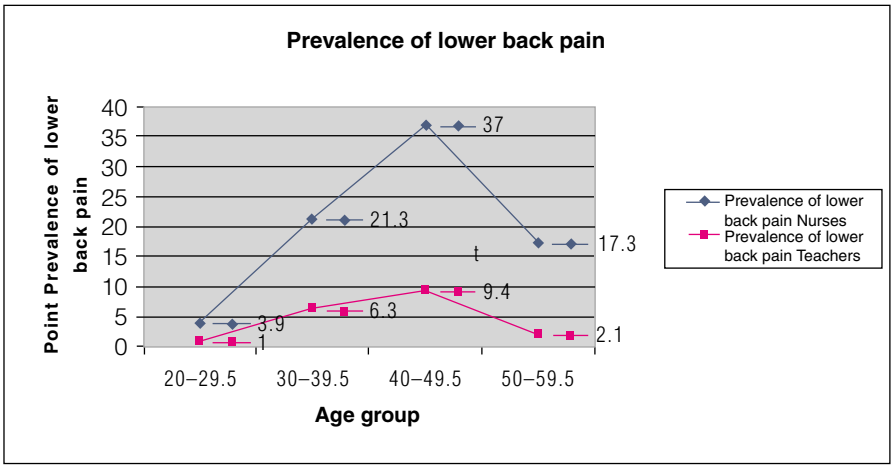

Figure 1. Prevalence of lower back pain among nurses and teachers

Dr E. Clarke. Brain Drain of Health Care Workers.
Figure from a study on musculoskeletal problems among nurses (Occupational Health Unit, Ghana Health Service, 2002).

Photo by T. Lipasti

Doctors, nurses and paramedics top the list of professionals migrating from Ghana. In the year 2002 alone, the country lost 64 doctors and 206 nurses.

ment should be promoted, e.g. by supporting the establishment and operation of a post-graduate medical college (for all types of health care professionals). This has in fact taken place recently for several disciplines, but owing to constraints in human and material resources, OSH is not yet included.

Moreover, the Government should improve service schemes, including supportive schemes enabling professionals to acquire basic social amenities. The institution and implementation of policies for replacing working equipment and tools should be supported, and the constant supply of consumables (to facilitate infection control and enhance efficiency) should be ensured through improved planning, sector finance and monitoring.

Intake into training schools should be increased. This has already started. The intake into pre-service nursing schools in the academic year of 2003–2004 exceeds 800 (compared to previous intakes of 200).

The Government should also ensure that a draft policy on OSH is adopted and an umbrella legislation on OSH is promulgated, supported by the regulations specific to the health sector, in order to increase safety and promote health. Regular training on OSH for all staff should be institutionalized.

Other strategies for improving the vulnerability of health care workers that should be put into place include training in infection control practices, measures to promote the health of the back, immunization programmes, post-exposure prophylaxis against hepatitis and HIV, etc.

Human resource policies should include a strong OSH component that would facilitate monitoring that the health sector complies with the legislation on OSH (when promulgated). Compensation payments should be brought in line with the present-day realities, and a workable system for disbursement of funds should be ensured. Finally, the implementation of health insurance schemes should be hastened.

Western governments could soften the adverse impacts of the brain drain by allowing flexibility in some of the preconditions for granting aid or loans to developing countries rather than insisting that countries should not increase expenditure on wages beyond a certain proportion of the sector budget (since a low level of earnings is a central cause of the brain drain). A portion of the earnings of professionals who have migrated to the West should be paid back to the developing countries from which these professionals came. Western governments should consider providing support to institutions training health care professionals, in order to improve the quality of training. In addition, technical assistance for building the capacity of OSH professionals in developing countries should be strengthened.

Concluding words

Since the causes underlying the brain drain are multifaceted, so, too, must the interventions be. OSH factors make a fair contribution to the underlying causes. Appropriate responses to OSH challenges must therefore constitute a part of the solution.

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International Conference on Occupational Health Services 2005

25–27 January 2005, Marina Congress Center, Helsinki, Finland

The Conference aims at bringing together evidence-based scientific information, as well as evaluated and validated good practices from different sectors and disciplines of occupational heath services.

Topics of discussion
- How to implement occupational health in practice?
- How to ensure the competence and skills of occupational health personnel, and the contents of occupational health services?
- What kinds of norms are needed?
- How to build a basic occupational health infrastructure?

Themes of the Conference
- Basic occupational health services (OHS)
- Service provision models
- Training and education
- Regulations and finances
- Changing world of work
- OHS in special sectors: agriculture, SMEs, informal sector, self-employed, high-risk groups

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Occupational lung diseases and HIV/AIDS at workplaces in Africa – The case of Botswana

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Occupational lung diseases are disorders that are directly related to the gases, fumes, mists, vapours or particles a worker inhales while in the work environment. The disorders are commonly classified according to the type of inhaled material and the nature of lung pathology that ensues. Examples are pneumoconioses (resulting from inhalation of inorganic dusts), chemical pneumonitis (inhalation of chemicals) and pneumonia (inhalation of microbes).

Situation in Botswana

In Botswana, a significant proportion of the workforce is employed in the mining and quarrying industry. In 2000, about 12,961 workers were active in mining and quarrying occupations (1). Although the incidence of pneumoconiosis in diamond mines is reported to be insignificant (2), it is estimated that more than 15,000 Botswanans are currently employed in South African mines, where the incidence of compensable pneumoconioses is estimated to be 1.6 per 100 miners per year (3). It is further observed that a large proportion of elderly Botswanan men have a long history of working in the South African gold mines.

