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- Southern African Institute for Occupational Hygiene
- South African Society of Occupational Health Nursing Practitioners
- Mine Medical Professionals Association

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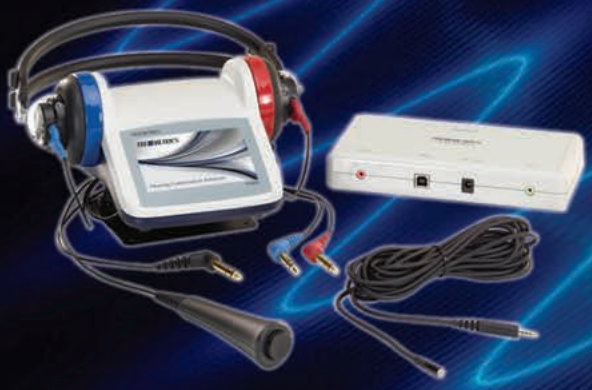

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Front cover photograph

Naive about potential health and safety risks, waste pickers sift through the contents of a refuse truck at a Johannesburg landfill.
Photograph: Kerry Sidwell Wilson

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From the Editor . . .

Gill Nelson, Editor-in-chief

In a November 1992 speech, marking her 40th anniversary on the British throne, Queen Elizabeth II said "1992 is not a year on which I shall look back with undiluted pleasure. … it has turned out to be an *annus horribilis*". She was referring to events that had taken place that year, related primarily to her family. In December 2004, Kofi Annan (United Nations secretary-general, 1997–2006) said "I am relieved that this *annus horribilis* is coming to an end", apparently alluding to corruption and violence in several countries. Five days later, on 26 December, the Indian Ocean tsunami hit. Likewise, I look forward to the end of 2020, the most widespread *annus horribulis* of all time, which has seen the entire world locked down in varying degrees in an attempt to prevent transmission of SARS-CoV-2. I hope we, here in South Africa, will not experience our own 2nd wave tsunami that has seen many countries in the northern hemisphere reinstating strict rules, including lockdowns, to limit the spread of the virus.

All of us have felt the effects of the pandemic, and my heartfelt condolences go to those of you who have lost loved ones and patients to the disease, or who found yourselves isolated alone at home during the level 5 lockdown. Many were retrenched with only a few years to go until retirement, and even some of our younger colleagues had bleak prospects of finding new jobs when companies closed.

The research community was affected in a different way in that travel to conferences and other meetings in exotic (and some not so exotic) locations was cancelled, operational research was put on hold, and networking went virtual. But we learned that we do not need to be in the office every day to be productive. The virus did not stop us from formulating new research ideas; nor did it stop us from progressing in other areas.

Evidently, many of you continued writing up your research findings and, in this issue, we present some of them. Ntlebi and colleagues from the NIOH conducted a study on waste pickers at landfills, with some interesting results. Informal workers are a neglected but economically important part of our workforce, and it is encouraging to see that research in this area is increasing. Two other neglected occupational groups – waitrons and crime scene investigators – have their own specific health concerns. Wolff and Haffejee (Durban University of Technology) and Steyn and Klopper (University of Pretoria) present their findings on low back pain and stress in these two groups, respectively. It is also encouraging to have received two letters to the editor, which indicates that others do read what you write. The first letter is in direct response to a paper on legislated compensation systems and trusts, published in the Sep/Oct 2020 issue of *Occupational Health Southern Africa*, and the second is related as it discusses some of the problems with compensation systems in South Africa.

We held two virtual scientific writing workshops in the last few months – one in September and another in November. Attendees received guidance on writing their manuscripts and, at the same time,

David Rees and Gill Nelson, 30 October 2020 *Photograph: Guy Hall*

earned 14 CPD points for attending all four days. Four SASOM members, two SAIOH members, one MMPA member and one SASOHN member attended the workshops. The societies will circulate the 2021 workshop dates in due course.

On the topic of CPD points, reviewers of research papers submitted to *Occupational Health Southern Africa* can now claim three CPD points per paper reviewed, for their efforts. If you are interested in becoming a reviewer for the journal, please send me an e-mail directly, at gill.nelson@wits.ac.za.

SASOM is committed to providing its members with the opportunity to earn the 60 CPD points that they require every year. Members can earn an additional 18 CEUs by correctly answering 70% of the 12 questions that are based on the scientific papers and other articles that are published in each journal issue. Unfortunately, very few SASOM members complete the questionnaire. SASOM has sent an online questionnaire to all members to assist them to identify reasons for the poor response to the CEU questionnaire. Please participate in this survey.

The National Institute for Occupational Health (NIOH) and the Wits School of Public Health (WSPH) held a celebratory farewell event for Professor Emeritus Rees on 30 October, the same day that the September/October issue of *Occupational Health Southern Africa* – comprising a whopping 92 pages – was posted. The event was hosted by the WSPH and all attendees complied with social distancing guidelines and wore masks. Those who could not attend due to the limited number permitted in the venue, or distance (many were from outside South Africa), joined via Zoom – either to watch the proceedings or to convey personal messages to Prof. Rees.

Another thing that SARS-CoV-2 did not stop was the finalisation of the long-awaited revised Department of Employment and Labour's Asbestos Abatement Regulations (https://www.nioh.ac.za/wp-content/uploads/2020/11/43920_20-11_EmploymentLabour_Asbestos-Abatement.pdf). A webinar on the Regulations was hosted by the NIOH on 27 November. The NIOH has supplied links to the presentations (see the box below).

ASBESTOS ABATEMENT REGULATIONS 2020

Presentations:

1. Background to the Asbestos Abatement Regulations (Ms Bulelwa Huna): https://www.nioh.ac.za/wp-content/uploads/2020/11/Asbestos-launch-B.-Huna.pdf
2. Asbestos Abatement Regulations (Ms Elize Lourens): https://www.nioh.ac.za/wp-content/uploads/2020/11/EL-Asbestos-Abatement-Regulations-Presentation-27-Nov.pdf
3. Asbestos Sampling (Mr Gabriel Mizan): https://www.nioh.ac.za/wp-content/uploads/2020/11/DoEL-Asbestos-Sampling-Nov-2020_Mizan.pdf

Video Link: https://youtu.be/zYLKOd8sxQY
Audio Link: https://soundcloud.com/user-349804591/the-department-of-employment-labours-launch-of-the-asbestos-abatement-regulation

May 2021 be the year in which a vaccine becomes available in South Africa, and life returns to relative normality. In the meantime, I and the rest of the *Occupational Health Southern Africa* team wish you happy holidays, safe travels (if you must), and special times with friends and family.

Please visit our Events page at **http://www.occhealth.co.za/?/events** for updates on cancelled, rescheduled and new conferences, seminars and other scientific meetings.
Please email gill.nelson@wits.ac.za if you would like to add an event to this page.

Letter to the editor

Critical perspectives on trusts as a compensation option for occupational diseases in South Africa

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The paper, 'Critical perspectives on trusts as a compensation option for occupational diseases in South Africa',[1] refers.

The authors of the paper attempted to highlight the theoretical and practical shortcomings of trusts as a compensation option for diseases in South African mines. They concluded that trusts do not spread the costs of disease optimally, provide no framework for building incentives for employers to invest in disease prevention, are vulnerable to the principal-agent problem, and are open to manipulation by public officials. For these reasons, they argued that the statutory workers' compensation system should remain the pillar for occupational disease compensation in South Africa.

Missing from the critique were the reasons for the establishment of the trusts and their relationship to the statutory compensation system. If that gap were filled, it would be clear that trusts have a critical role to play in addressing historical injustices.

All the trusts referenced by the authors [the Asbestos Relief Trust (ART), the Kgalagadi Relief Trust, (KRT) the Q(h)ubeka Trust (QT), and the Tshiamiso Trust (TT)] were established in consequence of civil litigation in the courts. They were not intended to be substitutes for a just and equitable statutory workers' compensation system. Their aim was to recover, to the extent it was possible, the difference between the compensation the mine workers were entitled to receive from the statutory compensation system and the actual harm that they had suffered.

The statutory compensation system for occupational injuries and diseases remains hopelessly inadequate and inefficient. The benefits payable bear little relationship to the actual harm and loss suffered by sick and injured workers or their dependents. This is particularly so in the case of the Occupational Diseases in Mines and Works Act (ODMWA), which was established to provide benefits for mine workers who contract occupational lung diseases.

Lobbying efforts to reform the system remain weak and disorganised. There appears to be little prospect in the short to medium term of these shortcomings being addressed. It is against this backdrop that the first attempts to claim improved compensation through the civil justice system were brought on behalf of South African workers.

The first legal actions were brought by Leigh Day and Company against the UK-based parent companies of Thor Chemicals and Cape Asbestos. This was because Section 35 of the Compensation for Occupational Diseases and Injuries Act (COIDA) placed a statutory barrier against employees and their dependents suing their South African employers for compensation in respect of any occupational injury or disease. These cases were settled for the direct benefit of the named plaintiffs and their families and not for other employees of these companies who were injured, or who may have suffered harm later, as a result of the long latency period of many of the occupational diseases.

Neither case resulted in the establishment of a trust. But, in 1998, civil proceedings were filed against the South African company, Gencor, the parent company of asbestos mining companies, GEFCO and African Chrysotile Asbestos. The purpose was to interdict the winding up of the company pending a decision on its civil liability to asbestos miners who had contracted asbestos-related diseases. The settlement led to the establishment of the Asbestos Relief Trust (ART) in 2003. Shortly thereafter, an unrelated voluntary negotiation led to the formation, in 2006, of the Kgalagadi Relief Trust (KRT). This trust provides compensation to workers who contracted asbestos-related diseases because of exposure at mines controlled by the Swiss-based Eternit Group.

The total capitalisation of the two trusts was approximately R600 million. To date, the two trusts have compensated 5 305 claimants and paid out benefits to the value of R535 million. The trusts compensate not only workers and environmentally exposed persons who were sick at the time of their establishment, but also those who subsequently would develop asbestos pneumoconioses or malignancies during the approximate 25-year life of the trusts.

In 2011, the legal position of sick mine workers in South Africa changed with the Constitutional Court decision in the matter of Mankayi v Anglo Gold Ashanti. This decision was the product of five years of litigation. The court ruled that mine workers with occupational lung diseases covered by the ODMWA were not affected by the provisions of section 35 of the COIDA. They retained their common law right to recover their civil damages from the owners of the mines where they were negligently exposed to harmful dusts.

The Mankayi decision guided the silicosis class action litigation that led to a settlement with most of the established gold mining companies, and the formation of the Tshiamiso Trust in 2018. The settlement is open to criticism on the grounds that the benefits fall short of what might have been recovered if the matter had been litigated to a conclusion. There were doubtlessly compromises made in the settlement. Among the factors that concerned the claimants and their lawyers when the settlement was reached were that litigation is costly and slow and that eligible claimants were dying uncompensated. Critically, gold mining is an industry in decline. There was no guarantee that a court ruling in five or 10 years would deliver a better outcome for the claimants, by which stage many of the companies may have been deregistered or not in a position to pay.

Considering the very large numbers of claimants – more than

40 000 people have already registered claims against the Tshiamiso Trust – it is simply not practicable to litigate cases individually. There is no capacity in the civil justice system to deal with such volumes of claims within a reasonable period.

Collective settlements, typically the product of class actions, that are realised through the establishment of independent and capable trusts that process claims on an administrative basis are, in our opinion, the best current practicable way to ensure some modicum of justice.

It is worth noting that various trusts have achieved much more than just paying benefits. They have enhanced awareness about occupational lung diseases and have helped build capacity in different medical disciplines, especially in rural areas, to medically examine and diagnose ex-mine workers, that would not otherwise exist.

Reforming the statutory compensation is hugely challenging. At face value, it seems reasonable to make basic reforms, such as providing for better compensation and increased levies for employers. There is, however, little appetite on the part of the state and employers to effect retrospective changes that would require current employers to pay for the wrongs committed by previous employers, many of whom have closed their operations and disappeared, years or decades previously.

The reality is, therefore, that class actions and settlement trusts provide the only realistic means of redress. Class action settlements are indeed the product of compromise and accommodation and do benefit both sides. The claimants get previously inaccessible compensation. The defendant companies are insulated from further litigation and can estimate and provide for their liability.

It is wrong to suggest, as the authors do, that the trust settlements are a disincentive to taking appropriate remedial actions in the workplace. The cost of redress is an obvious incentive to avoid further liability by preventing further harm in the workplace.

The records of the ART, KRT and QT are good. They are well governed, transparent and accountable. It is still early days for the Tshiamiso Trust, and it is our hope that it succeeds in providing for the many victims of our mining history.

The litigation – and the various trusts – would not have been required if there was a fair and efficiently functioning workers' compensation system in South Africa. But that is not the case.

It is acknowledged that the existing settlements can never provide full redress. However, for the first time in South African industrial history, employers are being held to account, and are making financial redress for the damage they caused.

With the ART, KRT and QT winding down and the Tshiamiso Trust just getting started, the critique is timeous, if misdirected.

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1. Mushai A, Crossley J. Critical perspectives on trusts as a compensation option for occupational diseases in South Africa. Occup Health Southern Afr 2020; 26(5):199-202.

Richard Spoor *BA, LLB is a human rights attorney who focuses on the field of occupational health and safety, in addition to work in the fields of land reform and land/environmental rights, with special reference to the impact of mining on indigenous communities. He was the primary author of the trust deeds of the Asbestos Relief, Kgalagadi Relief and Tshiamiso Trusts and is a trustee of the Kgalagadi Relief Trust.*

Jim te WaterNaude *MBChB, MPhil (MCH), FCPHM is a public health medicine specialist who runs a public interest, academically inclined medical firm focusing on dust diseases. He is the chief medical consultant to the Asbestos Relief, Kgalagadi Relief, and Q(h)ubeka Trusts, and has provided the Tshiamiso Trust with pragmatic guidance regarding medical services design and structure.*

Letter to the editor

Crisis in the Compensation Fund and consequences for health professionals

Tim Hughes: IWAG spokersperson
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Medical professionals from across South Africa are facing a crisis as a result of the technological collapse of the R60-billion Compensation Fund that is legally mandated to cover workers' medical bills and disability pensions.

If you look at the sheer number of vulnerable people who have now been failed by the system and left to fend for themselves under very trying circumstances, and the extent of that failure by the state and its technology partners, you will see that this is an untenable situation. Tens of thousands of families of injured workers, those workers' medical caregivers and employers, and several critical industries in the economy, have all been struck a terrible blow here. This is a crisis of epic proportions and it is wreaking havoc on the economy at a scale that we are still in the process of quantifying.

Grave concern over the situation has led to the official launch of the Injured Workers' Action Group (IWAG). The group is calling on the government to address the crisis swiftly and is especially concerned about the apparent failure of the Compensation Fund commissioner and the Employment and Labour Department director-general to address industry's calls for urgent remedial action.

IMPACT OF THE CRISIS

Consider for a moment that 1 000 workers, on average, are injured on duty in South Africa every day. The backbone of South Africa's economy, these are farmworkers, fishermen, builders, security guards, nurses, paramedics, factory workers, kitchen staff and many more. All of them rely on the Department of Employment and Labour's Compensation Fund to cover their medical costs, as prescribed by the law.

These patients are supposed to be treated in private hospitals and by private physiotherapists, occupational therapists and other medical specialists because they have special needs and require long-term rehabilitation, which state facilities are neither equipped nor mandated to supply to them. This is why the state has set up a fund to which all ± 400 000 employers in this country are contributing ± R9-billion per annum. This fund must ensure that injured workers can claim for the medical care they need to enable them to return to work. Additionally, medical practitioners who devote their lives to working with injury on duty (IOD) patients need to be compensated timeously – or face financial ruin.

The department has long struggled with its claim system and, on 15 August 2019, switched off its previous uMehluko electronic system with the intention to migrate users to a new and improved system called CompEasy (S4i). It should have been live from 1 October 2019 but CompEasy was 'dead on arrival'. The system was never parallel-tested with the old one as would be expected when the stakes are this high. As a result, about 150 000 working-class South Africans who have been injured or disabled on duty since mid-2019 have been left out in the cold.

The IWAG has launched a Facebook Group where it will post news and updates, and is asking workers to share their complaints and concerns on the group so that they can be recorded and passed onto the Department of Employment and Labour and Compensation Fund.

IWAG is calling on your members to join us in appealing to the Compensation Fund commissioner, directly, to bring a swift end to the matter.

THE QUICK TAKE

- Thousands of doctors and therapists around the country, who provide specialised injury on duty (IOD) care, and the companies that are providing them with financial help, are facing financial ruin because the Fund is not paying their invoices.
- The Employment and Labour Department's R60-billion Compensation Fund for injured workers across South Africa is leaving workers out in the cold due to a software system failure.
- The Fund replaced its previous system with a new SAP-based system called CompEasy (S4i) in October 2019 but the new system – with a R300-million price tag – is dysfunctional.
- About 150 000 of South Africa's most vulnerable, injured or disabled workers since mid-2019 have been failed by the system.
- South Africa's employers contribute R9-billion annually towards the Fund that is mandated by law to cover the medical, rehabilitation and disability expenses of the country's injured workers. They are now footing the bill for the Fund and its dysfunction by having to step in to pay their workers' medical invoices in the absence of claims settlement by the Compensation Fund.
- Approximately 1 000 workers are injured on duty in South Africa every day and need to claim from the Fund for their medical care.
- Workers are waiting in vain for critical care, disability pensions and rehabilitation, and some are losing their livelihoods and homes because they can no longer work.
- The situation is wreaking havoc in countless industries and the economy at large.

Hypertension and associated risk factors among informal waste pickers in Johannesburg, South Africa

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ABSTRACT

Background: A growing number of individuals, commonly known as waste pickers, driven by poverty and unemployment, earn a living recovering recyclable material. A few studies have investigated the prevalence of hypertension in the South African general population but none has investigated hypertension in waste pickers. We aimed to estimate the proportion of hypertension and to identify associated risk factors among waste pickers in Johannesburg, South Africa.

Methods: In this cross-sectional study, convenience sampling was used to select waste pickers at two landfill sites in Johannesburg, in 2018. Health-screening assessments included measurements of weight, height and blood pressure. An electronic questionnaire was used to collect socio-demographic, health status and behavioural information. Descriptive statistics for continuous covariates, such as age, were summarised as means and standard deviations, while categorical variables were summarised as numbers and percentages. The two-sample test for proportions was conducted to assess the differences in proportions of hypertension. Logistic regression was used to test associations between hypertension and risk factors.

Results: Three hundred and sixty-one landfill waste pickers participated in the study. Of these, 265 (73.4%) were male and 96 (26.6%) were female. The proportion of women (42.7%; n = 41) with hypertension was higher than that of men (24.2%; n = 64). The adjusted analyses showed that age and injuries were statistically significantly associated with hypertension. For every one-year increase in age, the odds of developing hypertension increased by 5% (AOR = 1.05; 95% CI: 1.03–1.09). The AOR for hypertension in waste pickers with injuries was double that of waste pickers without injuries (AOR = 2.43; 1.20–4.97).

