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Employee assistance programmes in the healthcare sector and issues in evaluating quality

A survey of work, health and safety conditions in small-scale garment enterprises in Gaborone, Botswana

The infertile-worker-effect in a South African population

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The SA Society of Occupational Health Nursing Practitioners (SASOHN)
Linda Stokes
Tel: +27 (0)11 892 3174
sasohnoffice@mweb.co.za
www.sasohn.org.za

The SA Society of Occupational Medicine (SASOM)
Jenny Acutt
Tel: +27 (0)12 803 7418 or 0861 11 4417
info@sasom.org
www.sasom.org.

The Southern African Institute for Occupational Hygiene (SAIOH)
Ray Strydom
Tel: +27 (0)12 654 8349
ray@raysaf.co.za
www.saioh.co.za

Mine Medical Professionals' Association (MMPA)
Shirli Geere
Tel: +27 (0)11 498 7377
sgeere@bullion.org.za
www.mmoa.org.za

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From the Editor . . .

Linda Grainger, Editor

Welcome to the first issue of our journal for 2011. We hope that you have all had at least a small break and have returned, refreshed and invigorated, to start the new year.

Occupational health professionals are well aware of the inter-relatedness between problems that employees experience at work and home and their effect on health and work performance. Employee assistance programmes (EAPs) are one of the approaches they use to address such problems, although more evidence of their effectiveness is needed. In this issue, Kruger and van Zyl examine EAPs in the context of the healthcare sector, describe common components of EAPs, and highlight the need for evaluating their quality. The difficulties surrounding these evaluations are explained and some methods are suggested.

As the global economic crisis continues to affect southern Africa, jobs in the formal sector appear to be declining and there is a concomitant increase in jobs in small-scale enterprises (SSEs) and the informal sector. One of the problems associated with this changing pattern of employment is that occupational health and safety (OHS) conditions tend to be poor, although there is a lack of data on the actual situation. Therefore, the findings of Zungu and Gabe's study on the work environment and OHS conditions in small-scale clothing industries in the Gaborone area of Botswana are important. As expected, they found that conditions were unsafe and workers were likely to be exposed to a range of hazards. Many readers will likely have found such conditions in similar workplaces in South Africa.

In 2009, we published a preliminary study on employment status and fertility in South Africa.[1] In a follow-up study, the authors Bello, Kielkowski, Heederik and Wilson present the findings of their recent work. They examined their data on women from the Potchefstroom area for evidence of the infertile-worker-effect. This is the situation where less fertile women are more likely to remain in the workforce than more fertile women, so that a greater proportion of infertile women are in the employed female population. Information on this can explain the behavioural relationship between women's work and their reproductive health, which is important for the occupational reproductive health studies and the formulation of health policies for employed women.

During the course of the year we will feature articles relating to four special themes. These are indicated in the call for papers notice opposite. Please consider submitting a paper for one of these themes. As is customary, we pay tribute to our reviewers and advertisers for 2010, by listing their names (opposite). We are sincerely grateful to them for their support of the journal. Also in this issue, is news from our societies of their activities, of past events and those that are being planned, all of which indicate a busy and interesting year ahead.

There are two items of information which should be of value to readers. The first relates to our previous special issue on occupational dermatology (September/October 2010). This concerns the results of a Cochrane study to assess the effect of interventions for preventing occupational irritant hand dermatitis (OIHD) in healthy people, who work in occupations where the skin is at risk of damage, which were recently reported.[2] Four randomised controlled trials (RCTs) involving 894 participants from different occupations were examined. The first compared two barrier creams (containing silicone or hydrocarbon) versus no intervention. The second involved an after work emollient or a barrier cream compared to no intervention. The third contrasted the use of a moisturiser (Locobase) versus no intervention, and the fourth compared a barrier cream containing aluminium chlorohydrate (Excipial protect) versus its vehicle. In all, fewer workers using the barrier creams developed OIHD than those who did not. However, none of the results was statistically significant. The authors concluded that there is insufficient evidence at present for the effectiveness of most of the interventions used in the primary prevention of OIHD. They caution that this does not mean that these interventions do not work, but that it is likely due to the limitations of the studies. Larger well designed RCTs are needed.

The second item is the announcement by the World Health Organization of a new DNA test for TB.[3] This fully-automated rapid diagnostic molecular test has the potential to revolutionise TB care and control because it:

- simultaneously detects TB and rifampicin drug resistance (a reliable indicator for MDR-TB);
- provides accurate results in 100 minutes so that patients can be offered proper treatment immediately (thereby obviating the need for them to return at a later date which is costly and results in loss to follow-up); and
- has minimal bio-safety requirements and training, and can be housed in non-conventional laboratories.

It is expected that the test will lead to a three-fold increase in the diagnosis of patients with multi drug-resistant TB (MDRTB) and a doubling of TB/HIV cases diagnosed in areas with high rates of TB and HIV, compared to microscopy diagnosis. WHO strongly recommends that it be used as the initial diagnostic test in individuals suspected of MDRTB or HIV/TB, and reports that South Africa has developed plans for roll-out of the test for TB in selected settings at different tiers of the health services.

Condolences

It is with deep regret that I inform you of the tragic death of a member and past president of MMPA (2004-2005), Dr Johan Pretorius, who died in a motor vehicle accident on the 17th January. Our thoughts and prayers are with his family and trust that they will receive divine strength and comfort during this sad time.

Deodat Kritzinger, MMPA President

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1. Bello B, Kielkowski D, Heederik D, Wilson K, Vundle Z, Kruger A. Preliminary study on employment status and fertility in South Africa. Occupational Health Southern Africa 2009;15(1):6–14.
2. Bauer A, Schmitt J, Bennett C, Coenraads PJ, Elsner P, English J, et al. Interventions for preventing occupational irritant hand dermatitis. Cochrane Database Syst Rev. 2010;6:CD004414.
3. World Health Organization. WHO endorses new rapid tuberculosis test. Geneva: WHO; 2010. Accessed 18 January 2011. Available at: http://www.who.int/tb/features_archive/new_rapid_test/en/index.html

Linda Grainger

2010 Reviewers

As is our usual practice, we pay tribute to our reviewers for their assistance in ensuring that the high quality of our scientific papers is maintained. Without their generosity of expertise and time, this would not be possible. Their names are listed below, in alphabetical order.

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Call for papers during 2011

Four specific themes will be addressed in issues during this year. We therefore invite you to submit original research, review, case study, or back to basics papers for consideration for publication in this issue. The authors' guidelines are available on the website, www.occhealth.co.za. All papers are peer-reviewed before publication.

Should you be interested in submitting a paper, please indicate this by e-mailing the Editor at grainger@telkomsa.net. Please provide some basic details about what you envisage would be included in the paper. I would appreciate receiving this information as soon as possible. The actual final submission dates for papers are shown below.

Issue	Theme	Submission date
May/June 2011	Work and vision	24 March 2011
July/August 2011	Managing chronic diseases of lifestyle in the OH setting	9 May 2011
September/October 2011	Respiratory health	11 July 2011
November/December 2011	Infections of relevance to OH	7 September 2011

Upcoming events

INTERNATIONAL CONFERENCES

Date	Place	Topic	More information
4 – 6 April 2011	Rhodes University, Grahamstown	ODAM2011 10th Int. Symp. on Factors in Organisational Design and Management	E-mail: a.todd@ru.ac.za www.ODAM2011.net
20 – 22 June 2011	Hansaari Cultural Centre, Espoo, Finland	Int Forum on Occ Health and Safety: policies, profiles and services	www.ttl.fi/forum2011
9 – 12 Aug 2011	Boston, Massachusetts, USA	5th International Conference on Nanotechnology Occupational and Environmental Health	www.uml.edu/nano/nanoehs/Contact_Us.html
25 – 27 Aug 2011	Birchwood Hotel, Boksburg, South Africa	African Regional Association of Occupational Health (ARAOH) Congress. Occupational health: Care for the biological, physical and psychological needs of the worker.	Jenny Acutt SASOM National Office Tel: +27 (0)12 803 7418 E-mail: info@sasom.org
11 – 15 Sept 2011	Istanbul, Turkey	XIX World Congress On Safety and Health at Work – Building a culture of prevention for a healthy and safe future.	E-mail: info@safety2011turkey.org
21 – 23 Sept 2011	Hansaari Cultural Centre, Espoo, Finland	4th Int Conf on Unemployment, Job Insecurity and Health	www.ttl.fi/forum2011
18 – 24 Mar 2012	Monterry, Mexico	30th ICOH Congress – Occupational Health For All: Research, Training and Good Practices	admin@icohcongress2012.org

LOCAL CONFERENCES

Date	Topic	Region	Target	Cost	ContactName
17 February 2011	SAIOH Gauteng Workshop	Pretoria	Occupational hygiene practitioners, safety, health and environmental practitioners	R 700.00 (incl. VAT) per delegate R 400.00 (incl. VAT) per student (Copy of valid student card must accompany application) Includes lunch and limited open bar	Bianca Smith Tel: +27(0)12 654 8349 or E-mail: bianca@raysaf.co.za
11 March 2011	Occupational medicine "Off the beaten track"	Kimberley	OH&S practitioners	Members: R600 Non-members: R750	Jenny Acutt Tel/Fax: +27 (0)12 803 7418 E-mail: info@sasom.org
18 March 2011	Occupational medicine "Off the beaten track"	East London	OH&S practitioners	Members: R600 Non-members: R750	Jenny Acutt Tel/Fax: +27 (0)12 803 7418 E-mail: info@sasom.org
20 May 2011	Annual General Meeting	To be announced	MMPA members	To be announced	Jacqui Myers E-mail: JMyers@bullion.org.za
7–9 October 2011	Annual MMPA congress	To be announced	All OH&S practitioners	To be announced	Jacqui Myers E-mail: JMyers@bullion.org.za

2011 SAIOH COUNCIL AND CERTIFICATION BOARD MEETINGS AND EXAMINATION DATES

4 March	07h00	NatCouncil/Written
8 April	07h00	OHPC/Oral
6 May	07h00	Council/Written

HEALTH AWARENESS DAYS, WEEKS AND MONTHS

FEBRUARY
Healthy Lifestyle Awareness Month
Reproductive Health Month

Day	Topic
13 – 19	STI / Condom Week
7 – 13	Pregnancy Awareness Week
18	Healthy Lifestyles Awareness Day

MARCH
TB Awareness Month

Day	Topic
8	International Women's Day
10	World Kidney Day
20	World Head Injury Awareness Day
21	Human Rights Day
21	World Down Syndrome Day
21 – 27	World Salt Awareness Week
24	World TB Day

Employee assistance programmes in the healthcare sector and issues in evaluating quality

Abstract

Employee assistance programmes (EAP) for healthcare workers can address problems experienced by employees in their personal lives, work-related problems and skills problems. Such services have been extended to employees' families, addressing employees' problems in a holistic manner. Despite the worldwide increase in EAPs evidence of effective EAPs is limited. Therefore, their evaluation to demonstrate whether there is value in offering them is important, but it can be complex. This review article describes the evolvement of EAPs, conceptualises the EAP from an employee's and employer's perspective in the healthcare sector; and discusses the evaluation of EAPs. Healthcare organisations should be able to use the information provided to analyse the reasons for introducing an EAP in their organisations and determine whether the quality of the EAP is being measured adequately.

