

Adherence to Occupational Health and Safety Standards: The Case of a South African Steel Processing Company

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Abstract

Occupational accidents bring with them serious problems, both financial and non-financial, for employees as well as organisations. The purpose of this study was to investigate adherence to health and safety standards in a selected steel processing company in South Africa. A quantitative survey approach was used in which a structured questionnaire was administered to a purposively selected sample composed of 165 employees from a steel processing company based in the Gauteng province. The collected data were analysed using the Statistical Packages for Social Sciences (SPSS version 22.0). The results of the study confirm that employees in the selected steel processing company are satisfied with the degree of adherence to health and safety standards. Employees felt that the company has in place various rewards which are offered to employees whenever they successfully follow health and safety rules. The study further revealed that the labour union in the company participates actively in health and safety issues and that its recommendations are taken seriously by the company. Finally, employees are satisfied with the workplace surroundings in areas such as ventilation, room temperature, lighting and hygiene. Conclusions drawn from the study and recommendations are discussed.

Keywords: *employee health and safety adherence, steel processing industry, costs, accidents, and injuries.*

Introduction



The steel industry is a very complex and highly risky environment for employees to working. It is usually bedevilled by accidents and injuries, in some instances resulting in death. Costs related to occupational accidents are exorbitant for employers as they affect the bottom line, damage property and lead to work stoppages, increases in medical costs, loss of income and hardships for the employee's dependants (Yakovlev & Russel, 2010). Maintaining the required level of safety adherence in such an industry is paramount in order to safeguard the lives of employees in the workplace (Omogoroye & Oke, 2007). Masia (2010) and Sendagala (2010) define adherence as the minimum amount of legal obligation and requirement that should be met to ensure the absence of accidents in the workplace. Safety adherence shapes the required or desirable behaviour in the workplace. Adherence is linked to the safety culture or climate in the organisation, which is believed to shape employee behaviour through expectations (Lingard, Blismas & Cooke, 2011). Occupational accidents such as those that led to the Chernobyl, Bhopal and Kinross catastrophes are well known to have caused severe human devastation and have changed the way occupational health and safety is viewed many workplaces (Saleh & Pendley, 2011). There are myriad factors that contribute to industrial accidents in the workplace, including employee attitude, employee age, organisational culture and management practices (Geldart, Smith, Shannon & Lohfeld, 2010). According to McSween (2003), unsecure work behaviour is referring to the result of (1) physical environment, (2) the social environment and (3) workers' experience within these. Meanwhile, the safety triangle shows relationships between the unsecured work situation and injuries that influence safety condition in the automotive industry. Safety not only focus on the bottom line workers but it also influences the top management, manager and staff to become more responsibility and accountability in their efforts to provide the safe environment.

Benefits of Occupational Safety and Health Practice

Direct Benefits	Indirect Benefits
Decrease insurance premiums	Decreased absenteeism
Decrease litigation costs	Decrease staff turnover
Decreased sick pays costs	Increase corporate image
Increased production/productivity Rates	Increased chances of winning contracts
Decreased production and materials Damage	Increased job satisfaction/morale

The purpose of this study is to examine the adherence to the health and safety act in a South African steel processing company. To date, there is little information on the effectiveness of the South African government's initiatives regarding the promotion of health and safety regulations in the steel manufacturing sector (Edwards, Davey & Armstrong, 2014). There is serious concern about health and safety in the steel processing industry in South Africa (Adebiyi & Charles – Owaba 2009). Edington and Schultz (2008) argue that the health and safety of employees are invaluable and that it is highly unethical to assign a price tag to an employee's health and safety. Non-adherence to the safety regulations continues to be a major challenge for many steel processing companies (Trethewey 2005). Internationally, it is estimated that employees experience about 250 million accidents yearly, accompanied by at least 330,000 deaths (Moller & Rothmann 2006). Curtailing occupational disease and accidents not only improves and saves employees lives but can reduce the unnecessary spending of billions of rand paid out annually by the office of the Compensation Commissioner (CC) to victims of work-related diseases and accidents (Geminiani & Smallwood 2008). Executives in the highest echelons of organisations are often detached from and have little information about, shop floor health and safety issues. They are therefore very unlikely to be fully acquainted with the health and safety needs of the employees at the shop floor level (Bosak, Coetsee & Cullinane 2013).

The remaining part of this article is organised as follows: the next section provides a theoretical review in terms of the background of occupational health and safety in South Africa, the sources of occupational accidents and the cost implications of occupational accidents; thereafter, the article discusses the research methodology, followed by the research results. The final sections of the article discuss the conclusions and recommendations.