Conclusion: The proportion of landfill waste pickers with hypertension was higher among women than men. Age and injuries were associated with hypertension. The findings suggest the need for a combination of primary healthcare and occupational health services for these workers.

INTRODUCTION

Urbanisation has resulted in increasing poverty due to few job opportunities, especially for migrants with low education levels.[1,2] Worldwide, rapid urbanisation produces huge amounts of recyclable waste material in towns and cities, and an estimated 15 million people are involved in informal waste recycling.[3,4] In developing countries, uncontrolled urbanisation has led to people resorting to informal economic activities,[5] such as waste picking. In South Africa, it is estimated that there are 60 000 to 90 000 waste pickers but, with rising unemployment and urbanisation, the actual number may be as high as 215 000.[6] Due to the informal nature of their work, waste pickers are not covered by the Occupational Health and Safety Act and therefore cannot access unemployment benefits established by law.[7] Due to their poor working conditions and low income, waste pickers find themselves socially and economically vulnerable.[4]

Waste picking poses potential health and safety risks related to hazards, such as heavy workloads and exposures to toxic chemicals, harmful microbial substances or dust particles.[8] Research on informal recycling has shown an association between working at a landfill site and increased poor health and injuries.[8-10] Waste pickers work long hours and often put health considerations, such as visiting local healthcare facilities for health check-ups, at the bottom of their lists of priorities.[11]

Poor socio-economic status may be associated with non-communicable diseases (NCDs), such as hypertension and other cardiovascular diseases.[12] A 2011 World Health Organization (WHO) report projected that NCDs will be the leading cause of death, globally, possibly exceeding deaths due to communicable diseases, by 2030.[13] Hypertension is a major global public health problem and a major risk factor for cardiovascular diseases, such as chronic heart disease and stroke.[14] Bradshaw et al. reported that the most prevalent NCDs leading to many premature adult deaths in South Africa are hypertension, stroke and ischaemic heart disease.[15] According to the WHO, in 2016 Africa had the highest prevalence of hypertension: 46% for both sexes combined.[16] Lloyd-Sherlock and colleagues, using the WHO Global Ageing and Adult Health (WHO-SAGE) data collected from 2007 to 2010, found that the prevalence of hypertension in South Africa in people older than 50 years, was above 77% and was among the highest in all sub-Saharan countries.[17]

Several factors, including age, education, income, smoking, obesity, physical inactivity and excessive alcohol consumption have been shown to influence the risk of developing hypertension.[18,19] To our knowledge, no study has investigated hypertension among landfill waste pickers in South Africa. We aimed to estimate the proportion

and associated risk factors of hypertension among waste pickers in Johannesburg, South Africa.

METHODS

We conducted a cross-sectional study in two of the largest landfill sites in Johannesburg. The first site is located west of Johannesburg, with approximately 600 active waste pickers. The second site, with approximately 3 000 waste pickers, is located south-west of Johannesburg. Waste pickers aged 18 years and older who were present on the day of the study were recruited; participation was voluntary.

The sample size was calculated as 348 to have a confidence level of 95%. The numbers were proportionately distributed between the two landfill sites: 81% (n = 284) and 19% (n = 68) for sites 1 and 2, respectively. Convenience sampling was used to select study particpants. To account for non-responses, additional participants were recruited. Trained nurses performed health-screening assessments that included measurements of height, weight, temperature, cholesterol, haemoglobin and blood pressure.

The study was explained to waste pickers by trained field workers and the interviews were conducted in whichever one of the 11 South African languages that the participants understood. Trained fieldworkers interviewed the participants after obtaining consent, using a structured and validated electronic questionnaire. Information was collected on socio-demographic, work-related, health and behavioural factors (Table 1). Questions on health status and access to health services, such as the use of antihypertensive treatment at the time of the study, chronic medical conditions, and clinic visits in the past 12 months, were included.

Ethics clearance was obtained from the Human Research Ethics Committee (Medical), University of the Witwatersrand (clearance certificate number: M171120). Permission to conduct the study at the landfill sites was obtained from the landfill management.

Data analysis

Data were captured using RedCap and then imported into Excel. Data cleaning and analyses were conducted using Stata SE version 15.1 (StataCorp. 2017. College Station, TX: StataCorp LLC). Descriptive statistics for continuous covariates, such as age, were summarised as means and standard deviations, while categorical variables were summarised as numbers and percentages. Hypertension was defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg.

A logistic regression model was fitted to assess the association between hypertension and other risk factors. Unadjusted analysis was conducted to assess the association by individual variables. Adjusted logistic regression analysis was fitted using all variables with a forward variable addition model building method. The maximum likelihood ratio test was used to select variables that were significant at the 5% level for inclusion into the final multivariable model. Interaction terms for age and body mass index (BMI), and age and diabetes, were also investigated. Clustering in the two landfill sites was accounted for by robust estimation of standard errors. Results were presented as odds ratios with 95% confidence intervals. The final model was tested using Pearson's chi-square goodness of fit test.

RESULTS

Socio-demographic characteristics, health status, behavioural factors and hypertension

A total of 361 landfill waste pickers participated in the study; 265 (73.0%) were male and 96 (27.0%) were female (Table 2). The mean age of the participants was 34.0 ± 10.3. The average monthly income was R1 792. Most had a secondary education (n = 285, 79.2%), 72.0% (n = 252) were smokers, and 41.7% (n = 116) consumed alcohol. Seventy-nine (21.9%) of the participants were overweight/obese. About half (55.0%) of the participants had normal body weights; 2.2% reported to have been diagnosed with diabetes.

The overall proportion of hypertension among waste pickers was 29.1% (n = 105). A higher proportion of women (n = 41, 42.7%) than men (n = 64, 24.2%) had hypertension (p = 0.046). Out of the eight waste pickers who reported having diabetes, 75.0% (n = 6) had hypertension. The proportion with hypertension was higher in smokers than non-smokers (Table 2). Sixty-eight percent of the waste pickers reported accidents, of which 89.7% were related to sharp objects.

Unadjusted odds ratios (ORs) and adjusted odds ratios (AORs) for hypertension in relation to socio-demographic and health factors are presented in Table 3. In the unadjusted analyses, sex (OR 2.34, 95% CI 1.43–3.83), age (OR 1.06, 95% CI 1.04–1.09), smoking (OR 0.50, 95% CI 0.31–0.83), BMI group (OR 2.13, 95% CI 1.07–4.26), and diabetes (OR 7.17, 95% CI 1.53–38.87) were statistically significantly associated with hypertension.

The final multivariable model included sex, age, smoking status, BMI, diabetes and injuries (Table 3). The model had good fit as the difference between the observed and expected values was not statistically significant (p = 0.465). There were no significant interactions between age and diabetes (p = 0.698) or between age and BMI (p = 0.090). Age and injuries were significantly associated with hypertension. For every one-year increase in age, the adjusted odds of developing hypertension increased by 5%. Individuals who experienced injuries at work had more than

Table 1. Summary of information collected

Category	Information
Socio-demographic information	Age, sex, height, weight, number of children, language spoken, country of birth, province of birth, years lived in Johannesburg, place of residence, landfill site, residential suburb, education, monthly income, type of housing
Work conditions	Years spent in this job, place of work, type of material handled, exposure to risks, use of personal protective equipment, occupational accidents
Lifestyle/behaviour	Alcohol consumption, smoking status
Health conditions	Diabetes, hypertension, tuberculosis, asthma, HIV, cancer, respiratory diseases, allergies, waterborne diseases, mental disorders
Access to health services	Clinic visit in last 12 months, diagnosis, type of healthcare

double the likelihood of having hypertension than those who did not (AOR 2.4, CI 1.20–4.97). The AOR for hypertension in obese waste pickers was 1.82 times greater than that in waste pickers with normal weight (AOR 1.82, 95% CI 0.85–3.95) but the association was not statistically significant. Although the AOR for waste pickers with diabetes was five times higher than for those without diabetes (AOR 5.21, 95% CI 0.98–27.70), the association was not statistically significant. The AORs for sex, education, housing type, smoking status, alcohol use, CMD, HIV and tuberculosis (TB) status were not statistically significant.

Table 2. Characteristics of informal waste pickers by hypertension status (N = 361)

Characteristic	Hypertension			
	No (n = 256)		Yes (n = 105)	
	Mean	SD	Mean	SD
Age (years)	32.0	9.1	38.8	11.4
Monthly income (ZAR)	1 874.1	2 179.1	1 594.9	1 343.9
	n	%	n	%
Sex				
Male	201	75.8	64	24.2
Female	55	57.3	41	42.7
Education				
None	8	53.3	7	46.7
Primary	39	66.1	20	33.9
Secondary	208	72.7	78	27.3
Housing type				
Formal house	76	72.4	29	27.6
Informal house	53	70.7	22	29.3
Backyard formal	45	68.2	21	31.8
Backyard informal	79	70.5	33	29.5
Smoking status				
Non-smoker	59	60.2	39	39.8
Smoker	189	75.0	63	25.0
Alcohol consumption				
No	119	73.5	43	26.5
Yes	84	72.4	32	27.6
BMI category				
Underweight	67	80.7	16	19.3
Normal weight	139	70.2	59	29.8
Overweight	28	71.8	11	28.2
Obese	21	52.5	19	47.5
Diabetes				
No	252	72.0	98	28.0
Yes	2	25.0	6	75.0
HIV status				
Negative	219	71.8	86	28.2
Positive	26	65.0	14	35.0
Tuberculosis				
No	245	70.8	101	29.2
Yes	8	72.7	3	27.3
CMD				
No risk	166	72.5	63	27.5
At risk	90	68.2	42	31.8
Injuries				
No	49	79.0	13	20.9
Yes	206	69.4	91	30.6

SD: standard deviation; CMD: common mental disorders

DISCUSSION

Hypertension is a silent killer as symptoms are rarely visible in its early stages; thus, it is important to control as a chronic disease.[14] Almost 30% of the waste pickers in our study had hypertension. This is lower than the 45% prevalence in the general population of South Africa as reported by Davids et al. (2019).[20] The proportion of hypertension in our study is similar to that observed in Latin American (24.4%) and Brazilian (32.8%) waste pickers.[11,21] We also found that age and injuries were associated with hypertension.

A higher proportion of women than men had hypertension (43% and 24%, respectively). The 2013 WHO data showed that 27.4% of men and 26.1% of women in South Africa had hypertension.[22] Everett et al.[23] and Shirani et al.[24] reported that women who are younger than 50 years (premenopausal) have a lower hypertension prevalence than older women, and also showed that prevalence of hypertension was higher in women than in men.[22]

Although we found no statistically significant association between diabetes and hypertension, the association is reported in the literature. Bretzel et al. (2007)[25] reported an increased prevalence of hypertension among individuals with diabetes and showed that non-diabetic individuals with high blood pressure were 2.5 times more likely to develop diabetes within five years than those with normal blood pressure.[25] We found that obese waste pickers had twice the odds of reported hypertension than those of normal weight, although the association was not statistically significant. Obesity develops when there is an imbalance between energy intake and energy expenditure. Although genetic predisposition may lead to development of obesity, eating habits and physical activity patterns play a more prominent role in obesity (2016).[26] Contrary to our findings, Gao et al. (2016) found that obesity was significantly associated[27] with an increased prevalence of hypertension in both males and females. Similarly, Patel et al. (2016) reported that an abnormally high BMI was associated with an increased probability of diabetes and hypertension among men aged 40 to 69 years.[28]

We found that waste pickers who experienced injuries while at work were likely to have hypertension. Most of the waste pickers (68.7%) reported accidents, most of which were related to sharp objects. These injuries can cause anxiety, which is associated with elevated blood pressure.[29,30] Anxiety may be due to the fact that injured waste pickers are unable to work for some time and therefore cannot provide for their families. This was reported by Chokhandre et al. (2017) who investigated the economic burden of injuries and morbidities in terms of work days lost and persistence of injuries/illness among waste pickers.[2] They found that the mean number of workdays lost due to injuries/illness was significantly higher among waste pickers (18 days) than a comparison group (11 days) with similar characteristics (living in and around the same community as the waste pickers).[2]

Strengths and limitations

The study was conducted while waste pikers were at work, providing us with an opportunity to observe their work practices.

The results of this study are not generalisable to all waste pickers in South Africa since the study was restricted to two landfills sites in Johannesburg. In addition, participants were selected using convenience sampling. Due to the cross-sectional nature of the study design, we could not draw any conclusions about the cause of hypertension in this population. There could also have been recall bias as some participants might recall or forget events depending on their nature or severity.

CONCLUSION

This is the first study conducted in South Africa on hypertension in waste pickers. The proportion of landfill waste pickers with hypertension was high, but less than that reported in the general South African population. Hypertension was associated with increasing age and injuries experienced by waste pickers. The introduction of health awareness programmes could assist with the prevention, early detection and comprehensive management of hypertension in this group of workers.

Table 3. Factors associated with hypertension in waste pickers

Variable	OR	95% CI	P value	AOR	95% CI	P value
Sex						
Male	1.00 (ref.)			1.00 (ref.)		
Female	2.34	1.43–3.83	0.001	1.24	0.60–2.57	0.555
Age (years)	1.06	1.04–1.09	< 0.001	1.05	1.03–1.09	< 0.001
Education						
None	1.00 (ref.)					
Primary	0.59	0.18–1.85	0.362			
Secondary	0.42	0.15–1.22	0.113			
Income (ZAR)	0.99	0.99–1.00	0.414			
Housing Type						
Formal house	1.00 (ref.)					
Informal dwelling	1.09	0.56–2.09	0.801			
Backyard formal	1.22	0.60 –2.39	0.557			
Backyard informal	1.09	0.61–1.97	0.764			
Smoking status						
No	1.00 (ref.)			1.00 (ref.)		
Yes	0.50	0.31–0.83	0.007	0.81	0.41–1.62	0.559
Alcohol consumption						
No	1.00 (ref.)					
Yes	1.05	0.62–1.80	0.847			
BMI category						
Normal	1.00 (ref.)			1.00 (ref.)		
Underweight	0.56	0.30–1.05	0.071	0.52	0.25–1.09	0.083
Overweight	0.93	0.43–1.98	0.842	0.74	0.33–1.68	0.476
Obese	2.13	1.07–4.26	0.032	1.82	0.85–3.95	0.124
Diabetes						
No	1.00 (ref.)			1.00 (ref.)		
Yes	7.17	1.53–38.87	0.013	5.21	0.98–27.70	0.053
HIV status						
Negative	1.00 (ref.)					
Positive	1.37	0.68–2.75	0.374			
Tuberculosis						
No	1.00 (ref.)					
Yes	0.91	0.24–3.49	0.890			
CMD						
No risk	1.00 (ref.)					
At risk	1.23	0.77–1.96	0.386			
Injuries						
No	1.00 (ref.)			1.00 (ref.)		
Yes	1.67	0.86–3.22	0.130	2.43	1.20–4.97	0.014

OR: odds ratio; AOR: adjusted odds ratio; CI: confidence interval

LESSONS LEARNED

1. Leadership by government is key for the recognition of the role played by waste pickers as they struggle to survive while, at the same time, keeping the environment clean.
2. The labour associations formed by waste pickers are key to accessing the waste picker community.
3. Waste picking activities at landfill sites prolong the lifespan of the sites, saving municipalities much money in the process.
4. Health and safety awareness campaigns are vital for the reduction of injuries experienced by waste pickers.
5. The provision of ablution facilities at landfill sites is needed to promote the dignity of waste pickers, especially women.

DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design of the study: VN, FM, TK, NT, NN, KW
Data acquisition: VN, NN
Data analysis: VN, FM
Interpretation of the data: VN, FM, NN,
Drafting of the paper: VN
Critical revision of the paper: VN, FM, TK, NT, KW, NN

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Stress and trauma among crime scene investigators in Tshwane, South Africa

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ABSTRACT

Background: Crime scene investigators gather evidence and record murder scenes and are thus in close contact with dead bodies. Continuous exposure to traumatic crime scenes could result in post-incident stress disorders.

Objectives: To describe the stress, trauma and mental health of crime scene investigators in Tshwane, South Africa, as well as their general health and substance use, work circumstances, help-seeking behaviour, training, and work satisfaction.

Methods: Using convenience sampling, 79 crime scene investigators employed at the four Local Criminal Record Centres in the City of Tshwane Metropolitan Municipality, Gauteng, South Africa participated in a survey, using a self-administered questionnaire. Descriptive analysis was conducted using SPSS Statistics. Associations between the mental health, stress and traumatic nature of crime scene scales were determined using Spearman's correlation.

Results: One in five respondents (20.5%) had been diagnosed with a mental health problem. More than half (53.9%) worked at one or two murder scenes per week. Most (60.7%) described their work as stressful and 58.2% presented with trauma symptomology. Murder scenes involving children were reported to be particularly traumatic (79.2%). Most respondents (68.8%) expressed the need to speak to someone about their work. There were positive correlations ($p < 0.005$) between the mental health, stress and traumatic nature of crime scene scales.

Conclusion: The study shows that crime scene examiners experience disproportionate levels of stress and trauma, and uptake of in-house wellness support is low. Despite their adverse working conditions and, for some, negative mental health outcomes, most crime scene investigators appeared to be satisfied with their work.