Key words: employee assistance programme, EAP, healthcare sector, history, evaluation; quality

Introduction

People work to satisfy their basic needs,[1,2] and once employed, the current legal[3] and labour relations implications for employees become important. Employees are regarded as the most valuable resource of an organisation.[4,5] Therefore, an institution should ensure that the necessary human resource management processes[6] are in place to keep them safe and healthy. It should be remembered, however, that healthcare workers like all workers, are individuals within a workplace who also have personal lives outside the healthcare institution.[7] Managers also need to acknowledge that healthcare workers are exposed to certain workplace hazards that could influence their health and productivity. Individuals will react differently when faced with certain problems. Some of these problems are solved by themselves, while others need assistance from experts. Others will simply continue to live with the problem without coping sometimes with disastrous outcomes. Therefore, employers should assist healthcare workers to address or cope with some of the problems experienced in their personal lives or in the workplace. Studies have been published on the impact of ill-health and risk reduction on work performances as well as the productivity of employees.[8,9] Actions to keep employees safe and healthy should be considered as part of a business process,[6] which could include the establishment of a formalised programme such as an employee assistance programme (EAP). Figure 1 illustrates the factors influencing the wellness and productivity of employees and role of the EAP to address problems experienced by employees in their personal lives, work-related problems and, to a lesser degree, skills problems experienced by employees preventing them to perform their duties optimally.

Despite an increase in EAPs in a variety of settings worldwide, evidence of effective EAPs has been described

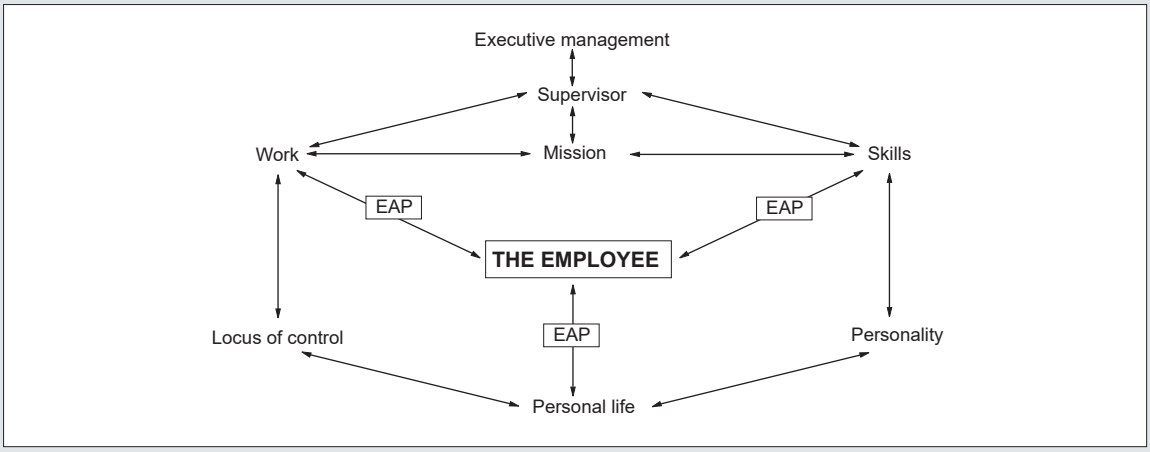


Figure 1. Factors influencing employee's and the EAP's role in addressing their problems

Willem H Kruger, Associate Professor and Head of Department, Department of Community Health, Faculty of Health Sciences, University of Free State, Bloemfontein, South Africa

Gert J Van Zyl Dean, Faculty of Health Sciences, University of Free State, Bloemfontein, South Africa

Corresponding author: Prof. Willem Kruger, Department of Community Health (G52), Faculty of Health Sciences, University of the Free State, PO Box 339, Bloemfontein 9300 South Africa

Tel: +27 (0)51 405 3136
E-mail address: gngmwhk@ufs.ac.za

as "embarrassingly thin, largely anecdotal and mainly American".[10]

Several researchers[10-12] have acknowledged the benefit of using a formal EAP. Macdonald et al[13] found that most EAP clients are satisfied with the assistance received from EAP counsellors. Regarding the benefits of an EAP for healthcare workers, Csiernik et al[14] showed a positive outcome with the tailoring of an EAP to be responsive to unique needs. However, others[7,15] have questioned its value as organisations often fail to identify why an EAP is being instituted. Gammie[4] lamented that there was no real commitment from senior management to ensure that EAPs were assessed in the UK oil industry, something that is critical because it is necessary to justify the cost-benefit analysis in this expenditure-sensitive climate. Lawrence[15] stated that "little research evidence has been offered in support of the efficiency and quality of EAP provision".

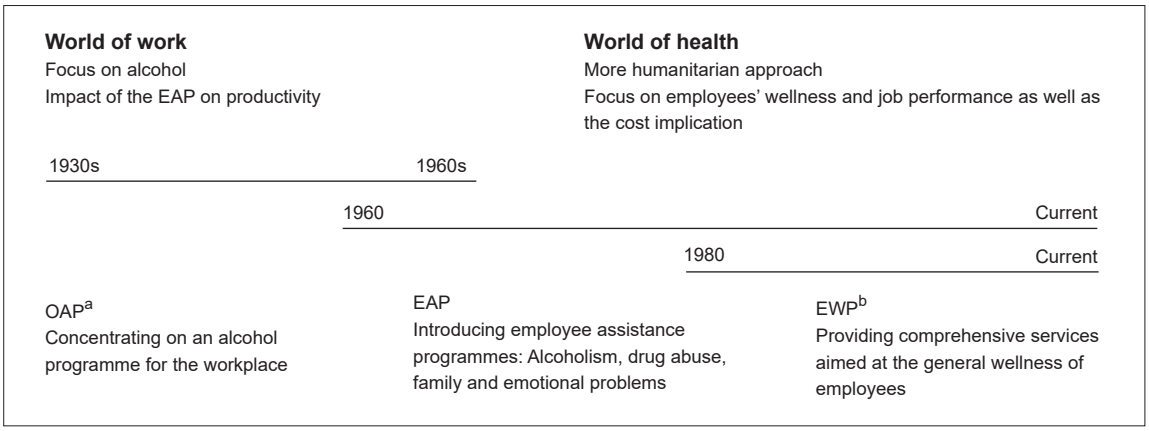


Figure 2. Development of employee assistance programmes
[a]OAP = Occupational alcohol programme; [b]EWP = Employee wellness programme

Consequently, managers in healthcare organisations might question the introduction of an EAP as part of a human resource strategy to deal with problems faced by employees. It is therefore most important that organisations that provide EAPs give serious consideration to their evaluation in order to demonstrate whether there is value in offering them. However, the evaluation process can be complex and challenging for them.

The purpose of this article is threefold, namely:

(i) to describe the evolvement of EAPs;
(ii) to conceptualise the EAP from an employee's and employer's perspective in the healthcare sector; and
(iii) discuss the evaluation of EAPs.

Healthcare organisations should be able to use the information provided to analyse the reasons for introducing an EAP in their organisations and determine whether the quality of the EAP is being measured adequately.

Methodology

A literature search on the topic was conducted on several search engines including UFS library search engine, PubMed, PubMed Central and Emeralds. Key words used included employee assistance programme, counselling, quality assurance, best practice. The focus was on occupational-related journals. Sixty articles were chosen but only 35 were used in this study.

Table 1. Forces resulting in the initiation of employee assistance

1940s forces[10]	1990s forces in the UK[14]	Possible current forces
Alcohol misuse and the rapid rise of AA	A greater willingness to admit mental health problems amongst the UK population	Alcohol, drugs, violence, unemployment and especially AIDS
The increased need during the war for workers to keep up with production	The threat of employee litigation against employers for causing work-related stress	World of high technology, work changes and stress, and retrained skilled labour
The concern of industrial physicians and unions	The emphasis of NHS[a] psychiatric services on treating mainly severe and enduring mentally ill patients through community	Labour relations and the interaction between management, labour unions and occupational health physician
	Mental health teams	

[a]NHS – National Health Service

"Employees are regarded as the most valuable of an organisation."

Evolvement of employee assistance programmes

Figure 2 illustrates the evolvement of employee assistance. Lawrence[15] stated that "the concept of employee assistance began in the 19th century with rudimentary efforts to help predominantly single female workers". The movement to assist employees was expanded significantly in the early 1940s with the founding of Alcoholics Anonymous (AA) and in response to other drivers.[7,15,16] Possible future drivers are highlighted in Table 1. During the first 50 years of employee assistance, its value was recognised to ensure employees' well-being,[4] and it expanded at a steady rate.[16] During the 1960s and 1970s, organisations became more interested in why the job performances of previously well performing employees were deteriorating. Subsequently, the employee assistance services were expanded to cover additional problems employees might have.[17–19]

A new dimension was created when the Employee Assistance Professional Association[13] stated that the EAP was intended for all employees of the organisation/authority, as well as their family members, to assist with a variety of problems. Even more significant trends followed when it was proposed that the EAP should be tailored to assist supervisors/managers, for example how to deal with a troubled employee.[11]

The evolvement of employee assistance services using the above-mentioned holistic approach to address employees and their problems[4] creates a dilemma by raising the question of whether an EAP and its services will be applicable and beneficial to the healthcare industry in South Africa, taking into consideration the current demands on the healthcare industry. Examples which could challenge EAPs in South Africa today and into the future might include:

- the changing healthcare needs of employees particularly in the light of the AIDS pandemic which is creating serious concerns for employers;
- major sociopolitical changes related to healthcare, for example the possible implementation of the National Health Insurance;
- providing care for migrant workers' families;
- using healthcare provision in the workplace as a labour relations issue; and

• coordinating restructuring and downsizing of health-care institutions.