Literature review on Occupational health and safety

Legislation



Internationally, one finds that societies have laws and regulations in place with the aim to secure health and safety of humans in their occupations. Occupational health and safety laws across nations share many similarities. They have in common that the health and safety of employees must be secured by assessing, analyzing, adjusting, and minimizing hazards and risks for injury and disease in the workplace. Modern national OHS legislation has been implemented during recent decades.

OHS management practices

To achieve a functioning systematic management of OHS, there are different practices and tools available to use. Companies set up their own routines to meet the legislative demands on their types of businesses. There are check-lists and systems available for free to handle OHS issues systematically. There are also OHS systems available for purchase. OHS management practices include, for example, regularly investigating working conditions, conducting risk assessments, monitoring sick leave, reporting incidents, following up adjustments, or having an OHS policy in place. (The Council of the European Communities, 1989) Incidents in the workplace include near misses, accidents, and work-related diseases, and should be reported and documented. If near misses are repeatedly reported from some part of the workplace, then the company needs to make adjustments to achieve a lasting improvement. If an accident occurs, the company must make necessary adjustments to prevent a reoccurrence. (The Council of the European Communities, 1989)

Benefits of OHS management

The motivation for OHS management is that by managing hazards and minimizing risks a safe workplace ought to be achieved for everyone working there. It is a moral sentiment that nobody should have to be injured in an accident, suffer from disease, or become chronically ill or depressed from labouring in a workplace. The workplace should be organized in such a manner as to achieve a sound physical as well as psychosocial environment. Managers' commitment and prioritization of safety are essential for the OHS performance in an organization (Gillen, Kools, McCall, Sum and Moulden, 2004; Mattson, 2015).

Another positive dimension of being committed to OHS, less often considered, is employer branding, that companies are more attractive to potential employees because of a reputation for prioritizing safety, health, well-being, and benefits for their staff (Åteg,



Andersson and Rosén, 2009). Often, for a company to want to prioritize OHS management, there need to be some noticeable effects of the efforts taken (Eklund, Lindbeck, Riquelme and Törnström, 2007: 16). The perceived advantages are crucial for companies' decision-making about how to set the priorities (Rosén, Hedlund, Andersson, Antonsson, Bornberger-Dankvardt and Klusell, 2007:31). But even if companies are motivated to improve OHS management, they often do not associate it with better business performance (Dul and Neumann, 2009). It is generally difficult to estimate the benefits of investing in OHS, and there are several calculation tools to choose from (Rose, Orrenius and Neumann, 2013). Reduced sick-leave costs often come to mind as a direct beneficial effect, but frequently, there are productivity and quality improvements to consider as well (Dul and Neumann, 2009; Abrahamsson; 2000). Estimations of return on prevention (ROP) done by the International Social Security Association (2011) indicate an average cost-benefit ratio of 1:2.2.

Background of the Occupational Health and Safety Act in South Africa

In the South African context, employees enjoy the benefit of the Constitution. The Constitution stipulates that employees have the right to discharge their duties in a safe working environment that is not detrimental to their health and safety. The old Machinery and Occupational Safety Act no: 85 of 1983 (MOSA) was replaced by the Occupational Health and Safety Act (OHSA) no: 85 of 1993 on 1st January 1994 (Du Plessis & Fouche, 2006). The prime focus of the OHSA is to protect the health and safety of workers or any other persons from harm in connection with the use of the plant and machinery (Kopel, 2009; Nel, van Dyk, Haasbroek, Shultz, Sono & Werner, 2009). For the purpose of this research "*an employee*" is defined as any person who agrees to enter into, or who works under, a contract of service or apprenticeship or a learnership programme with an employer (Venter & Levy, 2009 Strydom, le Roux, Landman, Christianson, Dupper, Myburgh, Garbers, Barker, Basson, Esselaar & Dekker, 2006).

Sources of Occupational Accidents

Organisational culture

Organisational culture is defined as a system of well-shared beliefs and values that influence employees' behaviour in an organisation (Dubrin 2002); Macey, Schneider, Barbera & Young 2009:43). For the purpose of this study, safety culture is described as a



brief summary of the beliefs and perceptions of employees about health and safety in the workplace which influence employees' behaviour (Fernandez-Muniz, Montes-Peon, & Vazquez-Ordas 2011:743). Organisational aspects such as societal, environmental, and historical influences have an impact on adherence to the health and safety culture in the workplace. Recently, there has been an interest in the field of occupational health and safety with the main focus being health and safety. This interest has grown in the wake of high-profile industrial accidents. An example of such well-documented occupational accidents includes the Clapham Junction rail disaster in the United Kingdom (UK), the Bhopal disaster in India and the Russian Chernobyl nuclear plant accident (Parbotech & Kapp 2008). It is widely believed that employees and employers can avert occupational accidents by maintaining a positive safety culture. A safety culture relates to the nucleus of assumptions and beliefs that organisational members are familiar with as regards health and safety. This is usually expressed through organisational beliefs, behavioural norms, values of supervisors and managers and is spelt out in the safety policies, rules and procedures that the organisation espouses (Clarke 2003).