INTRODUCTION

With an average of 58.4 murders per day, South Africa has a disproportionately high homicide rate of slightly more than 36 per 100 000 population.[1] Currently, the murder rate is the highest that it has been in the past 10 years (2019/2020 reporting period).[1] In stark contrast, countries such as Japan, New Zealand and the Netherlands have a murder rate of less than 1 per 100 000 population.[2] When a murder is reported, crime scene investigators (CSIs) are deployed to crime scenes to process organic and inorganic materials, as well as to record the murder scene through note-taking, sketching, photography and videography. Investigators are also tasked with protecting the legal integrity of crime scene information and ensuring its continuity of possession in order for it to be used as evidence in court.[3,4]

Trauma in the workplace has gained international recognition as a significant occupational health problem among police officials, with operational policing being recognised as one of the most stressful occupations worldwide.[5,6] Compared to first responder police officials who have to secure crime scenes upon their arrival, CSIs occupy crime scenes for longer periods of time and interact intimately with all elements of the scene.[7,8] Research attests that CSIs are exposed to stressors that are unique in comparison to other police officials.[9] They are exposed to toxic residues required for the processing of crime scenes and, invariably, to corpses at death scenes, some of which may be disfigured or have decayed since the time of death.[10,11] Administrative accumulation, long and irregular working hours, confrontation with human suffering, and unsanitary and physically demanding circumstances at crime scenes (e.g. handling of bodies, uncomfortable protective clothing, and blood contaminated with communicable diseases and bacteria), are daily work stressors for CSIs.[12]

Individuals who work in professions that involve trauma, e.g. law enforcement officials, fire fighters, paramedics, pathologists and rescuers, are likely to experience psychological distress, which may manifest as post-traumatic stress disorder (PTSD), depersonalisation, exhaustion, anxiety and/or depression.[13] Due to the demands of their occupation, CSIs experience intense periods of post-incident stress and are at higher risk of developing cyclical re-traumatisation than other law enforcement officials.[14-16] Critical-incident trauma occurs when frontline workers are confronted by powerful events during the course of their work, which causes emotional reactions that can overwhelm effective coping skills and produce immediate or delayed stress.[17] When critical-incident trauma occurs without professional intervention, it can lead to the development of post-incident stress behaviours and, in severe instances, PTSD.[7,14] Post-traumatic stress disorder consists of four separate symptom clusters, namely, repeated experiences of the trauma through intrusive images or thoughts; persistent avoidance of situations due to reminders or memories associated with the trauma; negative changes with regard to mood and thoughts; and hypervigilance and chronic arousal.[18,19]

Research has identified occupational stressors to be more strongly associated with health problems compared to other general life pressures such as economic strain.[7,12,17] Occupational stress and burnout result in high costs for both the organisation and the individual, and are associated with inefficiency, an increase in workplace-related

accidents, absenteeism, substance use and early retirement.[5,20] Some of the organisational strategies used in stress-inducing professions to diminish the negative consequences of regular and prolonged exposure to trauma include mandatory counselling, stress mitigation training, and mandatory debriefing after exposure to a stressful event.[15,17] However, the coping strategies that law enforcement officials use to cope with stress do not always involve professional support.[21,22] Unfortunately, help-seeking is often constrained by a reluctance to disclose distress in order to avoid being perceived as 'soft' or inadequate in an occupation that traditionally values the 'toughness' of police officials.[16,23,24]

In South Africa, research has been conducted on burnout and coping among police officials – some studies have included CSIs in their study participants.[9,25-27] Only one local study that focused on CSIs in South Africa was identified; this was a postgraduate dissertation.[28] The research described in this paper aimed to add to the limited local body of knowledge on stress, trauma and mental health among CSIs.

METHODS

The South African Police Services (SAPS) employs 176 CSIs at four Local Criminal Record Centres (LCRCs) in the City of Tshwane, Gauteng province, South Africa. Convenience sampling was used to obtain information from the 81 (46.0%) CSIs who were in the LCRCs on the days on which the survey was conducted.

The questionnaire consisted of the validated brief 10-item Trauma Screening Questionnaire (TSQ)[29,30] and an adapted four-point mental health scale measuring the concepts of sadness, anxiety, hopelessness, unsettlement and loneliness.[31-33] The authors developed the remainder of the questions, including the traumatic nature of crime scenes scale, based on an extensive literature review. Cronbach's alpha coefficients were 0.881 for the TSQ, 0.811 for the mental health scale and 0.890 for the traumatic nature of crime scenes scale.

Table 1. Characteristics of the study participants (N = 79)

Characteristic	n	%
Sex		
Male	60	76.9
Female	18	23.1
Age (years)		
≤ 30	18	24.3
31– 40	26	35.1
41–50	25	33.8
≥ 51	5	6.8
Race		
Black African	60	76.9
White	15	19.2
Coloured	2	2.6
Indian	1	1.3
Marital status		
Married	42	53.8
Single	23	29.5
Partnered	7	8.9
Divorced	6	7.7
Highest education		
Grade 12	40	51.3
Diploma	21	26.9
Bachelor's degree	14	17.9
Postgraduate degree	3	3.8

The survey was conducted in each LCRC on pre-arranged dates. All CSIs who were present during the morning roll call were invited to participate. The self-administered questionnaires were collected immediately after completion.

Ethical approval for the research was obtained from the Ethics Committee of the Faculty of Humanities, University of Pretoria. Authorisation to conduct the survey was obtained from the SAPS Research and Monitoring Unit of the Gauteng Provincial Department.

Data analysis

The data were manually captured in MS Excel and exported to the Statistical Package for the Social Sciences (SPSS) for analysis.[34] In addition to the descriptive analysis, composite scores were calculated for the TSQ, mental health scale and the traumatic nature of crime scene scale in order to determine relationships among them by means of Spearman's ranked order correlation.

RESULTS

Seventy-nine of the 81 CSIs in attendance at morning roll call participated in the survey (97.5%). The average age of respondents was 37.7 years (SD ± 8.3). Most of the study participants were male (n = 60, 76.9%) and 21.7% (n = 17) had a university degree (Table 1). Only one in six (n = 12, 15.8%) did not have children.

Health and substance use

Nearly a quarter of respondents (n = 18, 23.4%) indicated that they had been diagnosed with a chronic health condition and 20.5% (n = 16) reported that they had been diagnosed with a mental health condition. The majority did not use tobacco (73.6%) and almost 20% used prescription medication on a daily basis (Table 2).

Working at crime scenes

The average number of years that respondents had worked for the SAPS was 14.5 (± 10.1) and the average number of years they had worked as CSIs was 10.0 (± 8.0). All had worked at crime scenes where someone had died violently. More than half (n = 41, 53.9%) attended one or two crime scenes per week, 17 (22.4%) attended three or four per week, and 18 (23.7%) attended five or more per week. The majority (n = 60, 76.9%) attended autopsies, with most doing so only a few times per month (n = 47, 83.9%). Of those who did not attend autopsies (n = 19, 21.5%), six (31.6%) reported that the responsibility fell outside their work description, and five (26.3%) reported that they did not feel comfortable attending autopsies.

Stress, trauma and mental health

Nearly a third of respondents (n = 23, 29.1%) rated the nature of CSI work as 'very stressful'. A similar proportion (n = 25, 31.6%) appraised the occupation as 'quite stressful'. Twenty-two (27.8%) regarded CSI work as 'a little stressful', while nine (11.4%) considered their work as 'not stressful at all'.

The participating CSIs were asked to indicate their levels of stress en route to, while working at, and after having completed their work at crime scenes. The responses are shown in Figure 1.

When combining the 'quite stressed' and 'very stressed' categories, the levels of stress of respondents, in general, appeared to increase from when CSIs were en route (n = 16, 20.3%), to when they were working at the crime scene (n = 20, 25.6%), and then after they had concluded their work (n = 28, 35.9%).

Table 2. Respondents' use of substances

Substance	Never		Seldom		Sometimes		Daily	
	n	%	n	%	n	%	n	%
Alcohol	22	29.7	32	43.2	16	21.6	4	5.4
Tobacco	53	73.6	7	9.7	3	4.2	9	12.5
Prescription medication	32	42.1	20	26.3	9	11.8	15	19.7

Respondents were asked to indicate how traumatic they found specific types of crime scenes. Most reported that scenes that involved the bodies of children and teenagers, and those with disfigured or decomposed bodies, were very traumatic (Table 3).

Table 4 shows the respondents' self-reported mental health. More than 50% of respondents reported that they experienced mental health issues 'sometimes' or 'often'.

Respondents were asked how often they had experienced trauma indicators, as listed in Table 5, at least twice in the week preceding the survey. The greater proportions of respondents reported that they had experienced upsetting thoughts and reminders about events.

The probability of being diagnosed with PTSD is high if a respondent replies in the affirmative to at least six of the 10 items on the trauma screening questionnaire. The average score of respondents was 5.9, and more than half (n = 46, 58.2%) scored six or higher on the questionnaire. Fifteen respondents (19.2%) replied 'yes' to all 10 items.

The correlation analysis indicated that there was a weak positive association between the traumatic nature of crime scene and mental health scales (n = 71; r = 0.333, p < 0.01). There was a moderate positive correlation between the traumatic nature of crime scene scale and the TSQ (n = 71; r = 0.474, p < 0.001), and between the mental health scale and the TSQ (n = 76; r = 0.520, p < 0.001).

Help-seeking and training

More than two-thirds of respondents (n = 53, 68.8%) expressed the need to speak to someone about the nature of their work. Of these, the majority (n = 38, 74.5%) did speak to someone, notably a colleague (n = 14, 36.8%), a family member (n = 7, 18.4%), a professional at work (n = 7, 18.4%), a professional outside work (n = 4, 10.5%), a friend (n = 4, 10.5%), or a religious leader (n = 2, 5.3%). The majority (n = 62, 78.5%) indicated that they had received information about what to expect before they arrived at a crime scene, and most of them (n = 44, 72.1%) found this information useful. Of those who had never received information prior to arrival at a crime scene (n = 17, 21.5%), more than half (n = 9, 52.9%) stated that they would have liked to receive information about what to expect.

More than half (n = 48, 61.5%) indicated that debriefing services were never provided. Less than a third (n = 23, 29.1%) had received training to cope, at an emotional level, with their work and nearly all (n = 20, 87.0%) stated that the training was helpful. The majority (n = 43, 79.6%) of those who had not received training stated that they would welcome training to assist them to cope with their work.

Work satisfaction

Nearly two-thirds of respondents rated their work experience as either 'very good' or 'good', although the majority appeared cautious about recommending working as a CSI to others (Table 6).

DISCUSSION

Crime scene investigators bear the consequences of brutal events beyond the parameters of normal work experiences, even more so in settings of violent murder where frequent exposure to dead bodies may result in serious post-incident stress behaviours. Attrition rates for CSIs – nearly 50% over a three-year period in Australia[20] – come at a high cost to law enforcement agencies. The average age of respondents (37.7 years) in our survey and the average number of years they have been working in the SAPS (14.5 years) – and more specifically as CSIs (10.0 years) – suggest not only low staff turnover but, equally

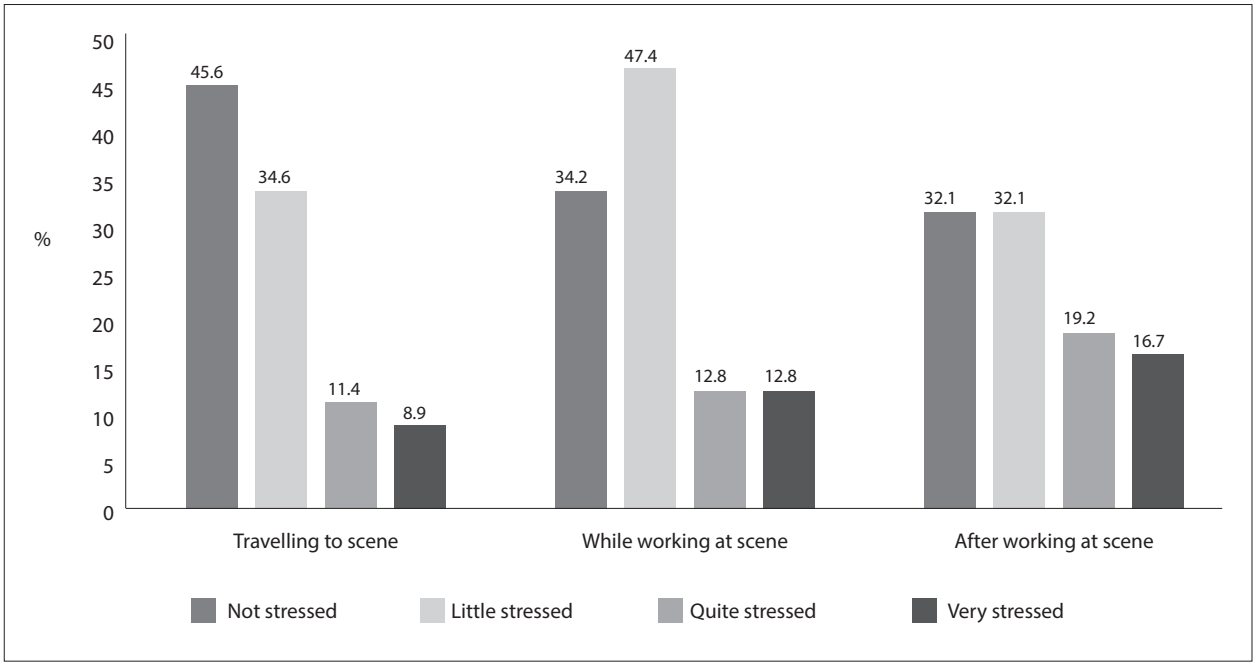

Figure 1: Stress en route to, working at, and concluding work at crime scene

Table 3. Traumatic nature of crime scenes

	Not traumatic		Little traumatic		Quite traumatic		Very traumatic	
	n	%	n	%	n	%	n	%
Children	4	5.2	12	15.6	17	22.1	44	57.1
Decomposed bodies	13	16.7	16	20.5	13	16.7	36	46.2
Teenagers	6	7.7	20	25.6	19	24.4	33	42.3
Disfigured bodies	14	17.9	17	21.8	15	19.2	32	41.0
Foetuses	11	14.5	21	27.6	16	21.1	28	36.8
Dismembered bodies	16	20.8	17	22.1	16	20.8	28	36.4
Adults	16	20.8	24	31.2	23	29.9	14	18.2

important, the retention of expertise and practical experience. Evidence suggests that longer service duration ameliorates stress experienced by CSIs as a result of exposure to, for example, homicide, suicide and mass fatalities.[7]

Depression and anxiety are debilitating mental health conditions that cost the global economy an estimated USD 1 trillion annually,[35] and it is estimated that mental, neurological and substance use disorders affect at least 10% of the world's population.[35] Disquietingly, one in five CSIs reported having been diagnosed with a mental health condition. However, the figure might be an underestimate of the problem as some respondents might have had a mental health disorder that had not been clinically diagnosed.

Nearly a quarter of the CSIs had been diagnosed with a chronic health condition. This is slightly higher than the South African average of 18% for 2019.[36] Frontline police officials commonly present with physical health conditions such as headaches, high blood pressure (and concomitant cardio and vascular problems), back pain and digestive problems.[5] Considering their diagnosed mental and chronic health conditions, it is not surprising that nearly a third (31.6%) of respondents regularly used prescription medication.

Almost all the CSIs attended crime scenes at least once or twice per week where someone had died violently, with some attending such scenes five or more times per week. In addition to gathering evidence over extended periods of time and handling corpses, the majority of CSIs attend autopsies. It is therefore not surprising that many respondents reported violent crime scenes as being fairly traumatic. This is congruent with trauma trends among South African police officials in general.[25] Dealing with child victims, in particular, places emotional strain on CSIs, which is confirmed by previous research.[13,24,37] In this regard, it has been found that police officials' cognitive appraisals of events, especially when there are characteristics that closely intersect with their own lives, such as having children of their own, are predictive of elevated trauma levels.[38] Exposure to the remains of a child creates an uneasy sense of familiarity and emotional involvement. Since the majority of respondents had children, it follows that they would be adversely affected by death scenes involving children.

The manner in which stress and trauma develop is dynamic. The findings established that, in some cases, stress increased en route to a scene, elevated while working at the scene, and peaked after processing the scene. This emphasises the need for debriefing immediately after having worked at a violent scene; yet the majority of respondents stated that such debriefing is never available. Nevertheless, some CSIs relied on support from other sources to cope with stress.[20] The majority of respondents expressed the need to speak to someone about the nature of their work, with colleagues appearing to be their preferred confidantes. This is not unusual, given the camaraderie among police officials, and CSIs in particular, considering the macabre nature of their work environment. The uptake of professional support provided by the SAPS appeared to be fairly low and has been ascribed to police officials' fear of being perceived as being weak, and reservations about the confidential nature of in-house professional support services.[23]

Male CSIs in this survey outnumbered females by slightly more than 3:1. Research confirms that the police culture, in general, conforms to hegemonic masculinity and is characterised by hyper masculinity.[39] Besides masculinity, the police culture has also been described as isolationist, elitist, misogynistic and authoritarian.[40] It is possible that the 'macho' policing culture, which disapproves of any signs of vulnerability or acknowledgement of emotions, acts as a barrier for male CSIs to access in-house support services.[41-43]

The results further suggest that CSIs experience varying levels of sadness, anxiousness, hopelessness, unsettlement and loneliness. The findings support the unfavourable psychological health symptoms identified among other frontline workers in South Africa.[5] Notably, the greater proportion of respondents presented with two trauma indicators, namely upsetting thoughts and feeling upset by reminders of events. This is not unexpected because the duties of CSIs include compiling photographic albums of crime scenes and testifying in court. Investigators are required to continuously assess their work for accuracy, and traumatisation therefore does not end at the crime scene – it is prolonged when reviewing the evidence post-scene and during court proceedings.[5]

In Buffalo, New York, police officials presented higher post-traumatic stress symptomatology (35%) compared to the general population (9%).[44] In Slovenia, approximately 7% of adults in the general population will experience PTSD, yet clinically significant PTSD symptoms have been found among 17% of CSIs.[13] In South Africa, a

Table 4. Respondents' self-reported mental health

Symptom	Never		Seldom		Sometimes		Often	
	n	%	n	%	n	%	n	%
Sadness	8	10.1	12	15.2	40	50.6	19	24.1
Anxiety	10	13.0	18	23.4	34	44.2	15	19.5
Hopelessness	20	25.6	15	19.2	27	34.6	16	20.5
Feeling unsettled	11	14.1	15	19.2	29	37.2	23	29.5
Loneliness	25	32.1	10	12.8	30	38.5	13	16.7

Table 5. Respondents' experiences of trauma

Indicator	n	%
Upsetting thoughts/memories about events have come into your mind against your will	48	60.8
Feeling upset by reminders of the events	41	51.9
Heightened awareness of potential dangers to yourself and others	34	43.6
Irritability or outbursts of anger	33	41.8
Difficulty concentrating	31	39.2
Being jumpy or being startled by something unexpected	31	39.2
Acting or feeling as if the events were happening again	28	35.4
Having upsetting dreams about events	26	32.9
Bodily reactions (fast heartbeat, stomach turning, sweatiness, dizziness) when reminded of the events	26	32.9
Difficulty falling or staying asleep	26	32.9

national survey indicated a PTSD prevalence rate of 11.1% amongst the general population.[45] More than half of the respondents in our study presented with trauma symptomatology, indicating that CSIs carry a disproportionately higher burden of psychological discomfort than the general population.

In Slovenia, CSIs undergo six-month training, which barely touches on mental health.[13] The situation appears to be similar in South Africa; less than a third of respondents in our survey reported that they had received training on how to cope with their work on an emotional level. As anticipated, the majority of those who were not trained would like to receive this support.

Although most respondents stated that they would not recommend their occupation to others, they did not appear to actively consider resigning, which indicates dedication and commitment, supported by their high levels of work satisfaction. Job satisfaction has been found to mediate episodes of depression and, likewise, commitment to the organisation has proved to moderate the effects of work-related trauma on health.[5,46]

It is recommended that CSIs have access to tailor-made counselling services given the intensity and nature of stress and trauma to which they are frequently exposed. Since CSIs work irregular hours, on-demand debriefing should be available at all times. As some CSIs might avoid in-house counselling services, the development of peer-debriefing programmes should be considered. Lastly, larger studies are needed to better understand the stress, trauma and mental health that CSIs experience amid South Africa's high homicide burden.