Models and elements of EAPs

The elements of EAPs with the broadened dimensions referred to above can be summarised into "core technologies of the EAP"[20] within two main categories of activities:

- those focused primarily on the support and/or services provided for the troubled employees; and
- those focused on the supervisory or management-related issues in order to assist supervisors to manage troubled employees and EAP-related issues.

Several reports state that no standardised definition or model is available for an EAP,[4,7,10] although they agree that common characteristics inherent to the EAP have been observed. EAPs are considered unique to each workplace.[21] When an organisation has decided to develop its own EAP, the most appropriate EAP principles and services should be adapted according to the needs of that organisation.[22] Table 2 lists the perspectives that can be used as motivation for the establishment of an EAP.[11] A formal EAP consists of a strategy, structures and resources within an organisation to render a range of services e.g. short-term counselling services to an organisation as well as referring employees for specialised services as deem necessary. The referral of an employee to a formal EAP is usually based on the recognition of the deterioration of job performance of the employee by a supervisor. However, employees should be able to use the services voluntarily as well.[22] These services could be rendered by an in-house service provider, an outside service provider or a combination of both.[4,23-25]

Table 2. Perspectives to adapt an EAP for an organisation

Perspective	Description
(a) Philosophy	To rehabilitate previously proven and trained employees rather than to terminate their services.
(b) Purpose	To assist employees and their family members who may develop work or health problems that could affect their work performance.
(c) Humanistic approach	A general desire to help employees and to reduce potentially damaging effects of work on their health.
(d) Improvement of efficiency	The calculation of financial return.
(e) Political considerations	The control of employees' attitudes and behaviour.
(f) Promoting excellence	The striving towards excellence in the treatment of employees as part of the development of a culture of excellence within the institution.
(g) Improving industrial relations	A trend towards individualism in employment.

(Adapted from Kirk[11])

It is evident that no one EAP is managed in the same manner. However, there are generic steps[6] within an EAP that can be adapted after proper needs assessment has been conducted (Table 3). In order to refer the employee to the EAP, it is important to have a formal referral system in place so that everybody is treated in the same manner. Once the employee is entered into the EAP, establishing follow-up procedures is crucial to monitor the progress of the employee even after the employee is discharged from the EAP.

Evaluation of EAPs

Challenges to evaluating EAPs

Csiernik[26] conducted a study on EAP evaluations in the 1990s and concluded that "the 1990s did not

"It is . . . important that organisations that provide EAPs give serious consideration to their evaluation . . ."

Table 3. The seven generic steps to be followed when an EAP is in place[6]

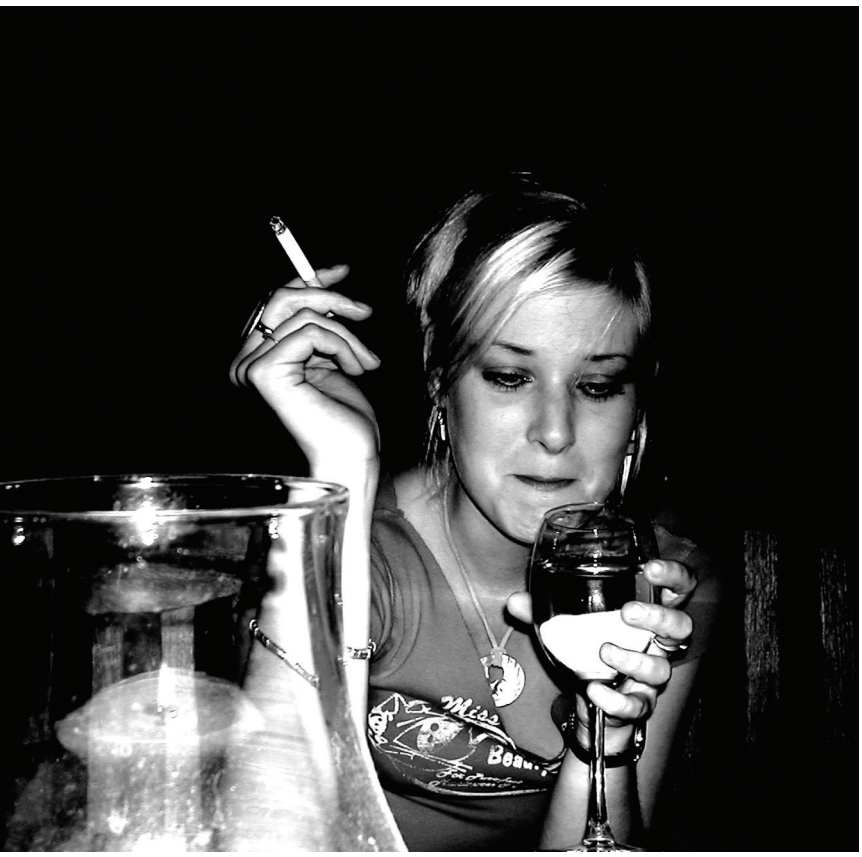
Steps	Purpose of each specific step
Step 1: Recognition of a problem	A problem is identified by a supervisor/co-worker, and/or the employee him-/herself acknowledges the existence of a problem that affects his/her health and performance in the workplace.
Step 2: Discussion with employee	The supervisor and/or the EAP coordinator discuss options with the employee regarding the EAP benefits and motivate/convince the employee to be entered into the EAP.
Step 3: Initiation of the formal referral system	The troubled employee is referred according to pre-existing criteria to the EAP and the employee accepts responsibility regarding the usage and benefits of EAP.
Step 4: Utilisation of the EAP services	An individual treatment plan consisting of all the necessary elements is developed for each employee and is implemented within a pre-determined time frame.
Step 5: Periodic follow-up	Follow-up of the employee according to a pre-determined schedule while still employed within the organisation. This should be a continuous process even after completion of Step 6.
Step 6: Formal discharge from EAP	When an employee has completed the relevant treatment plan as stipulated, he/she will return to full work status and/or the organisation will continue with the necessary actions such as disciplinary procedures, redeployment, retirement options, and placement in a wellness programme. The employee should not be seen as a "completed" case/client, but necessary preventative measures should be put in place to avoid a relapse.
Step 7: Continuous evaluation	A formal evaluation process should be in place to evaluate the quality of services provided and/or the entire process.

provide an extensive EAP evaluation legacy". Based on this, it is possible that conventional performance measurement tools are not appropriate to show the success of EAPs. One view is that although EAPs can be classified as a type of healthcare provision they can more specifically be categorised as behavioural healthcare and their quality should therefore be measured accordingly.[27] Courtois[28] described quality in healthcare and the issues around it as "…a subject of increasing complexity, confusion, and public interest". Sharar[29] has also identified the important question of how to gather "applicable evidence", and how to change some of the decisions made by EAP practitioners. Buon and Taylor[30] reviewed the EAP markets in the United Kingdom and Europe and concluded that quality is a major consideration when entering into a contract with an EAP provider.

The ultimate goal is to manage quality, but it cannot be managed until there is a way to measure it, and one cannot measure it until it can be monitored. Therefore, systems should be put in place to measure and to monitor processes and services before actions can be taken to improve the actual quality. The matter regarding measurement of the quality of healthcare and which methods to use, is highly debatable.[29,31] One of the major issues is whether healthcare should be considered as a business process and evaluated

accordingly, or should healthcare provision be seen as just a social responsibility and not be measured? Chen et al[32] stated that healthcare providers are moving towards "multi-dimensional performance assessment systems", and concluded that the Balanced Scorecard method, as recognised in the business field, can be used in a hospital performance measurement system. The initial overview on the Balanced Scorecard approach in the literature was simple but it did not "quantify fully the radical approach that the Balanced Scorecard provides".[33] Is the movement more towards a business model when it comes to evaluating the quality of healthcare provision in an EAP, or are there too many soft issues in an EAP that cannot be measured?

In the EAP, the tendency is to focus on the health outcome of the troubled employee, which is usually one of the objectives of the EAP, although it is only one aspect to be considered for evaluation. Courtois[28] emphasised that an EAP has two clients, namely the participant and the employer, so the quality of an EAP should be evaluated from both perspectives. However, the measurements for EAP practice performance have not yet been standardised.[34]



Lloyd et al[35] arguing that the efficiency of EAP providers should be demonstrated, noted that this is hampered by ethical problems. However, due to the escalation in biomedical knowledge, the number of methods that can be used to measure, improve and manage quality in healthcare, has increased.[36]

Suggested evaluation methods

As a first step in evaluation and the quality improvement process, the programme can be audited according to standards that have been set.[37] The process can then be taken a step further by having it accredited. Accreditation of EAPs is a worldwide phenomenon,[38,39] the benefit of which according to Marcellissen and Weel[40] is that the unit or a programme "is capable of delivering good services for which it is responsible…". Several accreditation programmes for EAPs exist internationally but there is some indecision and debate on the practical implications of accreditation, such as what should be accredited and whether accredited EAPs are better than non-accredited EAPs, making it difficult to use as the method of choice.[38,39,41,42]

The National Business Group on Health[43] noted that EAPs are faced with the challenge to develop standardised evaluation metrics as EAPs do not consistently use quantitative benchmarks. The EAP Metrics Subcommittee recommended an initial set of metrics for inclusion in evaluations, such as utilisation, impact assessment and financial return. However, such metrics may not provide enough information as other researchers have suggested a more comprehensive and balanced approach to the evaluation of EAPs. It is suggested[44-46,26] that EAP performance measurement would demand a balanced evaluation between various components consisting of needs assessment, input measures (measures of the hazard burden), structure and process measures (leading indicators), and outcome measures (lagging indicators).

Another well-recognised quality measurement tool is the previously mentioned Balanced Scorecard method.[46] It focuses on four dimensions:

- financial perspective;
- internal business processes/internal management;

"Another well-recognised quality measurement tool is the . . . Balanced Scorecard method."