Employee attitudes

Attitude is defined as the evaluation of people, ideas, issues, situations and objects (Lamberton & Minor 2010). According to Bergh, Theron, Geldenhuys, Ungerer, Albertyn, Roythorne-Jacobs, and Cilliers (2003), attitude encompasses three main components: behavioural, cognitive, and emotional. Employee attitudes to health and safety are reflected in the behavioural component, which is fundamental. Attitude is one factor that determines and influences the level of employee adherence to workplace safety standards (Hsiang Huang, Chen, DeArmond, Cigularov & Chen, 2007). Out of a population of 6.9 billion people, half spend a third of their lives working in various organisations; it is these efforts by employees that keep the economy thriving (Shalini, 2009). According to the International Labour Organisation, it is estimated that 2.3 million industrial accidents arise out of employment. This figure is accompanied by 321 000 mortalities that occur annually (Cheng, Leu, Cheng, Wu, Lin, 2011; Hamalainen, Saarela & Takala, 2009). The influence of attitude cannot be separated from workplace safety (Shaluf & Ahamadun 2006). Unsafe acts include the failure to comply with health and safety regulations; an example would be an employee's intentional failure to wear Personal Protective Equipment (PPE). Employees that have positive attitudes are more likely to be satisfied with their jobs and to experience lower levels of occupational accidents, turnover and absenteeism in the workplace



(Robbins 2005). It is therefore advisable for employers to start paying substantial attention to employees' attitudes as it has been established that attitude significantly influences employee safety behaviour.

Workplace stress

The term stress is defined as the physiological and psychological response made by an individual to environmental events called stressors (Werner, Bagraim, Cunningham, Pieterse-Landman, Potgieter & Viedge 2011; Mashego 2014). Businesses are likely to experience increased occupational accidents when employees experience high levels of stress. When an employee's concentration level is compromised, accidents are likely to occur frequently in an organisation. This can result in overwhelming workplace injuries and an increase in the death toll in the workplace. It is therefore imperative for organisations to devise coping mechanisms such as Employees' Assistance Programmes (EAPs) to assist employees to deal with stress in the workplace. (Hayes, O'Brien-Pallas, Duffield, Shamian, Buchan, Hughes, Spence Lachinger & North 2011) A massive challenge facing employees in the steel manufacturing sector is meeting daily production targets and job demands. Besides having to meet these daily deadlines, further emotional and mental stress faces employees in organisations. Employees are therefore expected to strike a balance between their relationships outside work while also fulfilling their duties as employees (Moorhead & Griffin 1998). Meeting productivity demands can be gruelling and can lead to employees being prone to increased stress levels (Jacobs, Mostert & Pienaar 2008). Stress in the workplace is one of the invisible health problems facing many employees in many steel manufacturing companies. There is no doubt that the major influence on job performance, productivity, absenteeism and high labour turnover is high-stress levels. Stress has been proven to be the main source of frustration and tension in the workplace. This arises as a result of various interconnected factors such as employees' behaviour and organisational and environmental factors (Mullins 2006). Uncontrollable workload and lack of safety mechanisms have been shown to be contributing factors leading to high levels of stress which, in turn, impacts severely on employees' levels of adherence. To ameliorate this phenomenon it is imperative to manage the workplace load of employees (Grobler, Warnich, Carrell, Elbert, & Hartfield, 2011).

Influence of working experience and age on safety adherence

A study by Schultz and Schultz (2006) established a direct link between safety adherence and the employee's age. Underlying forces such as physical health and the employee's



attitude directly interact with the employee's age. The study established that experienced and older workers have greater knowledge of their job description and greater job knowledge as a result of experience acquired over the years. It was also found that eye coordination, vision and hearing deteriorate as employees become old. When it comes to personal safety, older employees demonstrated a higher degree of caution as compared with younger employees, who are more susceptible to occupational accidents and injuries (Chin, Deluca, Poth, Chadwick, Hutchinson & Munby 2010; Salminen 2004).