Table 6. Work satisfaction of respondents

Indicator	n	%
Rating of work satisfaction		
Very poor	1	1.3
Poor	5	6.4
Average	21	26.9
Good	25	32.1
Very good	26	33.3
Ever considered resigning		
Never	30	38.0
Sometimes	39	49.4
Often	10	12.7
Would recommend working as CSI		
Not at all	17	21.5
Hesitantly	38	48.1
Definitely	24	30.4

CONCLUSION

We showed that CSIs experience concerningly high levels of trauma and PTSD symptomatology. Some CSIs have been diagnosed with chronic health and mental health conditions that may be attributed to their stressful work context. Crime scene investigators are confronted with hazardous crime scenes where they have to work with, among other things, bodily fluids that may be infected with contagious diseases or bacteria. While CSIs have the need to speak to someone about the nature of their work, most do not access in-house wellness support. Despite their adverse working conditions and, for some, negative mental health outcomes, the CSIs in this study appeared to be satisfied with their work.

LESSONS LEARNED

1. Initial suspicion about surveys can be allayed by presenting the approved research and ethics protocols to potential participants.
2. Liaison with the managers of LCRCs and arranging site visits well in advance proved beneficial for the smooth running of data gathering.
3. The managers of LCRCs welcomed the study and expressed concern about some CSIs' mental health and substance use.

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DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design of the study: FS, HK
Data acquisition: FS
Data analysis: FS
Interpretation of the data: FS, HK
Drafting of the paper: FS, HK
Critical revision of the paper: FS, HK

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Low back pain in restaurant waitron staff within the eThekwini Municipality, South Africa

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ABSTRACT

Background: Low back pain (LBP) is a cause of morbidity and chronic disability across the world, with many occupational groups showing elevated risks for LBP. Waitrons often work long hours and are on their feet for long periods.

Objectives: To estimate the prevalence of LBP and to identify risk factors of LBP among full-time restaurant waitron staff within the eThekwini Municipality, in KwaZulu-Natal, South Africa.

Methods: A self-administered questionnaire was used to conduct a cross-sectional survey among waitron staff. Pearson's chi-square test was used to compare categorical variables, while t-tests were used to test differences between continuous variables. Univariate, followed by multivariable, analyses were performed. Odds ratios and 95% confidence intervals were reported.

Results: The prevalence of LBP among the study participants was 72.8%. Low back pain was associated with ethnicity: Indians had a 7.7 times higher risk than black Africans (OR 7.71, 95% CI 1.27–46.72, p = 0.026); whites had a 5.9 times higher risk than black Africans. Those with only secondary education had an almost 12 times higher risk of LBP than those with tertiary education (OR 11.97, 95% CI 1.40–102.39; p = 0.023). Work-related factors that were associated with LBP included standing/walking for long periods of time (OR 42.81, 95% CI 2.35–780.99, p = 0.011). Difficulties in bending, standing and lifting of heavy items were reported as a consequence of LBP, which also resulted in absenteeism.

Conclusion: The high prevalence of LBP among waitron staff is related to their duties. Ergonomic intervention strategies to ensure worker health and productivity are required.

INTRODUCTION

Low back pain (LBP) is a major cause of morbidity worldwide.[1] It has a complex aetiology and can occur as a result of injury or irritation of the muscles, ligaments, connective tissues, joints, intervertebral discs or spinal nerve roots.[2] It may result in varying degrees of pain and disability.[3,4]

In 2006, LBP was reported to be a major cause of chronic disability in working professionals in the USA, and resulted in absenteeism and large amounts of money spent on treatment.[5] Individuals working in the restaurant industry work approximately 60 to 70 hours per week; waitrons and managers are on their feet 12 to 15 hours a day.[6] A study conducted among restaurant waitron staff in the USA in 2006 revealed that 42% of participants experienced musculoskeletal symptoms, with 18% reporting LBP.[7] A similar study on restaurant workers in Pune, India, identified that musculoskeletal disorders were more common among waitrons who bore heavy loads, stood for prolonged periods, and/or maintained awkward postures to deliver orders to customers.[8] Nevertheless, a study on musculoskeletal disorders in hotel restaurant workers in Taiwan found that only a small proportion (12%) of the participants reported that their work activities were affected by pain.[9] Physical work demands, such as heavy lifting, prolonged standing, awkward body postures, repetitive arm movements, and working with arms above shoulder height may predispose workers to musculoskeletal disorders.[10-12]

To date, there are no studies on musculoskeletal disorders in the restaurant industry in South Africa. This study was designed to estimate the prevalence and identify associated risk factors of LBP among full-time restaurant waitron staff within the eThekwini Municipality, in KwaZulu-Natal province, South Africa.

METHODS

A descriptive, quantitative, cross-sectional survey was conducted among full-time restaurant waitron staff in the eThekwini Municipality of KwaZulu-Natal from November 2018 to December 2019.

A self-administered questionnaire was designed, based on previous studies.[7-9, 13-15] Different styles of questions were used and included open-ended questions, multiple choice questions, dichotomous options, and questions that used a Likert scale. A panel of five experts evaluated the content validity. The questionnaires were piloted on five participants who were excluded from the main study, to ensure reliability. The questionnaire comprised 79 questions and took approximately 15 minutes to complete.

Twenty-eight restaurants were randomly selected from 293 restaurants within the eThekwini Municipality. All full-time waitrons who were older than 18 years and worked a minimum of five shifts a week at the selected restaurants were invited to participate (N = 340).

Ethical clearance was obtained from the Institutional Research Ethics Committee at the Durban University of Technology (IREC 152/18). Relevant gatekeeper permission was sought from all restaurant managers/owners, prior to handing out the questionnaires. All participants provided signed informed consent.

Data analysis

The data were analysed using SPSS (version 25). Frequencies and percentages were used to describe categorical outcomes, while means and standard deviations were used to summarise continuous variables. The Pearson's chi-square test and Student's t-test were used to compare differences in categorical and continuous variables, respectively. Variables for which the p value was < 0.05 in the univariate analysis were included in the multivariable logistic regression model, using backward selection to eliminate non-significant predictors. Odds ratios and 95% confidence intervals were reported; $p < 0.05$ was considered statistically significant.

RESULTS

One hundred and eighty questionnaires were returned (52.9% response rate). Table 1 summarises the sociodemographic characteristics of the study participants. More than half of the participants were female (n = 98, 54.4%). The mean age was 26 ± 6 years; males were slightly older than females. More than half of the participants were white (n = 95, 52.8%), single (n = 127, 70.6%), and had a tertiary education (n = 100, 55.6%). The mean body mass index (BMI) was 24.61 ± 5.15 kg/m^2. More than half (n = 99, 55.0%) did not have health insurance, although two-thirds (n = 124, 68.9%) reported that they had sufficient access to healthcare services. Some (n = 52, 28.9%) had been working in the waitering industry for more than five years.

The prevalence of LBP in the study participants was 72.8% (n = 131). A third of the participants with LBP (n = 44; 33.6%) reported that episodes occurred two to three times a week (Table 2). Almost half reported that LBP was at its worst in the evening (n = 55; 49.5%), two-thirds found that it began gradually without injury (n = 73; 65.8%), and most reported that the severity was unchanged since it first began (n = 72; 64.9%).

Table 1. Sociodemographic profile of study participants

Characteristic	n	%
Sex		
Female	98	54.4
Male	82	45.6
Race		
White	95	52.8
Black African	50	27.8
Indian	25	13.9
Coloured	10	5.6
Relationship status		
Single	127	70.6
Cohabiting	30	16.7
Married	16	8.9
Divorced	7	3.9
Highest level of education		
Secondary (< Grade 12)	17	9.4
Grade 12	63	35.0
Tertiary	100	55.6
Duration of employment (years)		
≤ 1	37	20.6
2	31	17.2
3	24	13.3
4	15	8.3
5	21	11.7
> 5	52	28.9
Medical aid	81	45.0
Access to health services	124	68.9

Table 2. Low back pain (LBP) characteristics (N = 131)

Characteristic	n	%
Duration of single LBP episode (hours)		
< 1	24	18.3
1-2	32	24.4
> 2-3	28	21.4
> 3-4	17	13.0
> 4	30	22.9
Occasionally	44	33.6
Frequency		
Every day	21	16.0
2-3 times a week	44	33.6
Once a week	9	6.9
Every second week	9	6.9
Once a month	4	3.1
Pain progression		
LBP is getting worse	22	19.8
LBP is getting better	17	15.3
Constant	72	64.9
Time of day when pain worst		
Morning	10	9.0
Afternoon	18	16.2
Evening	55	49.5
Night	28	25.2
Onset		
Gradually without injury	73	65.8
Gradually after injury	21	18.9
Abruptly without injury	6	5.4
Abruptly after injury	11	9.9
Task difficulties due to LBP		
Bending	57	43.5
Standing	48	36.6
Lifting	47	35.9
Sleeping	36	27.5
Sitting	34	26.0
Walking	17	13.0
Driving	13	9.9
Dressing	6	4.6
Other	1	0.8
Absenteeism due to LBP	20	11.1
Number of days absent		
1	8	40.0
2–3	10	50.0
4–5	1	5.0
> 5	1	5.0
Bed-ridden due to LBP	15	13.5
Number of days bed-ridden		
1	7	46.7
2	6	40.0
≥ 3	2	13.3

The following difficulties as a result of LBP were reported: bending (n = 57; 43.5%), standing (n = 48; 36.6%) and lifting heavy items (n = 47; 35.9%). Almost half of the participants with LBP (n = 54; 49.1%) reported that it had a moderate impact on their work. Absenteeism from work due to LBP was reported by 20 (11.1%) participants. Of these, 15 (75%) had been bed-ridden due to LBP; the number of days varied. None of the participants lost their jobs due to LBP.

The univariate analysis showed that LBP was associated with race, education, standing/walking during a shift, carrying multiple plates, and falls (Table 3). Multivariable logistic regression indicated that Indians and whites had a 7.7 and 5.9 increased odds of LBP compared with black Africans, respectively (Table 4). Low back pain was also associated with education (p = 0.002). Those with only a secondary education had an almost 12 times higher odds of having LBP than those with tertiary education (p = 0.023). While standing or walking during the work shift significantly increased the odds of experiencing LBP (p = 0.011), carrying multiple plates did not (p = 0.078).

Other factors were not associated with LBP, including the number of shifts worked (single or double). There was no relationship between footwear and LBP, but most participants (n = 118, 65.6%) reported they were required to wear a certain type of shoe, such as sneakers or trainers.

DISCUSSION

The estimated prevalence of LBP in the study population was a high 72.8%. This was higher than the prevalence reported in similar international studies on restaurant workers, where prevalences of just over 50% were reported.[9,15] In our study, participants with secondary school education had an almost 12 times higher risk than those with tertiary education, which is comparable to findings from a global review, conducted by Manchikanti et al. (2012) where LBP prevalence decreased with an increase in educational level.[16] It is possible that those with higher education levels were more enlightened about correct postural working techniques. Given that 45% of study participants did not have more than a secondary school education, it is possible that they had a lower level of awareness than in other studies where participants had higher levels of education.

Work-related factors that involved standing or walking for long periods of time, and carrying multiple plates at a time, were associated with LBP. The latter activity involves awkward postures and bending, which have been shown to cause LBP.[17] This can increase strain on the low back, particularly if heavy items are carried. Activities that involve frequent heavy lifting, standing and leaning forward are associated with LBP.[11,13,18,19] These activities place stress on the back, leading to inflammation and increased compressive forces on the intervertebral discs.[20-23] Ergonomic interventions, such as the use of trays and/or trolleys to carry plates and heavy items, would be useful in alleviating LBP.

More Indians and whites reported LBP than black Africans. It is unknown whether pain perception differs among people of different races in South Africa and this requires further investigation.

The participants reported that their LBP lasted, on average, for one to two hours, and that they experienced LBP, on average, two to three times a week. This is consistent with findings from a study on restaurant workers in Turkey[14] and could be due to the task demands of waitrons during shifts, resulting in pain and discomfort at the end of the shift. While working, they could ignore the pain.

Low back pain was reported to be worst in the evenings, which might be due to the high workload of waitrons during the day, resulting in pain experienced after work has ended. Most participants reported that their LBP began gradually, without injury (65.8%), and that the severity was unchanged since it first began. It is plausible that the gradual onset of LBP is a consequence of repetitive microtrauma over time, due to the repetitive nature of the work.

Factors such as falls were also linked with LBP and these could very likely result in injury. Some restaurants required waitrons to wear sneakers/trainers for comfort during work shifts. When standing for prolonged periods, footwear creates comfort between the body and the floor, and it is thus important to wear comfortable shoes. Footwear modifications in the catering industry have been found to be of great benefit; shoes should be of intermediate stiffness to provide flexibility and stability.[24] This was confirmed by Anderson et al. (2017) who stated that alterations in footwear must impact on movement and posture.[25] Orlando and King (2004) found that working on a softer flooring surface decreased discomfort levels and general fatigue. This corroborates Anderson et al.'s findings when they compared the hardness of flooring and the thickness and materials of footwear, and reported that working on soft flooring mats decreased work-related musculoskeletal disorders in professions that require prolonged standing.[26,27]

The 17.1% of study participants who reported absenteeism from work due to LBP was similar to the proportion reported in a study

Table 3. Factors associated with LBP (univariate analysis)

Factor	Yes		p value
	n	%	
Race			0.002
Black African	28	56.0	
Coloured	6	60.0	
Indian	17	68.0	
White	80	84.2	
Level of education			0.002
High school	15	88.2	
Matriculation	36	57.1	
Tertiary	80	80.0	
Standing/walking during shift	130	74.7	0.002
Carrying > 1 plate	58	93.5	0.002
Falls	54	87.1	0.002

Table 4. Factors associated with LBP (multivariable analysis)

Factor	AOR	95% CI	p value
Race			
Black African	1.00 (ref.)		
Indian	7.71	1.27–46.72	0.026
White	5.89	1.43–24.29	0.014
Coloured	1.53	0.15–15.68	0.719
Highest level of education			
Tertiary	1.00 (ref.)		
Grade 12	0.78	0.25–2.49	0.677
Secondary school	11.97	1.40–102.39	0.023
Sitting	1.00 (ref.)		
Standing or walking	42.81	2.35–780.99	0.011
Carrying one plate	1.00 (ref.)		
Carrying > one plate	3.80	0.86–16.78	0.078

AOR: adjusted odds ratio

conducted among workers involved in a variety of occupations, in the USA (20.1%).[28]

The response rate was low, at 53%. This was mainly due to many large chain restaurants not providing permission for their staff to participate in the study. Nevertheless, we recommend that shift hours should be decreased as a strategy for preventing staff from standing and walking for prolonged periods of time. Frequent rests during shifts would also reduce LBP. There is also a need for educational interventions for waitrons, so that they can improve their posture while working. We propose that longitudinal studies be conducted to verify the identified risk factors associated with LBP in waitron staff in this study.

CONCLUSION

The prevalence of LBP among the participating waitron staff was high. Work-related factors were associated with the onset of LBP, including prolonged standing, walking for long periods of time, and carrying heavy loads.

LESSONS LEARNED

1. Large chain restaurants are more resistant to research on musculoskeletal disorders than smaller restaurants.
2. Waitrons who experience LBP do not perceive it to affect their work.

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DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design of the study: AW, FH
Data acquisition: AW
Data analysis: AW, FH
Interpretation of the data: AW, FH
Drafting of the paper: AW
Critical revision of the paper: FH

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Regional virtual research and publication workshop

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INTRODUCTION

The Southern Africa TB and Health Systems Support (SATBHSS) project has emphasised rolling out a standardised package of occupational health services and mining safety standards across the four project countries of Malawi, Lesotho, Mozambique and Zambia. Project countries have, in this regard, spearheaded studies in different areas of occupational health and safety, with a view to creating and sharing regional knowledge and supporting evidence-based policies and interventions. Publication of study results in peer-reviewed journals is an important step for communicating findings while, at the same time, providing an opportunity for the findings to be evaluated by the research community. Furthermore, development and dissemination of policy briefs communicate research findings to a diverse group of stakeholders, for better translation of research into the improvement of occupational health and safety (OHS) and tuberculosis (TB) policies and services.

It is therefore fundamental that focus is given to improving research and publication writing skills for increased knowledge exchange and utilisation to address OHS challenges. This will increase project scalability and influence the OHS and TB policy landscape, not only in southern Africa, but in the continent and worldwide.

The project countries, African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), East, Central & Southern Africa-Health Community (ECSA-HC), and the *Occupational Health Southern Africa* journal editorial team have collaborated to conduct a series of training sessions to equip member states with skills in research and manuscript publication. The first session was convened from 16 to 20 November 2020. Approximately 70 participants from the project countries attended the training.

PRE-WORKSHOP SURVEY

Seventy-five percent of the 77 participants who responded to the pre-workshop survey had experience in undertaking research. The majority (83%) were not currently involved in research but were in the process of registering for their master's degrees or wanting to publish their research. A handful of the participants had completed studies that were ready for publication (9%), had experience in writing manuscripts (17%), or were in the process of writing manuscripts for submission to scientific journals (13%). Results of the survey are shown in Figure 1.

The regional research and publication workshop participants expected to improve their research and publication knowledge and skills, networking and finding publication mentors, etc. (Figure 2).