Table 1 shows the results of a survey that was carried out in 1994 in order to determine the prevalence of occupational lung diseases among Botswanans who had retired from working in South African mines. In view of the high prevalence of pneumoconiosis detected in the survey, and considering the fact that the silicosis disease process does not stop after cessation of exposure to silica dust, the Occupational Health Unit launched a programme for former miners in 1999. The programme aims to reach all Botswanans who have ever worked in the mines of the Republic of South Africa so that they can undergo medical examination with a view to compensation under South African occupational health and workers' compensation legislation.

Given the high prevalence of pulmonary tuberculosis, which is associated with both HIV and exposure to mine dust, the former miners' programme counsels and encourages all former miners – and especially those with positive chest X-ray findings or clinical abnormalities – to undergo HIV testing. The programme therefore serves as an entry point for former miners to benefit from the national HIV intervention and/or mitigation programmes such as the prevention of Mother to Child Transmission (PMTCT) program, Anti-Retroviral Therapy (ARV) program, Voluntary Counselling and Testing (VCT) program and the HIV/AIDS in the workplace program.

HIV/AIDS and occupational lung diseases

The first case of AIDS in Botswana was diagnosed in September 1985. Between 1992 and 2000, the prevalence of HIV rose from 18.1% to 38.5%. In 2001 and 2002, the prevalence levelled off at 36.2% and 35.4%, respectively (5). The majority of those infected are people of working age. The high prevalence of HIV, the associated stigma, and human rights issues all act together and singly to pose a formidable threat to implementation of the former miners' programme.

Firstly, even if there were no HIV, it

Table 1. Prevalence of occupational lung diseases among Botswanan men with a history of having worked in the South African mining industry (4).

	Total n=304
Mean age, years (SD)	56.7 (12.2)
Mean duration of mining work, years (SD)	14.5 (8.2)
Pneumoconiosis >=1/0 ILO	94 (31.0 %)
FEV1/FVC <70% (%)	20.5
Unemployed (%)	48.1
Smokers/Ex-smokers (%)	62.8
History of tuberculosis (%)	26.6
Progressive massive fibrosis (%)	6.8

would be difficult to convince former miners to come for examination despite the possibility that they may have detectable lung disease, because the early stages of pneumoconioses do not involve any signs or symptoms. When symptoms finally do appear, they are easily mistaken to be a manifestation of AIDS. In consequence, former miners are distancing themselves from the former miners' programme, owing to the fear that they may be tested for HIV.

The next problem surfaces when former miners finally decide to present themselves for medical examination. In making a diagnosis, one must establish the former miner's history of exposure (which in most cases must be more than five years of continuous exposure), and the radiological findings must match the standards set by the relevant South African law or by the ILO. The problem in proving the long exposure is that most of the former miners either have lost their employment records or never spent more than a few months working in a mine during any given year.

Under these circumstances, X-ray findings are considered to be the mainstay of diagnosis. It is, however, not easy to rely on radiological findings because of the high prevalence of pulmonary tuberculosis associated with HIV. Miliary tuberculosis and extensive opacities caused by advanced tuberculosis often mask pneumoconiotic lung findings; such patients have to be put on anti-tuberculosis treatment before pneumoconiosis can be diagnosed.

Should a former miner die, a post-mortem examination of the chest organs provides the most definitive diagnosis. This method of diagnosis is culturally unacceptable, however, and family members require a good deal of counselling before allowing the deceased to be buried without the chest organs.

Finally, the medical report forms and the X-rays are sent to the Medical Bureau of Occupational Diseases in the Republic of South Africa, where they are reviewed by a certification committee. When it is certified that a former miner has pneumoconiosis, the certificate is posted back to Botswana through the Occupational Health Unit to the claimant. Enclosed with the certificate are compensation forms for the claimant to fill in and return to the Compensation Commissioner in South Africa. The Compensation Commissioner then pays the claimant through the Employment Bureau of Africa, which is the Botswanan recruiting agency for South African mines.

As the certification and payment procedure is tortuous, many former miners who would be eligible for compensation die before receiving compensation. For example, out of the 3,358 X-rays and medical examination forms that were sent to the Republic of South Africa by March 2003, only 1,142 replies have been received. As to these 1,142 replies, it was concluded that 1,051 former miners were free of pneumoconiosis while 37 were judged to have first-degree silicosis, 15 to have second-degree silicosis and 39 to have pulmonary tuberculosis. The low rate of verified diagnoses and the long waiting period before a claimant receives compensation have also had a negative impact on community participation in the former miners' programme.

In view of the above difficulties, the Occupational Health Unit has:

- appointed a programme officer to oversee the activities of the programme for former miners on a full-time basis
- begun to computerize all former miners' medical records
- launched a community education strategy aiming to increase acceptance of post-mortem examinations
- together with the help of a pneumoconiosis panel, started screening X-rays so that only X-rays showing signs of pneumoconiosis are sent to the Republic of South Africa
- intensified supervisory visits to the districts in order to ensure that a register of former miners is kept and that "focal persons" are appointed for the programme
- planned annual meetings of district focal persons and health managers in order to discuss any problems and report progress
- made the issues of the long waiting period and the complicated payment procedure encountered with the South African Medical Bureau of Occupational Diseases and the South African Compensation Commissioner known to the Botswana Ministry of Health, with a view to a diplomatic solution.

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