• customer/service user; and
• learning and growth/continuous improvement.

Chen et al[32] conducted a study in Japan on the utilisation of the Balanced Scorecard to measure the performance of Japanese hospitals, concluding that the Balanced Scorecard method could be used effectively as a framework to organise indicators as a means of improving hospital performance.

CONCLUSIONSANDRECOMMENDATIONS

The roles and delivery opportunities of EAPs have changed since its inception and will probably undergo more change in future. Although little evidence of EAPs in the healthcare sector in South Africa was found, healthcare institutions cannot ignore the usefulness of an EAP as a liaison tool between employers and employees to create a much needed communication system between stakeholders. Within this system EAP professionals provide the means for bridging the gap between work, health and personal life. However, institutions should ensure that services of the highest quality can be rendered.

Three recommendations regarding the evaluation of EAPs can be made. Firstly, organisations need to identify the reasons for the establishment of an EAP within an organisation, and how the services should be delivered in order to align them with organisational strategies. The question can be asked whether EAP service providers have the necessary objectivity to evaluate the quality of services or should a system using external surveys such as the accreditation of programmes be used to ensure a more credible quality assurance method. Such a quality assurance method could initiate a more comprehensive surveillance system of EAP providers in South Africa. Alternatively, it is time for trade unions to become more actively involved to ensure quality occupational health service delivery to employees other than concentrating on wage negotiation in the work place.

More extensive research is necessary in South Africa to get an insight into the perspective of supervisors, management and EAP practitioners in the healthcare sector as to what is needed for a healthcare institution in terms of an EAP. Further research could also contribute to effective and efficient organisational EAPs in the healthcare sector including the determination of the most appropriate model for the South African healthcare industry.

ACKNOWLEDGEMENT

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Lessons learned

1. An EAP can be an important tool to assist employees and their families to deal with personal as well as work-related problems.
2. Healthcare workers are the most valuable resource of a healthcare institution and an EAP needs to be adaptable to address the unique needs of heath care workers.
3. Generic steps should be followed within the EAP to adhere to the core technologies of an EAP, but such an EAP can be integrated to provide comprehensive care to employees.
4. It is essential that EAPs in healthcare institutions be evaluated as part of the quality improvement process.
5. A balanced approach is needed for the evaluation of an EAP in terms of quality, with the focus on the outcome of the employee as only one component of several related components.

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A survey of work, health and safety conditions in small-scale garment enterprises in Gaborone, Botswana

Abstract

Small-scale enterprises (SSEs) are the fastest growing economic sectors globally and they contribute substantially to the economic growth of a country. Occupational health and safety (OHS) conditions in SSEs tend to be neglected and very poor. In Africa, there is paucity of data about the health and safety conditions of these businesses. This study was conducted to provide an understanding of the work environment and OHS conditions in small-scale clothing industries in the Gaborone area of Botswana.

A total of 36 garment producing small-scale enterprises employing 100 people were surveyed. Findings confirmed that working in small-scale garment manufacturing enterprises is unsafe, and the occupational health and safety conditions are poor thus predisposing workers to the risk of work-related injuries and diseases.

Key words: occupational health and safety conditions, small-scale enterprise, garment industry, Botswana

Lindiwe I Zungu,
Department of Health Studies,
University of South Africa

SG Gabe,
University of Limpopo (Medunsa),
School of Public Health

Corresponding author:
Prof. Lindiwe I Zungu,
Department of Health Studies,
University of South Africa,
PO Box 392,
Pretoria
0003.
E-mail: zunguli@unisa.ac.za

Introduction

In most developing countries small-scale enterprises (SSEs) and the informal sector constitute one of the fastest growing economic sectors and represent the most realistic form of employment creation.[1] The Government of Botswana has recognised the importance of SSEs in fostering economic growth and job creation through initiatives and policies, such as the Botswana Enterprise Development Programme and the financial assistance policy, in its effort towards poverty eradication[4] and encouraging manufacturing and self employment. These have contributed to the growth of SSEs in textiles, auto repairs, metal works and horticulture.

Various definitions of SSEs exist. Based on the number of persons employed, SSEs consist of more than six but less than 20 people and are distinguished from informal enterprises by virtue of registration with the national department of labour and inclusion under its labour legislation.[2] Alternatively, the number of employees, the annual turnover of the business and its location have been used jointly to exclude individuals who are employed in a domestic environment.[3] The Botswanan Government classifies micro enterprises as employing between 1 and 6.[4]

OHS conditions in SSEs tend to be neglected and very poor.[9] They have problems fulfilling legal requirements for the control of OHS due to their limited resources[10-12] and are inclined to be concerned with survival rather than improving OHS, resulting in high workplace health risks for the large number of people working in these enterprises. SSE workers have low awareness of OHS problems and the ways to improve their working conditions.[13] Frequently, little attention is accorded to OHS conditions in SSEs and their compliance with statutory safety requirements, due to shortages of factory inspectorate staff.[5] In Canada for example, small businesses employed about 48% of the total labour force in the private sector in 2006 and accident fatalities were higher among them, raising questions regarding the OHS conditions in their workplaces.[6] Recognising similar needs, the Africa Joint Effort, between the International Labour Organization (ILO) and the World Health Organization, on occupational health and safety (OHS) among vulnerable groups of workers such as those in SSEs was signed in 2003. It emphasised the need to address health and safety issues associated with these workers.[8]

In Africa, a plethora of anecdotal information regarding OHS problems in SSEs exists, but accurate and quantitative information about them is seriously lacking.[1] This is a problem in Botswana. According to the Botswanan Factories Act, factory inspections should be conducted in order to ensure good working conditions, safeguard against occupational accidents, diseases and injuries and identify occupational hazards and related risks so as to enable control measures to be put in place.[7] However, although SSEs in Botswana are registered, there are no OHS reporting systems in place making it difficult to quantify and monitor accidents, injuries and the prevalence of work-related diseases that occur in these workplaces.

Therefore, protecting the health of this substantial portion of the working population becomes not only a public health challenge, but a problem which calls for more specialised studies to inform us about their OHS. To this end, a study was conducted to provide an understanding of the work environment and OHS conditions in small-scale clothing industries in the Gaborone area of Botswana.

Methodology

A quantitative descriptive cross-sectional design was used, due to the volatility of small businesses and because it would

be simple to carry out and inexpensive. A cross-sectional design was successfully used to investigate cotton fabric dust exposure in a Lesotho garment factory[14] and OHS conditions in small, medium-sized and informal sector enterprises in Vietnam.[15]

Study setting

The study setting was Gaborone, which had SSEs manufacturing textile products like school uniforms, protective clothing, fashion garments, bedding and knitwear. They operated from designated industrial cluster zones and although required to be registered with the Department of Labour[7] their working arrangements and work processes remained informal and unorganised. This was mostly due to the owners being workers themselves and relatives often being employed to work in their businesses. The exact number of SSEs was unknown as no valid statistics were available. Most were concentrated in the cluster areas, and some in industrial zones and residential premises.

Target population and sample

The target population included all SSEs engaged in manufacturing clothing in Gaborone. An SSE was defined as an enterprise employing from one to twenty persons and registration was not a criterion for recruitment. No reliable list of clothing manufacture SSEs existed from which to select a random sample. The City Council's rates payment register did not list names of the actual occupiers and business activities were not be indicated. Most of the SSEs were not incorporated in terms of the Companies Act,[4] and those registered as factories as required by the Factories Act,[7] could not be accessed if they had moved or been liquidated. Using purposive sampling, the researchers identified 36 eligible SSEs in the designated City Council and industrial zones and in commercial areas of Tlokweng and Mogoditshane, as their concentration facilitated access. Consent to participate was given by all the owners/managers of these SSEs, thereby ensuring as large a sample as possible and reducing selection bias.

Table 1. Socio-demographic characteristics of employees (N=110)

Number of employees per SSE (n=36)	Per enterprise (n)	(%)
1 – 2	21	58.3
3 – 4	11	30.6
5 – 6	2	5.6
7 – 8	2	5.6
Total	**36**	**100**
Gender of persons employed (n=110)		
Females	74	67.2
Males	36	32.7
Total	**110**	**100**
Age group of persons employed (n=36)		
20 – 25	20	55.6
30 – 40	12	33.3
50 – 55	4	11.1
Total	**36**	**100**

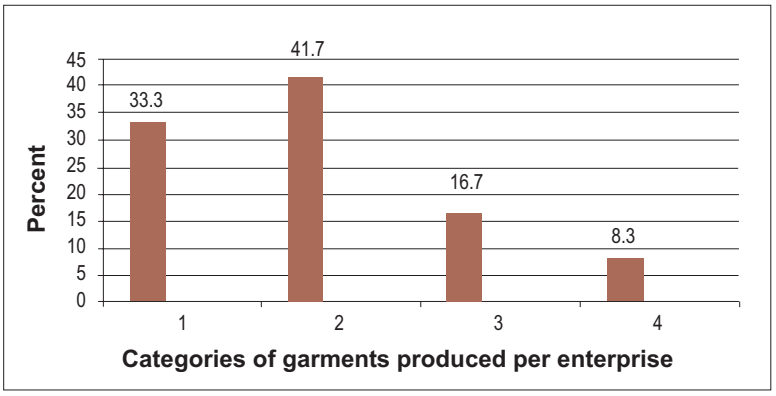

Figure 1. Number of categories of garments manufactured per enterprise

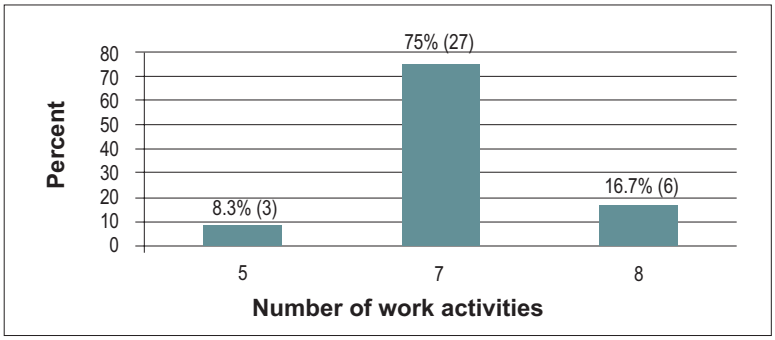

Figure 2. The number of work activities per enterprise

Data collection

A standardised OHS checklist designed by the ILO's guidelines on Safety, Health and Working Conditions inspections)[16] was used for inspecting each enterprise, which should have enhanced the reliability and validity of the instrument. The standardised checklist used was piloted using one enterprise and aspects that were not relevant were removed. A checklist is a practical instrument for investigating workplace health and safety[17,18] and ideal for identifying and determining compliance to set standards in OHS. There were six sections, namely general information of the enterprise, general workplace conditions, physical and environmental conditions, provision of personal protective clothing and equipment, compliance to OHS standards and ergonomic and psychosocial conditions; the latter will be presented in the next paper.