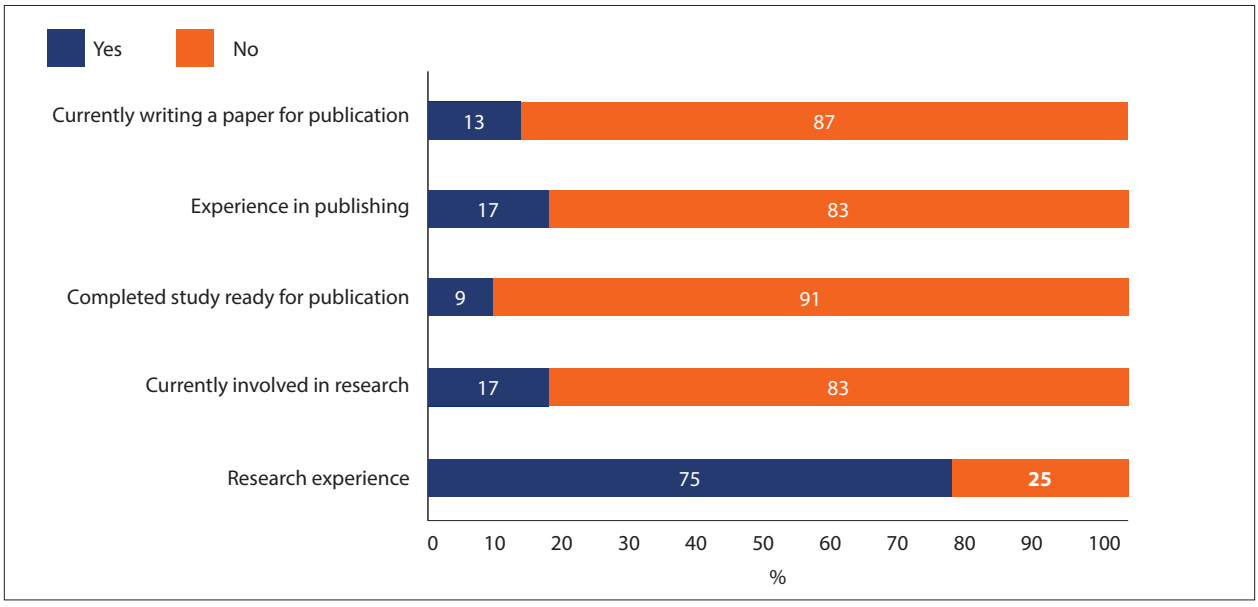

Figure 1. Workshop participants' experience in research and writing, and publishing research

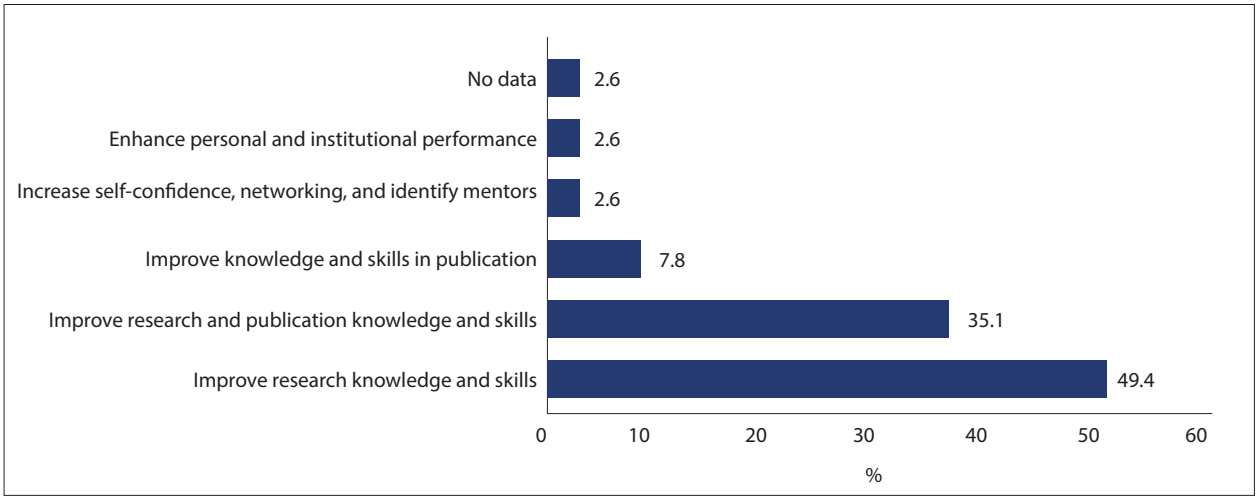

Figure 2. Expectations of workshop participants

PROCEEDINGS

The research and publication workshop was facilitated by the *Occupational Health Southern Africa* journal under the leadership and guidance of the editor-in-chief, Prof. Gill Nelson, assistant editor, Dr Zodwa Ndlovu, and their colleagues, Prof. Eustasius Musenge (Wits School of Public Health), Mr Braimoh Bello (Centre for Statistical Analysis and Research (CESAR)), and Mr Kevin Beaumont (*Occupational Health Southern Africa*). The journal is accredited by the Department of Higher Education and Training (DHET) in the Republic of South Africa. The main outcomes of the workshop were the training of at least 30 participants, and identification of draft manuscripts that will result in the submission of four papers for publication by May 2021. The training was undertaken as part of the *Occupational Health Southern Africa* journal's quest to increase writing skills and knowledge in the region.

The first phase of the training focused on writing research papers, as the majority of the project countries have concluded several local studies that need to be published. For more information on the customised training content covered, refer to Table 1.

CONCLUSION AND WAY FORWARD

At least 15 viable draft manuscripts were developed through either individual or group writing, as part of the workshop activities. These provisional manuscripts are only for country-completed studies and exclude regional studies. The organisers (ECSA-HC and AUDA-NEPAD) are currently planning a phase 2 workshop, which will entail face-to-face regional training for those who have reached an advanced stage in the writing of their manuscripts. The main aim is to assist them to finalise and submit their manuscripts to the journals that they have selected. The second training workshop will involve identification of national research priority areas, research funding applications and development of policy briefs for policy reforms.

ACKNOWLEDGEMENT

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Table 1. Training content of regional workshop on publication skills

Day 1	Day 2	Day 3	Day 4	Day 5
Mr Norman Khoza[1]	**Dr Mohamed Mohamed**[1]	**Dr Khalide Azam**[1]	**Mr Brian Ngandu**[1]	**Ms Nomsa Mulima**[1]
Workshop overview, objectives purpose and key outcome AUDA-NEPAD: Mrs Chimwemwe Chamdimba	**Research development** Introduction section: Background/literature review; Problem statement and rationale; Research questions and objectives **Dr Zodwa Ndlovu**	**Manuscript writing** Methods section: Statistical analysis **Prof. Eustatius Musenge**	**Manuscript writing** From the research report to the manuscript **Dr Zodwa Ndlovu**	**Manuscript writing** Front matters; Abstract; Title; and Key messages **Prof. Gill Nelson**
Research development Identifying research priorities **Mr Braimoh Bello**	**Manuscript writing** Choosing a journal, and journal expectation **Prof. Gill Nelson**	**Manuscript writing** Results section: Presentation of results **Prof. Gill Nelson**	**Manuscript writing** Discussion section: Recommendations and conclusion **Dr Zodwa Ndlovu**	**Manuscript writing** Peer-review process **Prof. Gill Nelson**
Research integrity Overview and authorship **Prof. Gill Nelson**	**Research development** Methods section **Prof. Gill Nelson**	**Research integrity** Plagiarism and referencing **Prof. Gill Nelson**	**Manuscript writing** Finalising the manuscript **Mr Kevin Beaumont**	**Introduction to Phase 2** A–G of research **Mr Braimoh Bello**

[1] *Session moderator*

The OSHversity training and development initiative

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The African continent has a population of over one billion and the sub-Sahara African region has the largest youth population, globally.[1] One would think that this would mean growth and productivity. However, because this population is not adequately trained and skilled, harnessing these potentials becomes difficult. According to reports, only 14% of Africa's entire working population has formal wage-paying jobs, while 86% are in the informal sector.[2]

In seeking ways to contribute towards bridging the competency gap in needed skills to make more Africans employable, we came up with the idea of the OSHverstiy training and development initiative. It is important to note that OSHversity uses both for-profit and not-for-profit governance models. We offer occupational health and safety (OHS) training to corporate organisations that are able and willing to pay for their employees' training; we use those revenues to meet our not-for-profit social concerns. These funds are invested into offering FREE OHS training to Africans as well as citizens from low- and medium-income countries (LMICs).

OUR MOTIVATION

We were driven to action by the observations listed below:

- Scarcity of trained OHS professionals in developing countries
- The opportunities offered by the new world of technology, including the ability to conduct online classes
- The potential for meaningful employment value derived from training
- The need to improve safety in our workplaces
- The continuous need to reduce 'quackery' in the field of OHS

Reasons for Africans and citizens from LMICs not venturing into OHS professions include:

- Few institutions offering relevant courses
- High cost of training
- Poverty
- Few employment opportunities for trained OHS experts

These considerations guided us to conceptualise a skills and competency improvement programme that addresses the needs of new entrants to the field of OSH and those seeking specialised training in specific knowledge areas. We have developed a model that focuses less on the issuance of certificates and more on competency improvement. This does not mean that we are averse to certifications but we want to build skills – a strong driver in the future of work. This being true, then the need for everyone to have access to smart online OSH training should be a collective resolve.

OUR OBJECTIVES

- To train the layperson with a passion for OHS and help him/her to translate that passion into competences
- To encourage a culture of competencies rather than certification

These training programmes were carefully designed to attract fresh university graduates who are interested in the OSH profession, to guide and direct other professionals in the direction of OSH, to guide and train existing OSH professionals towards specialisation, and to provide training to experts in search of task-specific, short-term training for specific job profiles.

We took cognisance of areas of training that are usually not available, even in countries where OHS training institutions exist. Most of these courses are needed for the growth of OHS research and training effectiveness in Africa and other LMICs. Some of the courses that we have developed to meet these specific needs are:

- OHS career advisory and coaching
- Introduction to OHS management
- Introduction to occupational hygiene
- Workplace mental health and wellbeing training
- How to train and facilitate OHS programmes
- Workplace health and safety leadership
- Patient safety and process improvement in healthcare
- The science of developing and managing OHS data
- Workplace health and safety supervision
- Health and safety in facility management
- How to conduct OSH research
- The art of abstract writing

These are our primary focus areas while our Faculty Advisory Board continues to identify and develop new training modules. Our classes will run online to have a wider reach. Anyone, in any corner of the world, who has a computer or smart phone with Internet connectivity, can join our training. There are no fees to register for our classes; the only pre-qualification is interest and a willingness to learn. Participants are encouraged to be active, complete all tasks, and use their acquired knowledge and skills to improve health and safety in their workplaces and to improve their competencies and personal growth.

Participants have the option either to complete the training and leave, or to request a certificate of attendance; no one is under any obligation to request a certificate. To receive a certificate, participants must have completed pre-course training tasks and post-course assessments, and have participated in class. The pre-course assessments are used to measure the level of individual knowledge before class, and the final assessments measure the training impact. The application cost of a certificate is USD 8–15, depending on the course size and duration. Every certificate paid for indirectly helps us fund at least two persons to attend our classes for FREE. We are open to funding, donations and volunteering.

The Faculty Advisory Board has six members who are experts from different fields of health and safety. The Board has equal gender representation. The members are:

- Dr Yohama Caraballo-Arias: Occupational health physician, Venezuela
- Dr Kevin Uzoma: Occupational medicine physician and international healthcare consultant, UK
- Dr Amira Omrane: Occupational medicine physician, Tunisia.

- Wellington Mudenha: Environmental safety, health and quality expert, South Africa
- Dr Chinwe Adebiyi: Physician and health economist with a post-graduate residency qualification in psychiatry, Nigeria
- Ehi Iden: Occupational safety, health and wellness management consultant, Nigeria

Our first course, 'Managing mental health at the workplace', will be held on 17 December 2020. Information about courses can be found at www.oshversity.com.

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Collaboration between members from national societies on OHTA module translation

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For several years, some Occupational Hygiene Training Association (OHTA) modules have been translated from English into French but they were waiting for validation to be considered as final and made available to all on the OHLearning website. That is why several members from different French-speaking national societies (SOFHYT – France; SSHT – Switzerland; AUDA-NEPAD – African Union; CRBOH – Canada; and BSOH – Belgium; and aided by SAIOH – South Africa) are currently working together to ensure the availability of OHTA modules in French. This is a good example of collaboration between national societies to develop occupational hygiene throughout the world. The aim is also to allow French-speaking countries to have access to such training modules to improve their occupational hygiene knowledge. If any of you speak French and would like to help us, please contact me at presidence@sofhyt.fr.

Training developments for occupational hygienists in New Zealand

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A recent report from the Health and Safety Association of New Zealand (HASANZ) identified gaps in the workforce and highlighted the lack of occupational hygienists in New Zealand (NZ). The report states that there were 32 fully qualified occupational hygienists and 17 technicians in 2018. This is fewer than in many comparable countries. The report also stated that there are many challenges to develop accessible education, training and professional development pathways to meet current and future demands.

To address these challenges, WorkSafeNZ funded a project to help build the country's capability and capacity in occupational hygiene. As a part of this project, the New Zealand Occupational Hygiene Society (NZOHS) and HASANZ engaged with tertiary providers. This resulted in Edith Cowan University (ECU) in Australia, and Massey and Otago Universities in New Zealand working with NZOHS and HASANZ to find a solution.

The work involved was not straightforward and the staff at the universities, especially ECU, is to be commended as they worked through the complexities of three universities working together to achieve one common goal, viz. to have more occupational hygienists in NZ.

In October this year, after nearly two years, it was announced that the Master of Occupational Hygiene and Toxicology degree will be available to NZ students to support workplace development of the health and safety workforce in NZ. The degree is accredited by the Australian Institute of Occupational Hygiene (AIOH) and the British Occupational Hygiene Society (BOHS), which means that NZ can help contribute to supplying more occupational hygienists to fulfil the shortages in the domestic, and eventually global, markets.

In these days of COVID-19 restrictions on international travel, this programme is mostly offered online, which allows our students to study at home. Workshops provide real-world experiences for students to develop practical skills needed in the assessment of workplace hazards that can harm human health. These activities could include monitoring hazards such as noise, radiation, dust, gases, and biological contaminants to which people are exposed every day. The workshops can also be delivered locally.

ECU associate professor, Sue Reed (director: Occupational and Environmental Health and Safety), who is also a certified occupational hygienist (COH)®, says "It is important that each country develops their own training programme for professional occupational hygienists. Many New Zealanders don't realise the role that occupational hygienists play in protecting both the workforce and the general community from adverse impacts on their health from chemical and biological hazards".

It has been good to see ECU, Massey University, Otago University, HASANZ and WorkSafeNZ all support NZ efforts to train our workforce. There is still work to be done in ensuring that a sustainable system exists into the future. This is being led by ECU working with Otago and Massey Universities to get their own accredited courses up and running. They are advocating to the NZ government for scholarships to assist NZ students to achieve their goals of becoming occupational hygienists.

First ever Swiss Society of Occupational Hygiene professional development course

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The Swiss Society of Occupational Hygiene (SSOH) is proud to share that it successfully conducted it's first ever professional development course (PDC) this year! The course, 'How to define an exposure measurements strategy and interpret the data via the use of statistical tools', was held on 18 September 2020 and instructed by Prof. Jérôme Lavoué from the University of Montreal. The course was originally planned to be held in-person in April 2020 but was rescheduled due to COVID-19 restrictions. It was held over Zoom with approximately 40 participants and was open to members and non-members. It was interactive, with poll questions asking participants to use their judgement regarding exposure data, and exercises using the platform, Expostats (www.expostats.ca) – a widely used tool to statistically analyse occupational exposure data, developed by Prof. Lavoué and colleagues. Responses to the poll are shown in Figure1. The SSOH would like to extend a big thank you to all of the participants!

Figure 1. Poll question from the opening of the course

The SSOH would also like to acknowledge the planning committee for it's first ever work: Dr Ludovic Vieille-Petit (co-president), Samantha Connell (Board member), Burim Thaçi (member), Sébastien Linder (member) and Deyan Poffet (member). The committee is open to exchange with other societies on future PDCs and their experiences. Stay tuned – SSOH plans to hold two events in 2021!

Changes proposed by Europe to the management of cancer-causing substances

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The British Occupational Hygiene Society (BOHS) has been asked to respond to changes to the employee protections that have been proposed by the European Union. This has prompted further discussions with the BOHS head office and the board, regarding the legal ramifications of Brexit on occupational exposure limits (OELs) for carcinogens and mutagens.

Additional protections against cancer-causing agents, which will not automatically benefit British workers after January 2021, have been proposed by the European Commission. It has recommended additional limits to exposure of workers to benzene, nickel and acrylonitrile. According to the European Commission, this would affect people working in industries as diverse as car maintenance, electronics manufacture, and the fur and leather industry. According to the Commission, these substances cause a range of cancers, including breast, brain and stomach cancers, leukaemia, and miscarriage. They have proposed an amendment to the Carcinogens and Mutagens Directive requiring the distribution of recommendations for risk reduction through appropriate risk management measures, including reducing the OELs, which set the levels beyond which employers should be criminally liable.

The BOHS is expressing concerns that, after Brexit, UK guidance on these substances might not be informed by the latest research about cancer risks in humans. Published government guidance on acrylonitrile, for example, references the International Agency for Research on Cancer (IARC), saying that acrylonitrile is only a possible human carcinogen. However, last year IARC's own expert committee stated that there is now evidence that it probably does cause cancer in men and women, and has recommended that the IARC formally raise its risk level. Nonetheless, this could take IARC several years. The European Commission has raised the risk levels already, using an expedited methodology for scientific review.

While some members of the BOHS have raised concerns about the new role of the Risk Assessment Committee in speedily setting OELs, the BOHS is using its membership of the newly formed European Platform on Occupational Hygiene (a consortium of

health prevention professional bodies) to welcome the new research and legal limits for workers in Europe. It also joins IARC and fellow European Platform members in calling for Europe to do further work on the cancer-causing properties of metal-cutting fluids. The Health and Safety Executive (HSE) is yet to say whether the new OELs will be followed in the UK.

Brexit has placed the UK in a confused legal position with regard to pending and prospective legal standards. In leaving the European Union, there is now no binding legal obligation on the UK government to ensure the updating of legal standards for such exposures in the workplace. This means that rules restricting exposure to cancer-causing substances might not always be updated in line with scientific discovery. That decision will be a question of priority and time given to it by government departments; and is subject to consideration by the HSE as they review their strategy under the leadership of a new chair and former minister, Sarah Newton.

The situation means that employers and public bodies will need to be vigilant and keep up with the latest science if they are not to fall foul of costly lawsuits. More importantly, it means that there will be tremendous pressure on the UK's science and health infrastructures to keep up to date with global research and to find practicable ways to prevent workers from developing avoidable cancers.

Some of the cancer-causing chemicals that the UK has agreed need further control might no longer be subject to planned controls. In 2019, the European Council agreed to changes to an earlier list of controls for 13 cancer-causing substances. The UK agreed that limits needed to be put in place to protect workers but argued for more time. There is now no guarantee that those safeguards will ever be in place.

One of the substances is formaldehyde, which is widely used in the funeral industry to enable dignified burial. The government had argued that it would take until 2024 for the UK industry to protect funeral home workers from cancer-causing levels of the substance, delaying the implementation of safeguards. Another area where Europe has proposed to make inroads in protecting workers relates to cytotoxic drugs, which are widely used by healthcare professionals and veterinarians in cancer treatments.

Whilst the UK regulations on the control of substances hazardous to health already require that carcinogens (and mutagens) are controlled to as low as reasonably practicable below a limit value, the limit value itself is key in driving control improvement. The BOHS is concerned that, unless the UK exposure limits are updated, based on the latest research and information, existing standards may be putting workers at elevated levels of risk when compared to workers doing similar tasks in the European Union.

Guatemalan Association of Occupational Safety and Security

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Guatemala, in Central America, is the largest economy in our region, but it is also one of the poorest countries in Latin America, with a human development index of 0.651, below the world average of 0.731 and that of Latin American countries (0.759). Nonetheless, there are many industries operating in the country, related mainly to food-processing, mining, and agriculture. Most have incipient or non-existing occupational health and safety (OHS) programmes.

Historically, OHS regulation in Guatemala has been limited. For many years Guatemala only had one regulation, which was issued in 1958. It was not until 2014 that the OHS regulation was updated. Since then, there have been consistent advances in the OHS field in Guatemala. However, with the advances, knowledge gaps in occupational hygiene have become evident, highlighting the need for additional OHS professional training and guidelines.

With this in mind, the Guatemalan Association of Occupational Safety and Security (AGSSO) was established in 2017 with the support of a multidisciplinary group of OHS professionals. The AGSSO is a private non-profit organisation created to promote OHS. Since its inception, the AGSSO has been conducting training and events where all types of OHS practitioners participate to obtain more technical and soft skills.

The objectives of the AGSSO are:

1. To promote research and standardisation in OHS
2. To edit, publish and distribute technical material related to OHS
3. To generate change in OHS culture in Guatemala through technical and professional training within legal frameworks

In the past year, the AGSSO became a member of the IOHA. It is also a part of the Comité de las Américas Asociaciones de Higiene Industrial de Latinoamérica and the Red Panamericana de Higiene Ocupacional (REPHO). The AGSSO also has alliances with the American Industrial Hygiene Association (AIHA), Centro de Ergonomía Aplicada (CENEA) and Centro Guatemalteco de Producción más Limpia.

In 2018, AGSSO members supported the translation of the ACGIH 2018 TLVs for biological exposure indices (BEIs) into Spanish. This allowed them to distribute the materials among OHS professionals in Guatemala. In 2019, the AGSSO launched the first diploma in industrial hygiene in Guatemala with the support of the Universidad del Valle de Guatemala and a number of certified industrial hygiene professionals from Latin America. The AGSSO has also conducted training courses and workshops on neuroleadership in OHS, and strategies for managing occupational exposures.

The journey of mainstreaming industrial hygiene in Malaysia

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Malaysia has progressed in strengthening occupational safety and health (OSH) management in the country. With the theme *OSH Transformation* to inculcate preventive culture, the five-year strategic National OSH Master Plan (MP) 2016–2020 was developed to enhance the standard of OSH at the workplace. The OSH MP is expected to contribute to the reduced rate of occupational accidents and fatalities and thus assist the government in raising the quality of life of the people. The quality of working life is one of the elements contributing to the wellbeing of Malaysians. Appreciating the increasing trend of occupational diseases and poisoning reported, and the growing concern about workers' health risk at work places over the years, the Department of Occupational Safety and Health (DOSH) of Malaysia has included 'Mainstreaming Industrial Hygiene (IH)' as one of the main strategies under the National OSH MP 2016–2020 to strengthen industrial hygiene management practices in the country. There are five programmes registered under the mainstreaming IH strategy, as shown in Figure 2.

One of the main OSH MP 2016–2020 key performance indicators (KPIs) is to increase reporting of occupational diseases and poisoning of workers by 30%. According to the DOSH, we have achieved a 65.4% increase from 2015 to 2019. Based on 2019 reporting, the top three problems reported were occupational noise-related hearing disorders (91%), occupational musculoskeletal disorders (4%), and occupational skin diseases (1%).

Despite the many hurdles and challenges faced in the country – particularly the ongoing COVID-19 pandemic that has restricted movement and forced people to embrace the new normal of working – the plans registered under the mainstreaming IH strategy are close to completion. Nevertheless, strong support and fostered collaboration between various government bodies and agencies, associations, industries, and health and safety practitioners is required to ensure that the plans are executed and progress is made to meet the desired objectives. The high-impact programmes that contributed to the reporting achievement include the formation of the Industrial Hygiene Catalyst Committee (IH2C), Basic Occupational Health (BOH), ergonomic risk assessment (ERA) tools, Systematic Occupational Health Enhancement Level Programme (SoHELP), SoHELP Do It Yourself (DIY), and Noise Exposure Regulations 2019.

The Malaysian Industrial Hygiene Association (MIHA) – the organisation of professionals dedicated to promoting industrial hygiene (IH) in Malaysia – has also played a pivotal role in realising the strategy. The MIHA focuses its activities on raising awareness, capability development, standards/guidelines development, and collaboration with other advocators of IH. Hence, the national collaboration, such as that via the Malaysian Federation for Occupational Safety and Health (MyFOSH), is essential to bring IH management and practices in Malaysia to a higher level. The 900+ MIHA members can only do so much but, through collaboration, we can leverage on the strength of the almost 8 000 MyFOSH members. At an international level, being part of the IOHA gives the MIHA opportunities to collaborate and exchange lessons learned and best practices with other peers, connecting with 35 member countries and covering almost 18 000 members.

There are still many challenges and efforts required to further boost and sustain good IH management practices in Malaysia, especially when the effects of health hazards are considered as long term. There is also a lack of drive to further invest in controlling the risks in view of current economic and business constraints aggravated by COVID-19, globally. Hence, continuous collaboration is the key to further improve IH management practices in Malaysia. We are hopeful that the new OSH-MP 2021–2025 will drive IH reform, especially in areas requiring most attention, and that it will continue to ensure optimal protection of workers' health.

Note: The contents of this article are contributed through collaboration between the Malaysian Industrial Hygiene Association and the Department of Occupational Safety and Health of Malaysia.

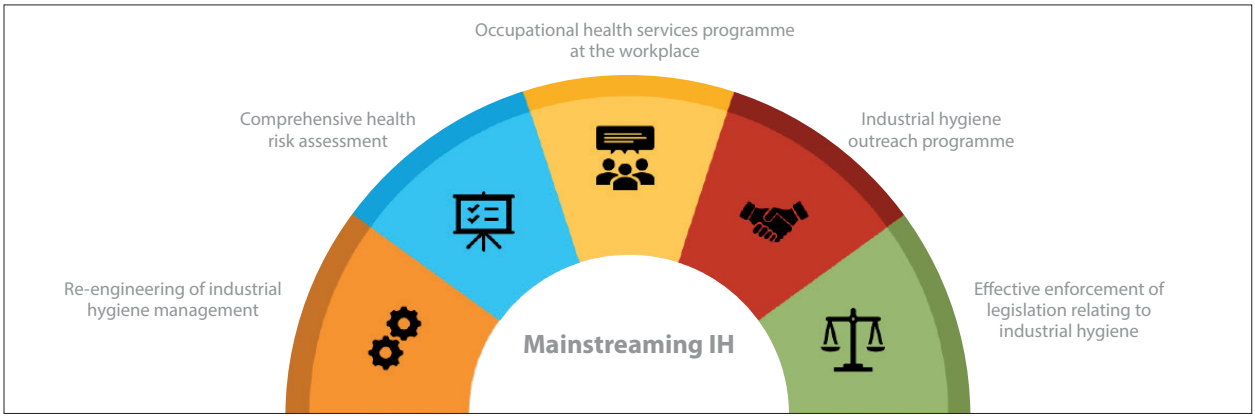

Figure 2. Mainstreaming IH strategy as part of OSH MP 2016–2020

Global occupational health news

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This report includes news from some of the international and regional occupational health organisations with whom the South African Society of Occupational Medicine (SASOM) interacts. The 'new normal' ways of living and working that are direct results of the ongoing global COVID-19 pandemic have shown us, throughout most of the current year, that never has it been more important to collaborate and share learnings.

THE INTERNATIONAL COMMISSION ON OCCUPATIONAL HEALTH

In terms of the current global health emergency, the International Commission on Occupational Health (ICOH) is well-placed to play a key role in contributing to the body of knowledge on COVID-19, through its membership of occupational safety and health (OSH) professionals from 114 countries. To this end, ICOH launched a survey on COVID-19, which was administered to ICOH national secretaries and other senior OSH experts throughout the world. The survey collected information on public health policies, prevention measures, and other policies put in place by the national governments of various countries to contain the global pandemic. The results will be published through ICOH channels and may be used for analysis and benchmarking at both national and international levels.

An official ICOH statement to highlight the importance of successful prevention and management of the COVID-19 pandemic at work was submitted at the Special Session of the World Health Organization (WHO) Executive Board on the implementation of the World Health Assembly Resolution WHA73.1 COVID-19 response (5–6 October 2020). The proposals made in this Statement include working towards the wide recognition of work-related COVID-19 cases as occupational disease cases; ensuring access to competent occupational health services for all working people; and paying special attention to the protection of COVID-19 high-risk workers across various sectors. The Statement can be accessed at: https://extranet.who.int/nonstateactorsstatements/meetingoutline/196

The COVID-19 pandemic has brought OSH and social security systems to the top of the agenda for policymakers around the world. This was a key theme of the two-day special session on COVID-19 and OSH, organised by the XXII World Congress on Safety and Health at Work 2021, and held virtually on 5 and 6 October 2020. The online event, drawing thousands of participants from over 150 countries, was hosted by the International Labour Organization (ILO), the International Social Security Association (ISSA), and the national co-hosts of next September's XXII World Congress on Safety and Health at Work in Toronto, Canada: the Institute for Work and Health (IWH) and the Canadian Centre for Occupational Health and Safety (CCOHS). The ICOH leadership was invited to present at these virtual special sessions where COVID-19 and precarious workforces were hot topics. Dr Jukka Takala, ICOH president (Finland), presented in the session 'Round Table 2: Multidisciplinary and multilateral action for common problems: The case of the Global Coalition for Safety and Health at Work'. Prof. Seong-Kyu Kang, ICOH vice president for National Secretaries (Republic of Korea), presented in the session 'Panel 1: Innovations in addressing COVID-19'. Recordings of the sessions are available online for a limited time at: https://www.safety2021canada.com/session-recordings/

'Making the difference in occupational health: Three original and significant cases presented at ICOH congresses in the 20th century' is the title of an ICOH study by Prof. Sergio Iavicoli, ICOH secretary general (Italy), and co-authors, illustrating the historical and pioneering roles that the ICOH congresses have played in terms of knowledge transfer of research findings and prevention study results impacting on global public health. The paper was published in *Safety and Health at Work* (SH@W) (Vol. 11, No. 2, 2020) and can be accessed at: https://www.sciencedirect.com/science/article/pii/S2093791119307620?via%3Dihub

The ICOH Scientific Committee on Occupational Health for Health Workers (SC OHHW), chaired by Dr Gwen Brachman (USA), prepared a statement in support of occupational health for health workers. The Statement was informed by the events in honour of this year's World Patient Safety Day (WPSD 2020) on 17 September, organised by the WHO. The objective of WPSD 2020 was to raise global awareness about the importance of health workers' safety in sustaining a healthcare system and increasing patient safety. The theme was *Health worker safety: A priority for patient safety*, which focused on the interrelationship between patient safety and health worker safety.

The SC OHHW Statement listed key elements that should be included in national programmes on occupational health for health workers to prevent occupational diseases and injuries, improve their physical and mental wellbeing, and ensure sustainable compensation and legal protections. It states that 'protecting the health and safety of all health workers is essential in order to have an adequate workforce of trained and healthy personnel in the healthcare sector;

Throwback to November 2018 – the SASOM AGM and Conference, hosted by the SASOM Western Cape Chapter in Stellenbosch, brought together close to 80 delegates, exhibitors, organisers and invited presenters in an idyllic winelands setting
Photograph: Claudina Nogueira

we should all be actively prioritising the occupational health and safety of health workers, both as a labour right and to ensure patient safety'.

The ICOH Scientific Committee on Shiftwork and Working Time (SC SWT), in collaboration with the Working Time Society (WTS), contributed to a special issue of *Industrial Health* (Vol. 57, No. 2, 2019) that published a series of consensus papers and good practices on various aspects of shiftwork. As stated by the authors of the Foreword (Dr Stephen Popkin (USA) – chair: SC SWT; and Prof. Frida Marina Fischer (Brazil) – ICOH Board member and past chair: SC SWT), the intent of the special issue of the journal is to 'inform professional communities on the current state of science regarding working time and provide useful information to stakeholders (practitioners, policy makers, and workers) on topics that affect the worker community'. The journal issue can be accessed at: https://www.jstage.jst.go.jp/browse/indhealth/57/2/_contents/-char/en

The ICOH Scientific Committee on Unemployment, Job Insecurity and Health (SC UJIH), chaired by Dr Minha Rajput-Ray (UK), undertook the arduous task of translating the ICOH occupational health guidebook *Creating a Safe and Healthy Workplace: A Guide to Occupational Health and Safety for Entrepreneurs, Owners and Managers* into Bahasa Indonesian. In 2014, the original English version of this guidebook was edited and co-ordinated by Dr Tee Guidotti (USA), using contributions by students and professionals in various OSH disciplines. The original version was sponsored by ICOH and the ICOH Scientific Committee on Occupational Health and Development, and was launched at the ICOH2015 Congress in Seoul in the Republic of Korea. Subsequently, the guidebook has been translated into Arabic, Chinese, French, Portuguese, Russian, Turkish and, now, Bahasa Indonesian. All versions are available free of charge on the ICOH website: http://www.icohweb.org/site/oh-guide.asp#oh-guide

The translation of the guidebook into Bahasa Indonesian, titled *Menciptakan Tempat Kerja yang Aman dan Sehat*, was spearheaded by Dr Anna Suraya from Binawan University in Jakarta (Indonesia) and secretary of the SC UJIH. ICOH sponsored the printing of 500 copies and a virtual launch was held on 15 September 2020. The guidebook will be distributed to several universities that collaborate with small-scale industries, workers' unions, the Indonesian entrepreneur association, and other entities, with the aim of disseminating it as widely as possible for maximum benefit to workforces. Ms Claudina Nogueira, ICOH vice president for Scientific Committees, was invited to deliver the opening message at the virtual launch of the Indonesian guidebook.

The ICOH Scientific Committees on Radiation and Work (SC R&W) and Occupational and Environmental Dermatoses (SC OED), chaired by Dr Marc Wittlich (Germany) and Dr Sanja Kezic (the Netherlands), respectively, organised and co-hosted a webinar titled 'Solar Radiation Issues' on 19 October 2020. Dr Caradee Wright from the South African Medical Research Council gave a presentation titled 'Ultraviolet exposure and prevention from a South African perspective'.

The 2nd International Industrial and Environmental Toxicology Congress (IETOX 2020), organised and hosted virtually by the Turkish Industrial Toxicology Society (ETOK) and chaired by Prof. Engin Tutkun, was held from 18 to 25 November 2020. ICOH was invited to contribute presentations to the congress, which was themed *Industrial toxicology and occupational health in small- and medium-sized enterprises*. The ICOH Scientific Committee on Industrial Hygiene (SC IH), chaired by Ms Lena Andersson (Sweden), contributed presentations for an ICOH track within IETOX 2020 on 20 November, which included the SC IH midterm business meeting. Dr Rosa Maria Orriols (Spain), ICOH Board member and member of SC IH, was one of two international co-chairs of IETOX 2020.

The ICOH Scientific Committee on Epidemiology in Occupational Health (SC EPICOH), chaired by Dr Roel Vermeulen (the Netherlands), hosted and organised the free-of-charge 'EPICOH 2020 Webinars' on 9 and 11 December 2020. The 2020 EPICOH Lifetime Achievement Award Winner, Dr Debra Silverman (USA), presented the keynote address titled 'Diesel exhaust and lung cancer: A 20-year saga' on 9 December, which was followed by the session 'Early career researchers outstanding abstract presentations'. The format of the session on 11 December was presentations and audience discussion on the topic 'Application of standardised tools to evaluate epidemiologic studies for risk assessment: Promises and pitfalls'.

The ICOH Scientific Committee on Occupational Health in the Construction Industry (SC OHICI), chaired by Dr Krishna Nirmalya Sen (India), organised and hosted a virtual symposium titled 'Recent trends in occupational health and safety in the construction industry' on 11 December 2020. The symposium was supported by the American Society of Safety Professionals – Indian Chapter.

WORKPLACE HEALTH WITHOUT BORDERS

Founded in 2011 by a group of occupational hygienists and other activists with the goal of engaging volunteers (concerned professionals in OSH and other fields) in improving workplace health in regions of the world with under-served worker populations, Workplace Health Without Borders (WHWB, www.whwb.org) held its annual general meeting (AGM) on 9 November 2020. The new WHWB Board was elected, comprising 15 members from around the world, including three members from developing countries – Prof. Vanessa Cruvinel (Brazil), Ms Claudina Nogueira (South Africa and ICOH) and Mr Ehi Iden (Nigeria and OSHAfrica). Some Board members will serve for the term ending with the 2021 AGM and others will serve for the term ending with the 2022 AGM.

The global COVID-19 pandemic has impacted the training and project activities carried out by WHWB members on a volunteer basis around the world and, as a result, WHWB has focused on organising and hosting webinars and monthly teleconferences, mostly on COVID-19-related hot topics, since the beginning of the year. Examples of presentations are:

- COVID-19 resources available through the American Industrial Hygiene Association (AIHA)
- Control banding and COVID-19: Simplifying risk communication
- Control banding in education
- COVID-19 response training towards schools re-opening: Lessons from Africa
- Vietnam: Back to school in the context of COVID-19
- Why should we get serious about airborne COVID-19 transmission in schools?
- Harvard University risk reduction strategies for re-opening of schools
- An update on COVID-19 rapid testing
- Infectious dose and COVID-19
- Infection control for OSH professionals
- Respiratory protection and COVID-19
- COVID-19 and informal waste workers
- COVID-19: Trajectory of a pandemic

OSHAfrica

The Occupational Safety and Health Africa (OSHAfrica) Foundation was founded in 2017 with the principal aim of bringing together OSH professionals from across Africa, creating an atmosphere for

collaborative work and sharing of knowledge and OSH data across different countries and sub-regions in Africa. On 4 November 2020, OSHAfrica launched OSHversity, a virtual training platform that offers free OSH training to new graduates who are interested in pursuing careers in OSH. These trainings are funded through proceeds from paid trainings offered to corporate organisations. More information can be accessed at: http://www.oshversity.com/

CLOSER TO HOME…

The SASOM national office in Pretoria has relocated to new premises in Montana after being based in Meyerspark for many years. The new contact details are:

- Physical address: Plot 59, Dr van der Merwe Avenue, Montana, Pretoria (new)
- Postal address: PO Box 32, Silverton, 0127 (unchanged)
- Telephone number: +27 (0) 87 288 0893 (new)

For the benefit of its members, SASOM continues to share information and invitations for online events related to COVID-19 as well as other topics organised by both national and international organisations. The SASOM national office has continued sharing SASOM position papers and information updates with its members, as well as dealing with daily queries, website updates and membership applications or renewals.