Records were also observed during inspections and employees available in the departments provided information required for clarification purposes. The risk of bias was also minimised by validating the observed practices with employees who were present during the inspections.

Ethical approval was obtained from MEDUNSA Research and Ethics Committee prior to the execution of the study. Permission was obtained from the senior management of the study sites and management of the SSEs. Ethical principles were adhered to during the research.

Results

Socio-demographics of employees

Table 1 shows the socio-demographics for the 110 persons employed in the 36 SSEs. The average number of employees was three.

Description of products manufactured

Four categories of garments were manufactured: fashion garments; school uniforms and accessories; protective clothing; seat covers, pillows, bedding and curtains. Figure 1 shows the number of categories, i.e. product range.

Nature of work processes involved in garments manufacturing

Activities in the production process were grouped into eight categories: pattern drafting, cutting, stitching, needle work, pillow and cushion stuffing, pressing, general finishing and delivery to customers. Most SSEs used seven activities (Figure 2).

The production process was sequential. Fabric was cut, stitched and finished and packaged for distribution. During cutting, fabric was laid on a table and either a paper pattern was placed on it, marked and then cut using hand-held shears or powered cutting knife or the tailor drew the pattern straight on the fabric using chalk before cutting and bundling for sewing. Stitching involved a machinist sewing the pieces together and applying embroidery where required using high-speed electric sewing machines. During finishing, loose threads were removed with trimmers, or more commonly, small embroidery scissors, loose ends were hand-sewn and hemmed using needles. Garments were then ironed, packaged or hung-out for delivery. Domestic pressing irons and ironing boards were mostly used.

Size of the work areas

Work areas were classified as small (10-19 m^2), medium (20-39 m^2) and large ones (40-60 m^2) and the distribution is illustrated in Figure 3.

Hours of work

Twenty-nine (80.6%) worked the required daily eight hour shift, while five (13.9%) operated for nine hours and only two (5.6%) extended the daily hours of work to 10 hours, yielding a mean daily hours of production of 8.25 (SD = 0.554). All utilised a five-hour morning shift; generally from 8 am to 1 pm with a one-hour lunch break. Most (75%) worked three hours in the afternoon (2 to 5 pm), compared with seven (19.4%) and two (5.6%) that put in four and five hours respectively. None reported night shift work. Generally workers were not offered short breaks to stretch and rest their muscles. Only three (8.3%) allowed a 15 minute break in the morning. The number of days worked per week was not established.

General workplace conditions of SSEs

The seven general workplace conditions evaluated are presented in Table 2. A "Yes" response indicated that the

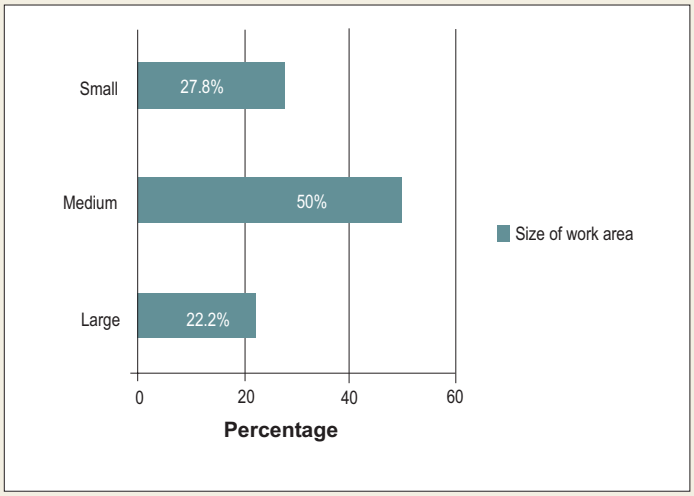

Figure 3. Distribution of enterprises according to size of work area

". . . a plethora of anecdotal information regarding OHS problems . . . exists, but accurate and quantitative information . . . is seriously lacking."

measure was in place, acceptable and in good working condition, "No" that it was not in place, was needed and required improvements, and "Not applicable" that it was not needed, not relevant or was a missing value.

Physical and environmental conditions

Table 3 shows the results for the 13 variables used to assess the physical and environmental conditions in the workplaces inspected. Response categories were the same as for the previous section.

Availability of emergency services

The results for emergency exits, emergency signs, fire extinguisher, first aid kits, a trained first aider or a trained health and safety representative available onsite are provided in Table 2.

Protective clothing and equipment

Four measures provided data to evaluate the utilisation of personal protective clothing and equipment (PPE) to maintain and improve health and safety of workers in SSEs (Table 4).

Table 2. Distribution of results for general workplace conditions (N=36)

General workplace conditions	Yes n (%)	No n (%)	N/A n (%)	Total n (%)
Provided at least 2 emergency exits with visible emergency signs	2 (5.6)	34 (94.4)	–	36 (100)
Escape ways are free of obstacles	12 (33.3)	24 (66.7)	–	36 (100)
Adequate clearance to or accessibility for performing tasks	24 (66.7)	12 (33.3)	–	36 (100)
Floors and walk ways are even and not obstructed	23 (63.9)	13 (36.1)	–	36 (100)
Ceiling adequately raised to reduce noise reflection	27 (75.0)	9 (25.0)	–	36 (100)
Provided enough appropriate fire extinguishers	3 (8.3)	33 (91.7)	–	36 (100)
Provided first aid kit and first aiders	–	36 (100)	–	36 (100)
Trained health and safety representatives	–	36 (100)	–	36 (100)

Table 3. Distribution of results for physical and environmental conditions (N=36)

Physical and environmental conditions	Yes n (%)	No n (%)	N/A n (%)	Total n (%)
Convenient storage for tools, raw materials and products provided	25 (69.4)	11 (30.6)	–	36 (100)
Wastes and other unnecessary materials are cleared from workroom	13 (36.1)	23 (63.9)	–	36 (100)
Adequate waste bins for different types of wastes are provided	20 (55.6)	16 (44.4)	–	36 (100)
Proper drainage for waste water provided	26 (72.2)	–	10 (27.8)	36 (100)
Entangled electrical wiring connections prevented	13 (36.1)	23 (63.9)	–	36 (100)
Switch boxes are covered	35 (97.2)	1 (2.8)	–	36 (100)
Increased natural ventilation by having more windows or doors	23 (63.9)	13 (36.1)	–	36 (100)
Provided artificial ventilators, electric fans, or air conditioners to have good airflow	11 (30.6)	25 (69.4)	–	36 (100)
Properly located machines or skylight positions to improve daylight conditions	22 (61.1)	14 (38.9)	–	36 (100)
Improved general artificial lighting or provided spot lighting	13 (36.1)	23 (63.9)	–	36 (100)
Maintain and adjust machines and tools to reduce noise	20 (55.6)	16 (44.4)	–	36 (100)
Control hazards from neighbouring sites	1 (2.8)	20 (55.6)	15 (41.7)	36 (100)
Remove dust using local exhaust	16 (44.4)	20 (55.6)	–	36 (100)

Table 4. Distribution of results for personal protective clothing and equipment (N=36)

Personal protective clothing and equipment	Yes n (%)	No n (%)	N/A n (%)	Total N
Provided protective overcoats and aprons	2 (5.6)	34 (94.4)	–	36 (100)
Provided masks, ear plugs, thimble and gloves	–	36 (100.0)	–	36 (100)
Maintained and replaced protective equipment regularly	2 (5.6)	34 (94.4)	–	36 (100)
Used built-in guards or other built-in hazard reduction controls wherever possible to replace personal protective equipment	6 (16.7)	23 (63.9)	7 (19.4)	36 (100)

". . . workers in the garment cutting sector were exposed to fabric dust . . . risk of accidents, injuries and bruises . . . and MSDs . . ."

Discussion

Socio-demographic characteristics

Small numbers were employed, ranging from 1 to 8 compared with the 1 to 20 stipulated in the study's operational definition. The small size also indicates these SSEs lack the organisational characteristics of formally run enterprises, which could have implications for OHS issues.

The disproportionate gender distribution is consistent with the findings of the 2007 Informal Sector survey in which females owned 67.6% of informal businesses.[19] A positive finding was that child-labour, a common problem in Sub-Saharan Africa[20], was not being used.

Types of products and nature of work processes

Most produced several products simultaneously or alternately depending on market conditions. Because of the small number of employees, most carried out all the activities required to produce a finished product. Combining a wide range of products and switching products requires constant changes in work organisation and can also mean that workers do not benefit from specialisation. Changes may imply new work processes accompanied with a heavier workload exposing workers to fatigue, stress, accidents and injuries and increased risk of musculoskeletal disorders (MSDs).[21,22] However, multiskilling can also benefit workers and businesses as it introduces flexibility allowing easier responses to absenteeism, increases or decreases in production and workers to develop more skills.[23]

A number of hazards are associated with the work processes used in these SSEs. A similar study found that workers in the garment cutting sector were exposed to fabric dust during laying of fabric and cutting, risk of accidents, injuries and bruises from handling shears or using powered cutting machines, and MSDs due to prolonged standing and bending especially when the cutting table was not of appropriate height.[24] Machinists were exposed to MSDs due to repetitive, labour-intensive work and they adopted poor postures due to inappropriate seating and table heights.[24] During steam ironing, workers were exposed to vapour from formaldehyde used in finishing fabrics, burns and MSDs due to prolonged standing and bending over low tables. The study findings on hazards concur with similar South African studies among domestic, healthcare and office workers.[25,26]

Size of work area

The majority of SSEs operated in medium-sized work areas with an average of three employees per enterprise.