Guidance documents, scientific publications, and online event invitations from various sources, including SASOM, have been shared with members. Examples are:

- SASOM Position Statement on 'South African Thoracic Society (SATS) Update: Position Statement on Pulmonary Function Testing'
- SASOM Position Statement on COVID-19 antibody and antigen testing in the workplace
- Scientific paper by Drs JB (Tim) Laurens and PA Carstens titled 'Cannabis legislation and testing for cannabis use in safety- and risk-sensitive environments' (S Afr Med J 2020:110 (10):995-998. https://doi.org/10.7196/SAMJ.2020.v110i10.14615)
- 'South Africa COVID-19 rapid response survey' – a University of Cape Town study of the psychological and behavioural responses of selected public service providers in South Africa during the COVID-19 pandemic
- The National Institute for Occupational Health's (NIOH's) *OccuZone Newsletter* Vol. 2, No. 2, October 2020 (https://www.nioh.ac.za/wp-content/uploads/2020/10/NIOH-OccuZone-Volume-2-Issue-2-October-2020-F.pdf)
- An invitation to a collaborative webinar on ergonomics presented by the Southern African Institute for Occupational Hygiene (SAIOH – sister organisation of SASOM), the Ergonomics Society of South Africa (ESSA) and the Department of Employment and Labour (DoEL) on 16 October 2020
- An invitation to a webinar presented by the NIOH titled 'Occupational health surveillance of COVID-19 in South African workplaces' on 20 October 2020
- An invitation to a webinar co-hosted by the African Union and the Africa CDC titled 'COVID-19 and mental health: Highlighting the status quo of psychiatric and neuropsychiatric outcomes and effective prevention and management' (part of the webinar series on mental health aspects of COVID-19), on 22 October 2020
- An invitation to a virtual workshop hosted by the Mine Health and Safety Council (MHSC) to provide feedback on the findings of the research project 'COE 180607: Review of the current Occupational Exposure Limits (OELs) as listed in Schedule 22.9(A) of the Mine Health and Safety Act' on 15 and 22 October 2020
- An invitation to a webinar presented by the NIOH titled 'The triple burden of COVID-19, HIV and TB in the workplace' on 29 October 2020
- An invitation to two webinars hosted by the South African Medical Association (SAMA) titled 'Live chat with Health Minister Dr Zweli Mkhize on the now and the future of healthcare with doctors' on 6 October 2020, and 'Has COVID-19 assisted with the National Health Insurance (NHI) roll-out plan?' on 3 November 2020
- An invitation to a free webinar presented by the American College of Occupational and Environmental Medicine (ACOEM) and the AIHA titled 'Industrial hygiene and occupational and environmental medicine: Optimising collaboration amidst the COVID-19 pandemic' on 5 November 2020
- An invitation to the online Biennial NIOH Research Day on 19 November 2020, which was attended by over 150 participants
- An invitation from the DoEL to the free virtual launch of the Asbestos Abatement Regulations, 2020 as scheduled by the director general of the DoEL, on 27 November 2020. The NIOH partnered with the DoEL in a supportive capacity.

Dr André Kotzé, vice chair of SASOM, presented at the virtual retirement celebration event for Prof. David Rees, on behalf of SASOM and its chair, Prof. Daan Kocks. The event was organised and hosted by the NIOH and the Wits School of Public Health on 30 October 2020 to honour Prof. Rees' life's work and valuable contributions to occupational health and occupational medicine in southern Africa and beyond. In recognition of his dedication and service, Prof. Rees was awarded the status of SASOM honorary life member.

The SASOM national office hosted the meeting of the *Occupational Health Southern Africa* editorial board on 13 November 2020, on its Zoom platform. As part of its secretarial support for MEDICHEM, the SASOM national office hosted a Zoom meeting titled 'MEDICHEM 2020 Member Update' on 20 November 2020. The last SASOM ExCo meeting of the year was held on 26 November 2020. It was a virtual meeting and was aligned with the usual format of the SASOM AGM, which was not held this year due to the COVID-19 pandemic.

Renewal of SASOM membership for 2021 is now in progress, with membership renewal forms and invoices being sent out via e-mail. Membership application forms are required to be completed only in respect of new applicants. Active members will automatically receive an invoice to renew their membership, with a request to inform the SASOM national office in the event of a change in personal details.

The SASOM national office will close for the year-end holidays on 15 December 2020 and reopen on 4 January 2021.

GET WELL WISHES AND GREETINGS FOR THE FESTIVE SEASON

SASOM takes this opportunity to wish its chair, Prof. Kocks, a speedy recovery from his hospitalisation for COVID-19 complications. Prof. Kocks is making good progress and recovering well in the comfort of his home and in the company of his loving family – we are all very grateful and relieved that he is back on the road to being healthy again.

Having survived a very challenging and unprecedented year in the face of the COVID-19 global pandemic, SASOM wishes all its members and their families and communities 'compliments of the festive season', and healthy and safe holidays. May 2021 be a more hopeful, joyous, successful and rewarding year for you and your loved ones. Above all, may you remain healthy and safe in 2021!

SAIOH president's message

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In this newsletter

MESSAGE FROM OUR OUTGOING PRESIDENT, NORMAN KHOZA

The year 2020 has come and is almost gone – what a year in the history of our profession! What makes me proud of our occupational hygiene professionals is the fact that the Southern African Institute for Occupational Hygiene (SAIOH) did not lose a single soul due to COVID-19. Well, at least none that was reported. This can be credited to how careful our members are when dealing with hazards. One of the things we need to do is encourage the public to reduce smoking behaviour. I believe that we have a lower percentage of smokers in the profession than in the general population, which is a great advantage when faced with a respiratory pandemic.

I have come to the end of my term as the 2020 SAIOH president. There are several individuals I would like to acknowledge – those who encouraged me to stand for president and those who made my work easy. I cannot name every person who assisted me along the way, so I will just say thank you to the SAIOH members, the National Council, the SAIOH Management Board, and the Professional Certification Committee (PCC). I also thank the Department of Employment and Labour, the National Institute for Occupational Health (NIOH), South African Institute of Safety and Health (Saiosh), Ergonomics Society of South Africa (ESSA), my organisation, the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), and many more. To the incoming president and his Council, I wish you all the best for 2021–2022. I believe that these will be great years for our noble profession. We certainly have trust in your ability and I pledge my unwavering support to all. Let me end my last message with two quotes from the former US president, Mr Barack Obama, in his farewell speech: "Change will not come if we wait for some other person or some other time. We are the ones we have been waiting for. We are the change that we seek", and "We did not come to fear the future, we came to shape it". Let us participate, to shape the future of the occupational hygiene profession, not only in southern Africa but Africa at large.

MESSAGE FROM OUR INCOMING PRESIDENT, DR HENNIE VAN DER WESTHUIZEN

This has been a remarkable year. The consequences of the worldwide management and control of the COVID-19 pandemic tossed us into a crucible where trusted ways of thinking were put to a flame test. On the one hand, it provided the opportunity and time to reminisce on the essence, worth and systems within SAIOH and, on the other hand, it forced us to develop innovative strategies to manage changing and emerging demands. Norman led us through the storm and into the emerging solutions with his calm, thorough, encouraging, and democratic leadership style. It was a pleasure working with and learning from him. Fortunately, he remains part of the management team. In essence, the management will retain its newly gained impetus as the members remain the same, with only some roles changing. It is the abilities and selfless input from this capable team that will take us through the next cycle. One cannot conclude without giving due credit to the dedicated administrative team that oils the gears, and the many members working behind the scenes towards forwarding the goals of SAIOH without expecting mention or compensation. I am honoured to be part of this team and am of a firm belief that we will serve our members well.

SAIOH 2020 ANNUAL GENERAL MEETING (AGM)

This year marked the first of its kind, whereby the SAIOH AGM was held on a virtual platform (Zoom) on 4 November 2020 and attended by almost 150 SAIOH members.

SAIOH Constitution

The SAIOH Constitution was amended and removed from the quality management system (QMS) to stand on its own. It was circulated to all members and, at the SAIOH 2020 AGM, it was voted on and successfully ratified.

Amendments to the Constitution are as follows:

- The SAIOH president must be a SAIOH registered occupational hygienist.
- The terms of office for all voted and ex-officio members are now two years.
- The incoming Council will be from the AGM.
- Regional co-ordinators and the regional structure and procedures are now written into the Constitution.
- The QMS will be updated as necessary and be approved/signed off by the SAIOH Council and/or PCC.

To get to the current ratified Constitution was a rich journey. The first Constitution was the Occupational Hygiene Association of South Africa's (OHASA's) in 1983, the second one was the Institute of Occupational Hygienists of Southern Africa's (IOHSA's) in 1999, and thereafter it became SAIOH's. In 2015, the Constitution moved into the SAIOH QMS (Chapter 1) but, in 2019, it was again removed from the QMS and amended. The Constitution has now been ratified as Document 01, October 2020.

SAIOH Council changes

Another year has come to pass, and with it come a few changes in the SAIOH Council. Naadiya Nadasen was voted as the 2021/2 vice president, and Dr Hennie van der Westhuizen (current VP) will be taking over from Norman Khoza as the 2021/2 president on 31 December 2020. Norman will take over as immediate past president for 2021/2. We wish the Council members all the best in their new portfolios and look forward to continuing this journey with them. The remaining Council members will serve out their two-year terms in 2021, and we wish them equally well in their endeavours for the profession.

SAIOH financials

The SAIOH financial statements for 2019 were audited and approved. In 2020, the financials suffered a blow due to the impact of COVID-19, most notably the loss of income from the Annual Scientific Conference. Several cost-saving measures (i.e. change in offices rental agreement) and income-generating initiatives (i.e. virtual conference by means of webinars) were instituted to reduce the impact.

Ethics Sub-Committee

Oscar Rikhotso was recently co-opted to Council to fill the vacant position of the Ethics Sub-Committee chairperson. A formal handover meeting was held in November, and we are awaiting final inputs from legal advisors regarding the associated procedures. The Ethics Sub-Committee will continue its work in 2021 in all earnest. Ethics-specific webinars are planned, with a subsequent multi-year validity certificate that will form part of membership registration renewal criteria with effect from 2022.

SAIOH strategy

An outline of the SAIOH medium-term strategy, and work conducted and inputs received thus far, was presented to members at the 2020 AGM. Work in this regard continues to be driven by Jaco Pieterse, the co-opted Council member responsible for this strategy.

SAIOH VIRTUAL CONFERENCE

The SAIOH 2020 Annual Scientific Conference was a virtual conference, consisting of five webinars in the form of professional development course (PDC) sessions. Two to four speakers presented on different aspects of the same topic in each of the webinars. With the quality of presenters and the topics covered, we have no doubt that our members found the webinars of value.

A nominal attendance fee was asked, i.e. R200 per member, and students were allowed access for free. One CPD point was awarded for attendance of every webinar. Presentations and recordings will be sent to all participants and will be available at a later date for a nominal fee, on request.

The webinars were well attended i.e. webinar 1 – Hazardous Biological Agents: 70 participants; webinar 2 – Statistics in Occupational Hygiene: 100 participants; webinar 3 – Personal Protective Equipment (PPE): 85 participants; webinar 4 – Indoor Air Quality: 96 participants; and webinar 5 – Occupational Health Risk Assessments: >100 participants.

COUNCIL ACTIVITIES

Council activities continued online on the SAIOH virtual platform (Zoom) and included monthly Management Board and quarterly Council meetings. SAIOH had the usual representation on the South African National Accreditation System's Occupational Hygiene Special Technical Committee (SANAS OH STC) meetings (two in 2020), and at the Occupational Hygiene Approved Inspection Authorities Association (OH AIA Ass.) meetings (two in 2020).

A memorandum of understanding (MoU) was signed with the OH AIA Association, and the MoU with Saiosh was renewed. Other MoUs are being pursued and renewed – more details will follow once completed. SAIOH also continues to actively participate by commenting and contributing to legislation and guidelines (e.g. Department of Employment and Labour), most notably the code of practice on harassment and gender-based violence, and the review of the OHS Act and associated regulations (including the Hazardous Biological Agents (HBA) Regulations, more recently).

Some of the following key initiatives are planned for 2021:

- Ethics training and awareness webinars
- More position and technical papers
- Revamping of the SAIOH website, to make it more interactive
- Marketing of SAIOH and occupational hygiene to schools and universities

BRANCH ACTIVITIES

All SAIOH branches, other than the Mpumalanga branch, held regular meetings, discussions, and mini workshops on virtual platforms throughout 2020. We applaud our branch chairpersons and members in this regard and urge them to continue these initiatives to the benefit of our members, the profession and, ultimately, the workforce.

OCCUPATIONAL HYGIENE AND SAIOH AWARENESS

Jaco Pieterse conducted a radio interview on the Afrikaans radio station, RSG (*Spektrum*), on 26 October 2020, on ergonomics in the workplace and the new Ergonomics Regulations. This recording was posted on the SAIOH website. This continues the trend of promoting SAIOH and the OH profession, as reported in previous newsletters.

The presentations and recordings of all webinars and radio talks were circulated to SAIOH members and stakeholders, and remain available on the SAIOH website (www.saioh.co.za).

FROM THE PCC

Occupational hygiene skills forum

The PCC's Occupational Hygiene Skills Forum (OHSF) is currently working hard on improving the oral assessment format. Members are

2021 CALENDAR

Event	Location	Date	Contact
SAIOH Annual Conference	Western Cape	26–29 October 2021	info@saioh.co.za

Table 1. SAIOH PCC registration assessment and meeting dates, 2021

Assessment/meeting	Closing date for applications and payments for application and evaluation	Final date for all assessment payments	Assessment date
Written assessments	29 Jan 2021	19 February	12 March
PCC ExCo meeting	26 Mar 2021		
PCC meeting/oral assessments	23 Apr 2021		
Written assessments	14 May 2021	4 June	25 June
PCC ExCo meeting	2 July 2021		
PCC meeting/oral assessments	30 July 2021		
Written assessments	6 Aug 2021	27 August	17 September
PCC ExCo	1 Oct 2021		
PCC meeting/oral assessments	15 Oct 2021		
Written assessments (universities)	Nov 2021		

Table 2. Final assessment results, 2020 year to date

Certification Category	Assessed	Passed	Failed	Pass rate %
OH assistants (W201 course)	68	52	16	76.5
OH technologists	41	27	14	65.9
Occupational hygienists	17	13	4	76.5
Total	126	92	34	73.0

meeting every two weeks on a virtual platform. This project should be completed mid-2021 and rolled out in the last six months of 2021. In-service training will be done for all oral assessors of the PCC.

A task team is engaging with the Mine Ventilation Society (MVS SA) management on mining qualifications to meet the new PCC qualification criteria. The PCC has extended the deadline of accepting the current mining qualifications (Intermediate Mine Environmental Control, and Advance Mine Environmental Control certificates) to 31 Dec 2021, to allow for implementation of their new qualifications.

Another OHSF task team is working on accreditation of tertiary institutions' OH qualifications, in line with the 50% OH content requirement. The same team has developed criteria to approve OH short courses and accredit recognised training providers (RTPs) for providing such courses.

Qualification criteria changes

With effect from 1 Jan 2021, the new qualification criteria will be enforced, as approved in 2018 and rolled out in 2019. These criteria are available on the SAIOH website. For more information, please contact Lee or Rebecca, the PCC administrative officers (Lee@saioh.co.za and Rebecca@saioh.co.za). Furthermore, from the end of 2021, all certified SAIOH members will need an ethics certificate, approved by the OHSF. Ethics training courses will be rolled out during 2021, at all workshops, via webinars and at the Annual Conference.

Assessments

Our virtual platforms for oral and written assessments are doing well, and we continue to drive improvements in this regard.

For the written assessments in quarter 3, we started using our Internet platform for all three categories: registered occupational hygiene assistant (ROHA), registered occupational hygiene technologist (ROHT), and registered occupational hygienist (ROH). Candidates logged onto the SAIOH website, using their username/passcode and e-mail address. They then received their specific written paper on their laptop and completed it online. This process was piloted in 2019, while sitting at the Gauteng assessment centre in front of a computer screen with persons assisting with access and other difficulties. Feedback from previous online written assessments was taken into consideration, and candidates can now (from a week before the assessment), register/log on and take some mock questions to get used to the system. Candidates will also, for the interim, be given an additional 30 minutes to complete the assessment.

PCC registration assessments and meeting dates for 2021 are shown in Table 1.

Assessment statistics

Table 2 summarises the final certification assessment results, on 10 November 2020.

We congratulate all our members who passed their assessments and wish them the best in their professional development journey! All the candidates who passed will be certified and registered at the respective levels, as per the established processes. We encourage those who did not pass to not give up and to seek a mentor through SAIOH's mentorship programme to assist them in their development. Lee Doolan, PCC administrative officer, can be contacted in this regard.

HAVE YOUR SAY

The SAIOH Council invites and welcomes your feedback on how this communication is helping you as a SAIOH member, and how we can improve. If you have any suggestions, inputs, or contributions, please e-mail them to our president, at president@saioh.co.za.

The 2020 SAIOH Annual Scientific Conference goes virtual

Deon Jansen van Vuuren, SAIOH general manager
e-mail: deon.jvvuuren@gmail.com

The year 2020 would have been a big one in the Southern African Institute for Occupational Hygiene's (SAIOH's) history. In November, SAIOH was scheduled to hold its Annual Scientific Conference in Cape Town. Everyone loves to visit the fairest Cape. But, in April, SARS-CoV-2 visited our shores, and the government declared a national state of disaster, otherwise known as level 5 lockdown. As time progressed, we remained stuck in our home provinces. Consequently, the SAIOH Management Board decided to cancel the 2020 conference and move it to October 2021.

However, out of necessity, we developed our technological skills and started to use virtual platforms for online meetings, as well as the new kid on the block, webinars. Suddenly, we used terms like Zoom (not as in a car passing at top speed) and Teams (or Microsoft Teams); we were at home, working long hours while attending virtual meetings and webinars. The real key to this was speed – we could arrange to meet people very quickly, and travel and long distances were no longer limitations.

SAIOH has, in the past, profited from its annual conferences, which ensured that we were financially comfortable, and allowed us some luxuries, such as office space and administrative staff. Although SAIOH is a non-profit organisation, our financials took a knock during the pandemic, with the loss of income from the annual conference and no reduction in expenses.


Jaco van Rensburg


Momeena Omarjee


Tando Magolego

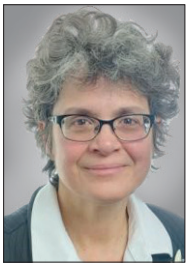

Dr Mpumelelo Ndaba


Tobias van Reenen


Dr Greg Kew


Garth Hunter


Prof. Jérôme Lavoué


Prof. Lisa Brosseau

During most of 2020, we held all the SAIOH Council, Management Board, Professional Certification Committee, PCC Exco, and branch meetings on Zoom where we could host 100 people at any one time. We also started to attend webinars (loosely defined as Web- or Internet-based seminars). There were many such webinars – often up to three in one week – primarily about SARS-CoV-2 transmission, wearing of personal protective equipment (PPE), efficacy of masks and face shields, and much more.

First, we were invited by other occupational health and safety (OHS) stakeholders to the webinars that they hosted, e.g. the National Institute of Occupational Health (NIOH), the South African Institute of Occupational Safety and Health (Saiosh), the Wits Health Consortium (WHC), and Workplace Health Without Borders (WHWB). We soon started to host our own webinars, mostly for our members, e.g. the role of the occupational hygiene practitioner (OHP) and SAIOH during lockdown, the efficacy of cloth face masks, the use of ventilation to curb the spread of the virus (the last two in collaboration with the NIOH), and the Ergonomics Regulations (in collaboration with the Department of Employment and Labour and the Ergonomics Society of South Africa).

At the beginning of October, the general manager and the Technical Portfolio Council member proposed that we host the 2020 annual conference on a virtual platform before the end of the year, in November. It was suggested that we ask attendees for a nominal fee, i.e. R200 per webinar for SAIOH members and our stakeholder members, no charge for students, R250 for others, and R300 for sponsors.