Hours of work

Workers operated for 8 to 10 hours, usually with only a one-hour lunch break, doing repetitive and high-paced work (based on observations of the work processes). This can lead to exhaustion and MSDs as highlighted in similar

studies conducted among machinists and other workers in the garment industry and other sectors.[22,24,25]

General workplace conditions and physical and environmental conditions

Over a third had inadequate clearance to or accessibility for performing tasks, and uneven floors and unobstructed walkways, so did not provide conditions to prevent people from tripping, falling and sustaining injury. There were some positive efforts to provide acceptable physical and environmental conditions of OHS in the workplace. There was proper waste water drainage and good storage of tools, materials and finished products. Half ensured that machinery and equipment was properly maintained to reduce noise, and had adequate waste bins. There was proper housekeeping by cleaning and removing wastes from the workrooms in 64% of the SSEs.

However, other measures were poor. Few had artificial lighting, ventilators and local exhausts. While the majority used correct measures to improve daylight conditions, most did not have artificial lighting or spot lighting on sewing machines, which was problematic given that workers performed fine and detailed sewing tasks and hand needlework.

Natural ventilation was inadequate in most, due to small sized windows and single doors, so air circulation was poor. Nor did they provide fans or air conditioners to mitigate excessive heat conditions in very tight and congested working environments. There was very little use of local exhaust to extract dusts produced by handling, cutting and sewing fabrics. All operations were undertaken in small and overcrowded single-room work areas. A study on respirable cotton fabric dust in a garment factory in Lesotho revealed that powered fabric cutters and sewing machines emit large amounts of fabric dust and dye residues which can cause workers serious respiratory problems including long-term lung disease, a situation that is exacerbated by poor air quality.[14] Given the use of power cutters and sewing machines together with the poor ventilation, the workers in this study were likely to be exposed to similar risks. The major OHS problems in the clothing industry are related to the general conditions in the work environment whereby businesses operate in poorly designed, inadequately ventilated and maintained buildings in which employees are exposed to excessive heat or cold and very poor lighting.[27] Similar conditions were found in these SSEs.

Emergency preparedness

Emergency preparedness was very poor. In two thirds, the escape ways were not free of obstacles, only two had two emergency exits with visible emergency signs, few had a fire extinguisher, and none had a first aid kit or a first aider available. Fire, accident and injuries risk exist in these SSEs due to the use of flammable materials (e.g. fabrics and paper patterns) and electrical equipment (e.g. irons, powered cutting machines, kettles and stoves for cooking food). Cotton fabric wrapped about workers' fingers indicated the occurrence of injuries and the need for first aid. Such injuries are common among workers in the garment manufacturing industry.[22]

The lack of emergency measures was also a concern since many were exposed to hazards from neighbouring sites and were unable to control them. These were wood dust from carpenters, lead exposure from battery charging and scrapped batteries, excessive noise levels from grinders cutting steel, welding fumes, flying particles of wood and metal chips, and sharp steel pieces abandoned in communal areas that could cause serious foot injury.

Use of personal protective clothing

The use of PPE and equipment was poor. Skin contact with dye dusts produced by cutting and sewing machines can occur if PPE is not used[14] and these have been associated with an increased prevalence of eczema. The lack of overcoats and aprons meant that workers were in contact with such dusts during cutting, sewing and handling of textile wastes, predisposing them to health risks. A high proportion did not have built-in guards or other hazard reduction controls. Hand sewing using needles and pins was a major activity yet none of the workers used thimbles to protect against needle pricks, thereby exposing them to the risk of viral transmission of blood-borne diseases such as Hepatitis B and HIV. The ILO has consistently warned that due to the labour-intensive nature of their work and poor OHS standards,[28] workers in small businesses or informal economy remain more vulnerable to HIV infection than those in the formal sector. These findings show gaps in OHS preventive and control measures in SSEs.

Conclusions and recommendations

Findings confirm the prevailing view that the work environment and OHS conditions in garment manufacturing SSEs in Gaborone are poor and unsafe, thus predisposing workers to the risk of work-related injuries and diseases. Recommendations from the survey follow.

- Basic training should empower SSEs to recognise the benefits of adopting OHS culture, and induce them to provide basic OHS needs such as first aid kits, fire-fighting equipment, PPE and supervision in their use, regularly maintain machinery and equipment, provide additional short rest breaks and fit spotlights on machine tables to facilitate detailed work.
- Given the predominance of women and that half were between 20 to 29 years old, measures in support of maternity protection as per the ILO Convention No. 183 of 2000 and C156 on workers with family responsibilities are needed.[29,30]
- The government of Botswana should play an active role in enforcing compliance with OHS good practices by conducting regular inspections in these SSEs and establishing a system of monitoring compliance thereof.
- Further studies to identify strategies for appropriate interventions and improvement of SSEs' OHS practices are of paramount importance.

Lessons learned

- OHS conditions in these small-scale garment manufacturing enterprises were poor.
- The work in these SSEs was highly repetitive, labour-intensive and requires prolonged standing and bending.
- The nature of the work could expose these workers to a risk of fatigue, stress, accidents, cuts, burns, MSDs, respiratory problems due to inhalation of cotton dust, and skin problems due to contact with dyes and formaldehyde.
- Improvement of working environment and OHS conditions is required.

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Metal toxicity awareness

Volker Schillack – Ampath Esoteric Sciences, E-mail: schillackv@ampath.co.za
Dr Murray Coombs – SASOM Chairman Scientific Committee on Biological Monitoring, E-mail: mcoombs@iafrica.com

Introduction

The past few years occupational practitioners, scientists and environmentalists have witnessed an increase in the concerns around the toxicity of metals. Toxic metals have become a serious concern for our health. Metals like aluminium (Al), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), nickel (Ni), palladium (Pd), platinum (Pt), silver (Ag), thallium (Tl), tin (Sn), thorium (Th) and uranium (U) can destroy important enzyme systems and may cause preliminary ageing, sickness and even cancer and ultimately death.

The air we breathe, the water we drink and the food we consume, all contain higher amounts of toxins than at any other time in human history. Essential metals sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), manganese (Mn), copper (Cu) zinc (Zn) etc. generally are not considered toxic. However, in a few cases, like manganese, a mineral element is both nutritionally essential and potentially toxic. The Greek's direct translation of the word manganese meaning "magic" is appropriate since the varied effects of manganese deficiency and toxicity in living organisms are still not well understood.[1,3]

Function of manganese

Manganese (Mn) has an important role as a component of some enzymes and an activator of others in a number of physiological processes.[1,2,4] Anti-oxidant function, metabolism, bone development and wound healing are some of the known functions of manganese.[1,2,5-7]

Manganese – nutrient interaction

Despite the fact that the specific mechanism for absorption and transport of Mn is unkown, there is some indication that the absorption and transport pathways of iron and manganese are common.[1] Thus, it is suggested that an individual's iron status can affect manganese's bio-availability. A decreased MnSOD activity in white blood cells, which started a reduction in manganese nutritional status was associated with supplementation of 60 mg of iron per day over a four month period.[8]

Manganese – deficiency

Animals with manganese deficiency have signs of impaired growth, impaired reproductive function, skeletal abnormalities, impaired glucose tolerance and altered carbohydrate and lipid metabolism.[1] In humans these deficiencies are less clear.[1,4,6]

Manganese and chronic diseases

Certain chronic diseases (osteoporosis, diabetes mellitus and epilepsy) have been associated with low dietary intake of manganese and low blood or tissue levels.[1,2] However, there is currently no evidence that low manganese causes disease or whether low manganese nutritional status contributes to certain disease progress.[1]

Manganese toxicity

Inhaled manganese: Multiple neurologic problems can occur as a result of manganese toxicity.[1,3,5] Inhaled manganese dust is a well-known occupational hazard.[1-3,5] Before being metabolised by the liver, the inhaled manganese is transported to the brain, unlike ingested manganese.[1,9] Manganese toxicity usually appears slowly over months or years.[1,2] Permanent neurological disorders following extreme exposure can result. The symptoms, such as tremors, difficulty walking and facial muscle spasms, are similar to those of Parkinson's disease.[1,2,10] They are usually preceded by psychiatric symptoms that include irritability, aggressiveness and hallucination.[1,2,10]

Indigested manganese: Limited evidence is available that ingested manganese may lead to the same symptoms as for inhaled manganese.[1]

Individuals with increased susceptibility to manganese toxicity

Chronic liver disease: Eliminated of manganese from the body is mainly via bile. Impaired liver function may lead to decreased manganese excretion and thus contribute to neurological problems and Parkinson's disease-like symptoms.[1,2]

Conclusion

Manganese is an essential metal that may have life-threatening consequences at low levels of absorption and potentially toxic consequences with irreversible damage at high levels. It is a metal that for years has been studied and underestimated in its function in the human body. There is no specific diagnostic test for manganese poisoning and the diagnosis depends on a combination of characteristic neurological features and an occupational history of exposure measurements.

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The infertile-worker-effect in a South African population

Abstract

Objective: **To assess whether the infertile-worker-effect exists in a South African population.**
Methods: **Cross-sectional data were collected on 1121 reproductive age women in Potchefstroom. A t-test was used to assess for significant differences in gravidity and parity by current employment status. Sensitivity analyses (using proportional hazard models for the relationship between TTP and employment) were performed to determine if the measure of effect was similar for all women with TTP values and those having their first pregnancy.**
Results: **Currently employed women were not significantly different from unemployed women for gravidity (2.3 and 2.3 respectively; p=0.677) and parity (1.9 and 2.1 respectively; p=0.094). The adjusted hazard ratios for TTP and employment were similar for all women with TTP values and those having their first pregnancy.**
Conclusions: **There is no evidence of the infertile-worker-effect in this South African population, probably due to a high unemployment rate, the number of women employed in the informal sector and extended family support structures.**

Key words: South Africa, women, employment, fertility, infertile-worker-effect, time-to-pregnancy

B Bello,[1,2,3]
D Kielkowski,[3]
D Heederik,[1] K Wilson[3]

[1]Division of Environmental Epidemiology, Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands
[2]Reproductive Health and HIV Research Unit, University of Witwatersrand, Johannesburg, South Africa.
[3]National Institute for Occupational Health, Johannesburg, South Africa

Corresponding author:
Braimoh Bello,
Reproductive Health and HIV Research Unit,
University of Witwatersrand,
Hugh Solomon Building,
Cnr Esselen Street and Klein Street,
Hillbrow,
Johannesburg 2001.
Tel: +27 (0)11 989 9252;
Fax: +27 (0)11 989 9294
E-mail: bbello@rhru.co.za

Introduction

Currently in South Africa more women are entering the workplace. As work and fertility can become competing domains for women, we explored the phenomenon of the infertile-worker-effect in a developing setting such as South Africa. Fertility in this paper refers to the biological capacity to reproduce and the actual production of livebirths.