On 9 October, the virtual conference (VC) team held its first Zoom meeting. In less than two hours, it was agreed that the conference would comprise five webinars in a professional development course (PDC) format (training sessions). One topic was selected for each 3-hour PDC webinar, each with 3–5 presenters.

On 26 October, the VC team had a final meeting, which mandated the following actions:

- the SAIOH Zoom licence was extended to enable us to host more than 100 people (we can now host 500 people)
- a first notification was sent with an initial conference programme to all the SAIOH members and our OHS stakeholders, on 30 October
- a sponsorship invitation, including the benefits of sponsoring one or more PDC-webinars, was sent to suppliers of occupational hygiene (OH) equipment, OH analytical laboratories, PPE suppliers, OH training providers, and others
- the PCC agreed to award every SAIOH member one CPD point for each webinar attended
- the PDC webinars were also verified and awarded CPD points by Saiosh
- the advertising material received from the sponsors was loaded onto the SAIOH website and will remain there for a period of three


Prof. Cas Badenhorst


Dr Tahira Kootbodien


Dr Tanusha Singh


Adrian Sims


Anna Fourie

Summary of the SAIOH 2020 virtual Annual Scientific Conference PDC-webinars

Topic	Date	Presenters
Hazardous Biological Agents (74 participants) • HBA risk assessments and complexities thereof (using different examples) • Biological monitoring and medical surveillance of HBAs, as per HBA Regulations	10 Nov 2020	Dr Tanusha Singh, NIOH Dr Nompumelelo Ndaba, NIOH Dr Graham Chin, NIOH
Statistical Analysis in Occupational Hygiene (103 participants) • Introduction to epidemiology, basic concepts and methodologies used (with OH examples) • Most significant OH diseases in the South African context • Exposure toxicology • Exposure statistics and analyses of OH data and **Statistical Analysis Tools** • Theoretical background of statistics needed for the tool (overview) • Expostats tool for analysing OH data – included examples, using supplied links, that participants can review • Benefits, links, and examples of other exposure statistics and OH data analysis tools	12 Nov 2020	Dr Tahira Kootbodien, NIOH Prof. Jérôme Lavoué, University of Montreal, Canada; one of the developers of Expostats
Personal Protective Equipment: All the Occupational Hygienist Needs to Know about PPE (90 participants) • Selecting and recommending correct PPE, and correct use thereof • National regulations on PPE • SABS specifications to address OH exposure risks • Occupational health (including dermatological risks) of wearing PPE • PPE for health workers	17 Nov 2020	Prof. Lisa Brosseau, University of Minnesota, USA Ms Tando Magolego, National Regulator for Compulsory Specifications, South Africa Ms Momeena Omarjee, South African Health Products Regulatory Authority Ms Anna Fourie, NIOH
Indoor Air Quality and Ventilation (107 participants) • Specifically, ventilation in the built environment, workplaces, etc.	20 Nov 2020	Mr Adrian Sims, VentTech, UK Mr Tobias van Reenen, CSIR, SA Mr Garth Hunter, Engen, SA Dr Greg Kew, SASOM
Occupational Health Risk Assessments… the Genesis (107 participants) • Occupational health risk assessment as the start of any occupational health programme • Importance of high-quality risk assessments • Benefits of a correctly conducted OH risk assessment • Different approaches to risk assessments • Importance of wording, oversight of risk assessments, formulating of HEGs, and a detailed discussion of the OH risk assessments and occupational health exposure assessment guidelines developed by the AIHA (USA).	24 Nov 2020	Prof. Cas Badenhorst, Anglo American Mr Jaco van Rensburg, Gijima OHES&L Mr Deon Swanepoel, D'Sayensi Occupational Hygiene Dr Hennie van der Westhuizen, CPUT

months after the end of the conference; it will also be circulated to all the SAIOH members and OHS stakeholders
- the logos of the sponsors were displayed before and at the end of each webinar, and mentioned in the opening address
- the presentations and recordings will be released to registered participants and will be available to others at R200/webinar

The fast-tracked, and fantastic, virtual 2020 SAIOH Annual Scientific Conference was attended by 481 participants.

The 2021 SAIOH Annual Conference will be held in Cape Town, from 26 to 29 October.

SAIOH is already discussing live-streaming to enable more of our members to attend.

SASOHN Western Cape branch report

Sandra Muller: Treasurer and ExCo representative, SASOHN Western Cape
e-mail: sasohnwctreasurer@gmail.com

SASOHN Western Cape was borne out of a group formed by Sisters Ellen, Hansen, Volschenk and Tattersall, for nurses working in 'industry' at Irvin and Johnson in Woodstock, Cape Town. The group's first official meeting was held in 1974. SASOHN Western Cape is proud of its contribution to occupational health, not only in the region, but also in the wider occupational health nursing community.

We are proud to have had two vice presidents and two treasurers from the branch serving on the National Executive Committee. Our members have won the Ian Webster Gold Medal for the best master's or doctoral OHN student in southern Africa, and the Janet Taylor Award for Best Diploma OHN student, numerous times: Annie Tattersall was the first Ian Webster gold medalist for a degree course in the Western Cape, and Theresa Bosman emulated this prestigious achievement in 2016. Both are the only honorary life members to have won this award. Honorary life membership has been awarded to six Western Cape members: Annie Tattersall, Dalene Lorimer, Marhenetha Volschenk, Betty Lambert, Fransie Smit and Theresa Bosman.

The regional committee works with enthusiasm to meet the objectives of professional development and upliftment of occupational health nurses and to assist them in the promotion, adherence and delivery of the highest possible standards rendered in all occupational health practices. One such endeavour in the pursuit of professional development was the full-day educational workshop held in February 2020.

KALEIDOSCOPE 2020

The Wikipedia definition of a 'kaleidoscope' is an optical instrument with two or more reflecting surfaces, enclosed in a tube with one end containing a cell of loose, coloured pieces of glass.[1] When the cell is rotated, the motion of the glass pieces presents the viewer with an ever-changing picture.

SASOHN Western Cape has presented several 'kaleidoscope' workshops through the years, but this is the first time that the SASOHN president, Ms Denise Minnie, agreed to open the workshop.

Each kaleidoscope workshop offers members a capsule of information on a particular theme and provides an opportunity to uplift their professional practice by absorbing ever-changing information about occupational health. Engaging with the presenter and colleagues helps to further stimulate one to strive for best professional and, most often, personal best practice.

Back L-R: Annie Tattersall, Dalene Lorimer, Theresa Bosman
Front L-R: Eppies Volschenk and Bettie Lambert (late)
Photograph: Joan Visser

The theme for 2020 was *TOOLS for the occupational health profession* designed to equip attendees with updated information on what we regard as essential 'equipment' for occupational health nurse practitioners. We drew on the expertise of four SASOHN members: Estelle Smuts, Lindsay Zurba, Viv Stern and Lindie Jansen van Rensburg.

The TOOL topics included:

- Health risk assessment: Dr Hanli De Wet
- Fitness to work: Dr Hanli De Wet
- Vision screening without technology: Dr Greg Kew
- Physical examination: Estelle Smuts
- Urine dipstix analysis: what you need to know: Dr Younis Essack
- Spirometry: Lindsay Zurba
- Legislation and summary of changes: Lindie Jansen van Rensburg
- Ergonomics: Viv Stern

The event was well attended with 46 SASOHN members, one occupational health student and four non-members. In addition, we were proud to welcome four occupational medical practitioners, including Dr Geoffrey Tafaune, the current South African Society of Occupational Medicine (SASOM) Western Cape chairperson.

Feedback from the attendees was extremely positive, with several asking for another, similar workshop to be held over more than one day's duration. As always, 12 stalwarts of the occupational health service provider industry were in attendance to showcase the latest equipment, provide support, and answer queries.

The Western Cape regional committee is highly appreciative of the support that all service providers show for SASOHN Western Cape. We

SASOHN president, Ms Denise Minnie

Ms Lindsay Zurba, Education for Health Africa

Mr Steve Geier, Amtronix

extend our thanks and appreciation to Ampath, Ed-Unique, Homemed, SSEM Mthembu, Patient Focus Africa, Elana Human, Ergonomicsdirect, Education for Health Africa, PathCare, Onsite X-Rays, Amtronix and Occuvision. The committee further thanks Alan Hastings of ClinicSister for a monetary donation, although he was unable to attend the event.

REFERENCE

1. Kaleidoscope. Wikipedia. Available from: https://en.wikipedia.org/wiki/Kaleidoscope (accessed 17 Apr 2020).

Award recipients: SASOHN members, 2011–2019

Year	Ian Webster Gold Medal	Ian Webster Silver Medal
2011	Gail Irwin	Mariette Smit
2012	-	Hendrika Barrett
2013	-	Joan Razzano
2014	-	Anina Olivier
2015	Margot Pretorius	Jo Goebbel
2016	Theresa Bosman	-
2017	-	Karla Whiley
2018	-	Helene Mausling and Yolanda Koorzen
2019	-	Aletta Dedekind

Occupational medical practitioners and dual loyalty

Dipalesa Mokoboto, MMPA vice president; medical inspector, Department of Mineral Resources and Energy, South Africa
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INTRODUCTION

This article focuses on dual loyalty involving occupational medical practitioners (OMPs) and explores conditions leading them into conflicted situations.

Human rights and dual loyalty

Occupational health practice focuses on preventive health, dealing with groups of individuals, rather than the typical doctor-patient relationship. Literature on bioethical issues has focused on ordinary healthcare practitioners, neglecting occupational health professionals (OHPs) and their professional dilemmas.[1] Ethical codes and bioethical reasoning alone do not necessarily protect employees from violations of their rights.[2]

An example of human rights violation was described by White in 1997, regarding what black miners endured during pre-employment assessments in the Apartheid era: "Naked men were being examined in groups under demeaning conditions that violated human dignity."[3] Conditions in the mining industry have since improved and naked groups of miners are no longer assessed. They are assessed individually, although decisions by OMPs on fitness might not be individualised.

The context of power and occupational health

Leslie London (2005) stated that "both rights and ethics are normative approaches that aim to maximize human well-being and alleviate discomfort and suffering. There are two senses in which power is critical to consideration of the ethical and human rights dimensions of occupational health practice."[4] There is a need for the professional OMP to be trusted by both employees and employers, concerning medical ethics.

Society usually confers power to the health professional, provided that he/she commits to meet practice norms and standards that are acceptable to society. Individuals tend to trust health practitioners, believing that they are ethical in their professional conduct and unlikely to abuse the power conferred to them by virtue of their profession. "Unequal relations of power severely compromise the extent to which any procedure requiring a worker's consent can adequately meet globally recognised standards for informed consent."[5] Nemery (1998) stated that "Several workplace health challenges only emerge because of power conflicts between management and employees, in which the health care provider is expected to intervene."[6] In support of Nemery's theory, OMPs in the mining industry are often intermediate. Employees do not trust OMPs' decisions as they believe that their decisions are influenced by employers.

South African health practitioners, displaying unethical behaviour in handling patients, have created a legacy of people not trusting healthcare practitioners. "Occupational health practitioners (OHPs) need to be mindful of the impact of failing to adhere to ethical standards that place the employee or collective of employees as the primary focus of preventive, promotive, and curative professional practice", say Baldwin-Ragavan et al. (2000).[7]

Dual loyalties and conflicts of interest

The phenomenon of health practitioners holding double obligations might be directly or indirectly to a third party, aptly capturing the concept of dual loyalty. The impact on the patient or employee might be observed as negative. While health professionals are expected to maintain doctor-patient relationships with employees, they are often in a contractual or employment relationship with industry bosses.

Several contracted OMPs have admitted to being in compromising situations where the employer demands specific unethical requirements. They fear to refuse such demands as their contracts can be terminated. Some OMPs encountered cessation or non-renewal of contracts for decision-making contrary to employers' expectations.

The OHP might violate employees' human rights because of deficient ethical judgement: "On the one hand the health professional, bound by obligations of fidelity to the patient, must always seek to maximize the well-being of his or her patient."[8]

Higgins and Orris (2002) stated that "Almost always, the employer of the doctor is also the employer of the worker/patient."[9] They further described "the potential for a situation of dual loyalty of a health professional [as resting] upon four elements", as follows:

- "The existence of simultaneous obligations to the worker/patient and employer as third party.
- The incompatibility of these simultaneous obligations.
- The existence of some measure of pressure on the health professional from the third party qualitatively differs to the power of the employee.
- The separation of the health professional's clinical part from that of a social agent."

Human rights violations of employees may increase if dual loyalty is worsened by certain factors, especially concerning wrong, inappropriate and unethical decisions, regarding management of the employee/patient. "Such exacerbating factors include risky employment relationships, role conflicts for health employees, personal bias, institutional discrimination and stigmatisation of patients, the presence of a repressive political environment, and professional power and self-interest."[10] Occupational health practitioners who are not sure of their functions in the doctor-patient relationships are deemed prejudiced, racist or unsupportive of interests of the employee-patient relationship. They are most likely to encounter challenges with dual loyalty. The contract between the OHP and the employer may not be in favour of the employee-patient, concerning various aspects. The contract may focus on, and specifically mention, legal obligations of the OMP, not considering medical ethics. It becomes the responsibility of the OMP to observe medical ethics.

"Some health practitioners in the industry may feel the need to side with the company, even though there is no basis for that and the 'contract of employment' does not necessarily demand that."[11] In such instances, taking sides with the company is based on the person's emotions, whereby the practitioner identifies with the company concerning values and how the company perceives important aspects in the working environment. This invariably leads to the health practitioner

making "decisions in the best interests of the company."[12] This often happens in the mining industry where the mine employer is more focused on profit and production than the interests of the employees, and the OMP must consider that when determining employees' fitness, by adopting the views and values of the employer.

Occupational health practitioners should be impartial concerning advising the employer. They should remain professional by promoting the health and safety of all employees under their care, without bias or discrimination. Any health practitioner who demonstrates independence and integrity in his/her profession, and transparency, will be respected and trusted by both employees and employers.

Implications of dual loyalty on occupational health practice

The International Commission on Occupational Health (ICOH) ethical code submits that "occupational health practitioners... must acquire and maintain the competence necessary... to carry out their tasks."[13] In support of the ethical code, London suggests "knowledge of the workplace, its hazards, and the job activities expected of the worker-patient are essential components of the required ethical competence of an OHP".[4] Several OHPs/OMPs may find it difficult to be impartial, acting in favour of employees' rights. Dual loyalty does not only apply to individuals when employees undergo medical surveillance, but also when the OHP needs to provide comments on policy documents, aimed to promote the health and safety of employees without disadvantaging employees.

Guidelines on minimum standards of fitness required to perform work

This guideline for fitness to perform work[14] was drafted to assist OMPs to determine if employees fulfil minimum requirements to be declared fit for work. It outlines common approaches but should not be prescriptive. Occupational medical practitioners should introduce alternative approaches, using discretion. These approaches should be supported by evidence-based clinical trials or by medical associations. "The OMP is responsible for determining fitness to work and should be familiar with the working environment and requirements of jobs" (p 9).[14] There are certain considerations to be made by the OMP when determining the fitness status of employees, such as:

- The work exposure must be considered when adopting risk management principles.
- Each case should be evaluated on its own merit.
- There should be no blanket exclusions for employees with certain conditions.
- Risks should not be generalised as they are specific to certain jobs .
- The specifics of medical conditions and working environments should be considered.
- Medical conditions should be interpreted in functional terms and job requirements.
- A holistic approach should be adopted.

Medical testing

"HIV testing is prohibited unless such testing is determined to be justifiable by the Labour Court".[15] Some OHPs test employees for HIV during pre-employment assessments. The argument used is that it would be better to know the status of employees before they are declared fit to work underground. However, this is unethical as HIV testing is prohibited. Conversely, pre-employment testing suggests the possibility of denying these employees employment, based on their HIV status, which is discrimination. Physical and functional capabilities are not considered. In such cases when OMPs are conflicted, focusing on the worst-case scenario, an employee with HIV is already regarded as having full-blown AIDS. Cases are not assessed on their own merits, but generalisation of conditions is adopted.

Medical ethics, dual loyalty, values and standards

All medical practitioners are required to conduct themselves professionally in all their interactions with their patients and should be guided by "ethical standards and values."[16] There is a possibility of a conflict occurring because of competing demands, resulting in the health practitioner having to choose between the competing demands. Using ethical reasoning might aid in dealing with ethical dilemmas.

Grobler (2012)[17] stated that the "discipline of occupational medicine is concerned with the relationship between work and health, promoting the health of employees and the workforce collectively…" Of note is that the employer is the boss for both the OMP and employees and they both derive salaries from the same employer. While most employers might provide OMPs autonomy to employ their skills and medical knowledge when deciding on employee fitness, several are more focused on profits and productivity and may not tolerate any decision of the OMP that might hamper production.

For example, most employers are intolerant of employees who, for medical reasons, cannot perform their duties, even though the situation might be temporary. This might put the OMP in a difficult situation, forcing him/her to declare an employee permanently unfit due to conditions that can be cured or improved. Such situations clearly expose OMPs to ethical dilemmas. The ethical principles of autonomy, beneficence and justice need to be adhered to.

Autonomy

This translates into honest communication; respecting the privacy of others; protecting confidential information; obtaining consent for interventions; and, when asked, assisting others to make important decisions. In the mining industry, OMPs tend to be paternalistic, deciding what is right for the employee. Several OMPs practise defensive medicine, focusing on the worst-case scenario. Sometimes, employees are declared unfit for work, based on the fear that 'something' might happen.

Beneficence

The following aspects are regarded as relevant for the dual loyalty of OMPs: protecting and defending the rights of others, preventing harm from occurring to others, and assisting persons with disabilities. Assisting those with disabilities seems to be a challenge in the mining industry, as it does not fit well with the employer's requirements of employing only healthy workers, without any physical, mental or sensory problems, to ensure that production is not hampered.

Justice

Justice refers to fairness, implying fair treatment for all employees assessed by the OMP. All employees have the right to be treated equally. Thus, during decision-making processes, OMPs must be fair concerning medical conditions and fitness of employees. These decisions need to be transparent, and guided by the available morally accepted legislation.

CONCLUSION

The OMP is not exempt from complying with ethical rules, which are compulsory for all medical practitioners. Conflicts of interest are likely to occur where the medical practitioner and the employee share the same employer. The OMP is bound by legislation that clearly guides and assists decisions pertaining to medical incapacity and fitness to work. However, the Constitution and medical ethics need be considered, together with legislation. The minimum standards of fitness guidelines are not prescriptive and should not be used as a crutch by an OMP to be unethical or to refuse to adopt a holistic approach during decision-making, regarding the fitness status of employees. Decisions by OMPs should not be made according to the worst-case scenario or a blanket ban, as this might be discriminatory. Considerations to be taken into account by the OMP, as discussed in this article, will assist in avoiding dual loyalty.

Note: *This article is an extract from a Master of Philosophy in Medical Law and Ethics dissertation on: "The impact of dual loyalty on health care practitioners' decisions", University of Pretoria, South Africa.*[18]

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