The infertile-worker-effect (also called the "reproductively unhealthy worker effect") describes a phenomenon where less fertile women are more likely to remain in the workforce than more fertile women, resulting in the employed female population containing a higher proportion of infertile women than the unemployed female population.[1-3] This occurs because fertility and employment are likely to be related in a bi-directional manner. On the one hand, women who are pregnant or nursing babies are more likely to take time away from work than those who are not.[1,3] In this way, fertility affects employment. On the other hand, career-driven women who want to remain in paid employment may have reduced fertility intentions,[4] and so employment affects fertility.

The infertile-worker-effect sheds light on the behavioural relationship between women's work and their reproductive health. Its understanding is important for the design, analyses and interpretation of occupational reproductive health studies as well as for health policies for employed women. The infertile-worker-effect can be assessed by carrying out an analysis to determine if the employed group have higher fertility than the unemployed group. A t-test for significant differences in mean number of children (or a chi-squared test of proportions of infertile women) between both groups can be used. If the infertile-worker-effect exists, then unemployed women would have a significantly higher number of livebirths than employed women. Fertility – for example time-to-pregnancy (TTP) – studies that compare employed to unemployed women are prone to bias due to the infertile-worker-effect where it exists, leading to a spurious conclusion that the employed group is less fertile. For such studies, the potential bias can be solved by comparing employed women in a particular exposure group to employed women in a reference group. Another method is by restricting analysis to women conceiving their first pregnancy – i.e. those who have not yet had children and been pressured to leave employment.[1,2] In the presence of the infertile-worker-effect, the measure of effect obtained using the data from all women with TTP value would be different – biased – from that obtained using women having their first pregnancy. A

Photo: Kerry Wilson/NIOH

The majority of women in South Africa do not have access to formal maternity leave. They often leave their children with family members and return to work in a short time after delivery

similar measure of effect from both analyses indicates the absence of any such bias.

A study was conducted to assess whether the infertile-worker-effect exists amongst South African women living in Potchefstroom. Although the infertile-worker-effect has been demonstrated in western countries,[1,2,5-7] it has not been studied in low-income populations, like South Africa, where employment would be more driven by economic need and less affected by fertility status or desire. Our hypothesis, therefore, was that the infertile-worker-effect is unlikely to occur in a South African setting.

Methods

We analysed data from our recently completed cross-sectional population survey in Potchefstroom which aimed to describe reproductive health outcomes in a South African population. The methods of the survey have been described previously.[8] In brief; we carried out systematic sampling, stratified by race to obtain a representative sample of reproductive age (18-49 years) women in the population. The study population included women who had been pregnant or tried to conceive. Data were collected by means of a face-to-face interview using a standardised questionnaire which was previously piloted in the setting and reported in this journal.[9] The questionnaire sought information on current socio-demographic variables, occupational exposures and reproductive health outcomes. TTP, a measure of the biologic capacity to reproduce, was sought for the most recent pregnancy, and recorded as the number of months it took for a couple to conceive.[10] The Human Research Ethics Committee of the University of the Witwatersrand approved the study.

To determine the presence of the infertile-worker-effect in this population, both analyses methods described above were used. We analysed for the mean difference in number of pregnancies and livebirths by employment status using a t-test. We also analysed the effect of employment status on TTP, using all women with TTP data and those who were having their first pregnancy. For these TTP analyses, proportional hazard models were built. The primary reason for this comparative latter analysis is to assess if the measures of effect were similar for both groups.

Results

The study included 1121 women (Black: 63%; White: 21%; Mixed race: 13% and Asian: 3%). More women (42%) worked during their most recent pregnancies than at the time of survey (37%). The majority of women earned less than R2500 (South African Rands) per month and only 45% had a tap in their homes.

There were no significant differences between currently employed women and unemployed women for the mean number of pregnancies (2.3 and 2.3 respectively; p=0.677) and mean number of livebirths (1.9 and 2.1 respectively; p=0.094). TTP data were available for 450 women, of which 94 women were having their first pregnancy. For all women, the slightly increased hazard ratios (HR: 1.29, 95% CI 1.07–1.56) showed that employed women had higher fertility than unemployed women. The observed relationship between TTP and employment status remained similar when analysis was restricted to women having their first pregnancy (HR: 1.28, 95% CI 0.85–1.93), although not statistically significant due to smaller numbers.

Discussion

Although the infertile-worker-effect has been demonstrated in western countries, this is the first report on the phenomenon in an African setting. The results suggest that there is no evidence of the infertile-worker-effect in the South African population. First, the data showed that more women worked during their most recent pregnancies than at the time of survey. Second, the number of pregnancies and livebirths was not associated with employment status. Third, fertility was higher among employed women and there was no

"The results highlight the need to explore ways to monitor and ensure that pregnant employed women . . . have access to legal and workplace support structures . . ."

evidence of infertile-worker-effect bias in waiting TTP when the analysis was restricted to first pregnancies. These findings are supported by the preliminary study carried out in this population in 2007.[6] That study showed that employment status was not related to gravidity or parity and showed no evidence of the infertile-worker-effect bias in waiting TTP by employment status.

These results are plausible. Joffe highlighted that the degree to which the infertile-worker-effect would exist in a population depends on a number of factors including the availability of work ("a time-related economic variable") and the availability of childcare possibilities.[1] The choice between employment and fertility is ubiquitous for women. However, as opposed to developed countries, the high unemployment rates in developing countries do not afford most women the leisure to leave employment due to fertility status or intentions. Another factor that may explain this result is workers' access to maternity leave. South Africa has a liberal maternity leave policy, however a large proportion (approximately 45%) of South African women are employed in the informal sector,[11] and therefore not eligible for maternity leave. A third explanation is the widespread existence of fostering and family support structure for childcare in developing countries, including South Africa.[12-14] Due to these reasons, women in these settings can often leave their children with family members and return to work in a short time. Women who lack family support may employ childcare to free them to work.[14,15] Analyses carried out in Norway using longitudinal data showed that increased availability of childcare increased fertility.[16] The results highlight the need to explore ways to monitor and ensure that pregnant employed women in South Africa, including those working in the informal sector, have access to legal and workplace support structures, including paid maternity leave, as this will improve health outcome for both mother and child. These findings may apply to other developing African countries.

Conclusion and recommendations

There is no relationship between employment and fertility status in this population. A high unemployment rate, the large proportion of women employed in the informal sector and the extended family support structures may explain this observation. Policy makers should explore ways to ensure that employed women have access to maternity leave and other structures for pregnant working women. There is still a need for researchers involved in occupational reproductive health studies to test for potential bias due to the infertile-worker-effect in these settings as it is a phenomenon that can occur as economic and health policy situations improve.

Lessons learned

1. The findings highlight the high unemployment rate in the setting and the consequent pressure to remain in the workplace, regardless of fertility experience.
2. As part of the overall drive to improve occupational reproductive health in South Africa, there is a need to ensure that all working women are aware of South African maternity leave policy and that employers are enforced to comply with them. These protections should be broadened to include working women in the informal sector.
3. The absence of the infertile-worker-effect in the setting indicates that this bias is not a major threat to occupational reproductive health studies carried out in low-income countries, although there is a need to assess it continually.

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SASOM in 2011

SASOM Annual General Meeting 2010

The SASOM Annual General Meeting took place on 26 November 2010, after an interesting half-day conference – 'Engaging with stakeholders in Occupational Health' – organised by the KwaZulu-Natal Chapter. Final arrangements for the international African Regional Association of Occupational Health Congress, to be held under the auspices of SASOM, were approved and the revised SASOM Constitution accepted.

Final call for papers and posters for the ARAOH/ SASOM Congress

Entitled 'Occupational Health: Care for the biological, physical and psychological needs of the worker at work', 16 different associations and institutions have committed to presenting papers in parallel sessions at the ARAOH/ SASOM Congress. This is a call for papers and for posters on research and experiences that must be shared with our colleagues. Please contact the SASOM National Office at info@sasom.org before 31 May 2011.

March Conferences

In March 2011, SASOM will be hosting two similar conferences – in Kimberley on 11 March and in East London on 18 March. The programme, entitled 'Filling in the gaps in occupational health', includes papers on dermatology, work and stress, new HIV care, work-related musculo-skeletal disorders, the sick note and management of sickness absence, job profiling and risk assessment for effective health surveillance, and new management of asthma at work. Please see the programme and registration forms on the SASOM website – www.sasom.org

SASOM Guidelines 2011

The 2011 version of the SASOM Guidelines will be available in February – minor changes were made to the existing 29 guidelines with worker job specifications, personal protective equipment, occupational health training, and health promotion becoming individual guidelines. Two new ones, on the older worker and shift work, were added. The SASOM guidelines are 'living' documents and we are grateful to those who commented on the guidelines or supplied new facts.

May the rest of the year bring progress and success to each and every occupational health practitioner in their endeavour to provide quality care to workers everywhere.

Jenny Acutt, SASOM National Office
info@sasom.org

MMPA – What's up for 2011?

Best wishes and compliments for 2011 from the MMPA desk. With the memories of an exciting and successful 2010 Soccer World Cup still fresh in our minds, we all find ourselves busy with preparations for another challenging and exciting year. Let us remember the power of unity, cohesion and togetherness and the impact it had on the success of hosting such a great event!

With an annual congress almost oversubscribed, the MMPA regional meetings in 2010 were not that well attended but we managed to have at least four opportunities to network with colleagues and learn from each other. Some of us were able to attend one of these, a very stimulating and informative presentation on the reading and grading of chest X-rays according to the ILO classification, held in the North West. That was followed by a discussion on reporting procedures and difficulties with the processing of MBOD and RMA claims.

This is certainly the biggest challenge for 2011, to improve the attendance at these meetings and stimulate debate on interesting and pressing issues in the mining industry. Dates of regional meetings (registered for CPD points) in most of the provinces still need confirmation but will be communicated timeously, with an open invitation to all interested colleagues. Two important dates for MMPA members to diarise are the Annual General Meeting on 20 May 2011 and the Annual MMPA congress 7–9 October 2011.

Deodat Kritzinger, MMPA President
E-mail: dkritzinger@randmutual.co.za

Dr Don Emby gives a hands-on lecture on reading X-rays

Dr Luvoyo Dzingwa and Deodat Kritzinger on MBOD and RMA with group photo of attendees

Dear SAIOH member

"The man who does not work for the love of work but only for money is not likely to make money nor find much fun in life." – Charles Schwab

At the start of a new year it's always good to do stock taking and plan for the year. SAIOH will also "take stock", review objectives and focus on it's main objective – promote the Occupational Hygiene Profession.

Organisational membership was introduced to members during the end of last year. I want to make it clear that this type of membership is by no means a replacement of what is already in place. It is an initiative to involve companies and also corporate companies in order to promote the Occupational Hygiene Profession.

Occupational Hygiene Training Association (IOHA Modules)

A proposal is being finalised on the way forward for Southern African training service providers who wish to present these courses and communication will follow shortly.

Branch activities

The KZN branch is arranging a meeting to be held on the 3rd of February, 14h00 at the Durban University of Technology (DUT). Dr Johan Schoeman will talk about The Certification of a Hazardous Chemical Substance. The paper discusses the certification process, which includes:

- a causal-effect investigation;
- occupational hygiene surveys; and
- an audit.

The Gauteng branch is hosting a workshop on the 17th of February at the Shere View Lodge Conference Centre in the East of Pretoria. Highlights include:

- community risk assessment;
- SAPEMA – SA Protective Equipment Marketing Association: What they do;
- meeting and exceeding EN Safety Specifications;
- study on leak testing of facemasks;
- radiation – case study;
- mine chemicals and reagents: introduction and manufacturing; and
- occupational hygiene stressors, case studies: governmental perspective.

The Central (Northern Cape & Free State), Western Cape and Mpumalanga branches will convene in 2011.

SAIOH Annual Conference and AGM

As SAFECONEX will not be held in 2011, a SAIOH Annual Conference is being organised for the second half of the year during which the AGM will take place and annual awards will be presented. Votes from members indicated that Gauteng is the preferred region for the conference venue. Watch this space for more details! Ideas and contributions can be forwarded to melindav@lantic.net.

Department of Labour

The Department of Labour has updated the AIA list and is in the process of auditing the AIAs. The updated list of AIAs can be obtained from the SAIOH website (www.saioh.co.za).

Important dates

3 February 2011	SAIOH KZN Branch Meeting
4 February 2011	OHPC Meeting Oral assessments
17 February 2011	SAIOH – Gauteng Branch Workshop
4 March	National Council Meeting Written assessments
8 April 2011	OHPC Meeting Oral assessments
6 May 2011	National Council Meeting Written assessments
1 July 2011	OHPC Meeting Oral assessments
5 August 2011	National Council Meeting Written assessments
7 October 2011	OHPC Meeting Oral assessments
4 November 2011	National Council Meeting Written assessments

OHSAP

Invoices for 2011 have been sent electronically to all members. You will notice that this year the invoice reflects two amounts (previous years – one amount): 2011 SAIOH Membership Fee and 2011 Professional Registration Fee. The reason is that OHSAP is preparing to move into the future with SANAS accreditation.

Origins of OHSAP: In 1993 the Minister of Labour's Advisory Council on Occupational Health and Safety decided to form a technical committee, Technical Committee 8, to investigate the establishment of a board of registration for occupational hygiene and safety practitioners. After numerous discussions and reports, the Board of Registration for Occupational Hygiene, Safety and Associated Professionals (OHSAP) was established for the purpose of setting appropriate training standards for occupational hygiene, safety and associated professionals, and for the registration of competent practitioners who meet the laid down standards in compliance with the requirements of the SA Qualifications Authority.

OHSAP is recognised nationally and internationally as the body for the establishment, advancement and maintenance of the standards of education, training and practice of occupational hygiene, occupational safety and associated professionals in South Africa.

The mission of OHSAP is to enhance and promote the professional standing and competence of occupational hygiene, safety and associated professionals in pursuance of the creation of a healthy and safe work environment. The Board is comprised of members currently drawn from the two founding professional institutes, SAIOH and IoSM which represent the occupational hygiene and safety practitioners in the RSA.

Professional registration for Occupational Hygiene, Safety and Associated Professionals brings the following:

Professionalism

- professional status;
- a post nominal title; and
- an affiliation to a code of conduct as visible proof of accountability.

Credibility

- evidence of significant professional motivation and commitment;
- recognition of mastery of the profession;
- a verified and assessed background backed by professional recommendations; and
- a portable endorsement by an impartial third party.

Never was it truer than now to say that our destiny is in our own hands!

Will you be sitting on the sideline as a doubting Thomas criticising and seeing "what's in it for me" or will you be assisting by submitting yourself to SAIOH membership and registration and providing us with feedback, positive criticism and helpful suggestions?

Best wishes till our next issue!

Melinda Venter, SAIOH President

SASOHN news

The new SASOHN logo

Since its inception in 1980, SASOHN has had a logo which has become synonymous with occupational health nursing in South Africa. However the logo was open to misuse as it was never registered. This all changed when SASOHN embarked on a mission to rectify this – I say mission as the process was not without its challenges.

The most suitable route for registration was via the Department of Arts and Culture. The Heraldry Act, 1962 (Act No. 18 of 1962), provides for the registration and legal protection of coats of arms, badges, logos, emblems, names, special names and uniforms. A heraldic design must be aligned with the rules of heraldry, and SASOHN discovered that the existing logo did not meet these requirements. Feedback from the intial application was disheartening. The "old" logo had a lamp that resembled a teapot, a flame that was above the lid and not the spout and incorrect colours in terms of heraldry principles. The Department of Heraldry submitted some ideas based on the correct principles, which were not accepted by SASOHN. After some tactful negotiation and creative thoughts, two suggestions were presented to members for voting. The "new" logo resulted from a national vote, and is now registered as a SASOHN logo and hence as a trademark.

SASOHN is proud of the logo and views unauthorised use of the logo in any way in a very serious light. By registering the SASOHN logo the Society is protected from misuse, and it ensures immunity from third party infringement actions. The logo is equivalent to the Society's signature, which identifies it and sets it apart. It is a valuable commercial asset and warrants protection as a trade mark .

Sonja Kruger, (Past SASOHN President)

SASOHN 'My 100' Initiative

As noted in previous issues, 2010 was the International year of the Nurse. In response, the Nursing Education Association of South Africa proposed a 'My Nursing 100' initiative, whereby nurses would give 100 minutes of their time to worthy causes.SASOHN embraced this idea as an opportunity to make a commitment to bringing health to communities. The following are highlights of initiatives in some regions.

Gauteng Central members providing 100 minutes of their time to Boksburg's Tambo Memorial Hospital patients. After their regular monthly meeting, held at the hospital, the group members were divided between the orthopaedic, paediatric, maternity, neonatal and labour wards where they provided basic nursing care. They were shocked when they experienced the conditions under which the provincial hospitals are operating. The impact of HIV and AIDS on our communities also struck home. Involved members were so moved by the experience they suggested this become an annual event.

Retired nurses from Clareinch War Memorial House show off their SASOHN teddy bears from Western Cape branch members

Eastern Cape members visited the Cuyler old age home, where they provided a tea for the residents and treated them to manicures and pedicures. One forgets that an easy task, such as cutting your nails, can become so difficult for the 'older folks'. Residents were pampered with donated Shezen products. Sad stories shared by residents, and the realisation of the difference that this initiative made in their lives, led to the decision to continue the project in the future.

The Western Cape started its celebration with a morning tea at Clareinch War Memorial House, a home for retired nurses. Residents and all staff (from nurses to gardeners) were recognised for their contribution towards caring. The impact was evident from the smiling faces, the joyous atmosphere and appreciative thank-you received. Light refreshments were served to the accompaniment of soft soothing music, loads of laughter and enjoyment. A much-needed shower chair, donated by the branch, surprised residents. The chair was christened 'Florrie' for obvious reasons. SASOHN teddy bears and a handy neck pouch to secure specs and cell phones were given to each resident. In the afternoon, members moved onto Sivuyile House – a home for 80 mentally and physically handicapped children and adults to pamper the wonderful care givers and give each resident a teddy and a ready hug. Camelot pampered the 30 caregivers on duty with a manicure..

Port Natal elected to share friendship and appreciation with pioneer nurses in their region, who paved the way for current occupational health nursing practitioners to enjoy the type of professional discipline and respect we now experience. After a time-consuming process, six retired SASOHN members were ultimately traced. There was heart-warming and excited delight at meeting old friends and making new ones, and an overwhelming sense of sharing a vocational commitment to serving our communities. The following is an extract from a letter of appreciation written by Aletta, a retired nurse who attended the day.

"I salute all nurses, the young, the old, the retired from practice, the actively retired, those in training and those who have passed onto eternity. Yesterday's meeting was truly special for me. As I sat there, quietly savouring the commotion of the interaction between colleagues, I realised how truly unique our profession is. There is a bond that is unbreakable and unstoppable. Watching and listening to the actively retired colleagues, I was so humbled and yet felt such a sense of pride, to be called a nurse, a title today that is much under the microscope of the press and public alike. ... The older with all their wisdom and experience, not to mention their zest for life, embracing the transformation of the younger, more "trendier" nurses of our day. WHAT A FLAVOUR.

... An exchange took place yesterday, the older, I am sure, can rest assured that we, the younger, have broken the glass ceiling, and we the younger take their wisdom and salute their sacrifices and run with the vision, always teaching, always learning, always pressing on. It is so encouraging to see that the Occupational Health Nursing Practitioners are deep caregivers to the bone! May we live the saying: 'Never to be a spectator of life'.

Nicolene de Jager
SASOHN Gauteng Central, Past EXCO Rep

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Occupational Health and Hygiene Practitioners