Cost implications of occupational accidents

The economic costs of accidents and illnesses can be divided into two categories, namely direct costs and indirect costs, which will be discussed in detail. (Waehrer, Dong, Miller, Haile & Men, 2007) Some of the direct costs include payments to rehabilitation centres, hospitalisation, nursing home care, damage to property, and the administrative costs of medical claims and burial costs (Jallon, Imbeau, Marcellins-Warin, 2011). Indirect costs include loss of salaries, loss of skills, equipment damage and loss of productivity by the employer (Ural & Demirkol 2008; Gavius, Mizrahi, Shani & Minchuk, 2009). Other indirect costs include low morale among colleagues and production disruption when an accident occurs, the recruiting and training of the new incumbent to replace an injured or sick employee, investigation costs and loss of experienced and qualified personnel (Pillay, 2014). In South Africa, the picture is depressing when it comes to levels of accidents due to poor levels of adherence to health and safety regulations in the workplace. Occupational accidents have a negative bearing on the state as well as employers, having serious financial ramifications for both employer and State. Employers' wage bills increase because the employer spends additional funds on insurance pay-outs, hospital stays and replacement of injured or killed employees (Mearns, Hope, Ford & Tetrick, 2009). In South Africa, the State spends over 50 billion rand on the compensation fund to compensate the injured and the families of the deceased (Kinoti 2010). Occupational accidents are distressing to employees and their immediate families. Therefore, occupational accidents are expensive and have destructive implications for an organisation's reputation

Research methodology

Research design and sample



The research employed a quantitative technique in which a structured questionnaire containing closed-ended questions was used to collect data from the selected respondents. The final sample in this study was made up of 165 production employees employed by a selected steel processing company based in Southern Gauteng. A non-probability purposive sampling method was used to select the respondents. Only individuals who had been employed by the company for at least two years were selected. An up-to-date list of these participants was obtained from the Human Resources Department. Data were collected between January and February 2015, after permission to conduct the research had been granted by management at the company. Initially, 300 questionnaires were distributed and 209 were returned. After screening the questionnaires, 44 questionnaires were discarded because they were unusable, leaving 165 questionnaires which were used in the final data analysis.

Data analysis

For the purpose of this inquiry, the Statistical Package for the Social Sciences (SPSS version 22.0) was used to analyse the data. Descriptive statistics were used to conduct analysis of the demographic profile of the respondents and mean score analysis was conducted to examine the extent of adherence to the occupational health and safety act within the steel processing industry in South Africa.

Research results

Biographical information of respondents

Section A of the measuring instrument elicited biographical information, which included gender, race, age, work experience and current position. The sample size of n=165 employees was selected for the research. The demographic details of respondents are reported in Table 1.

Table 1: Profile of participants

Demographic profile	Classifications	n	%
Gender	Males	116	70
	Females	49	30
Age	Less than 28 years	73	44
	29-40 years	67	41
	41-50 years	21	13
	Over 51years	4	2



Race	Black	126	76
	White	35	21
	Mixed race	1	0.6
	Indian	3	2
Work experience	Between 2 and 4 years	62	38
	5-10 years	54	33
	10-15 years	22	13
	Over 15 years	27	16
Current position	Apprentice	35	21
	Artisan	70	42
	Supervisor	23	14
	Engineer	37	23

Section B of the questionnaire sought biographical information in terms of gender, race, age group, work experience, occupational level and type of employment contract. In terms of gender representation, 79% of the respondents were male. With regard to race, 76% of the respondents were blacks, followed by 21% who were whites. At least 44% of the respondents were aged between 18 and 28 years of age, followed 41% who were aged between 29-40 years. In terms of work experience, 37% of the respondents had less than four years of work experience, whilst 33% had between five and ten years' work experience. Regarding their current positions in the company, 42% were employed as artisans, 21% were apprentices, 14% were supervisors and 23% were engineers.

Mean Score Analysis

To analyse the views of respondents towards adherence to the OHS Act, mean scores of four dimensions were analysed: safety adherence, rewards for maintaining health and safety standards, labour union involvement and workplace surroundings. Likert-type scales were used in the study and were anchored by 1= strongly disagree and 5 = strongly agree. A higher mean score closer to the 5 value denotes agreement with the question/s while a lower mean score closer to 1 denotes disagreement with the question.

Perceptions towards Employee Safety Adherence

The mean scores and standard deviations (SD) for employee safety adherence are shown in Table 2.

Table 2: Mean analysis for employee safety adherence

Items	Description of items	N	Min	Max	Mean	SD
B1	Safety procedures and instructions are followed.	165	1	5	4.17	0.816
B2	I usually wear my Personal Protective Equipment (safety goggles, safety boots, helmets, and gloves) that are provided by the employer.	165	1	5	4.36	0.788
B3	I believe that safety adherence leads to good business performance.	165	1	5	4.32	0.771
B4	Safety culture is promoted from managers to employees.	165	1	5	4.21	0.832

Scale denotation: Likert scale: 1= Strongly disagree to 5= Strongly agree

Mean scores for the employee safety adherence scale ranged from $\bar{x} = 4.17$ to $\bar{x} = 4.36$. Items such as the extent to which safety procedures and instructions are followed ($\bar{x}=4.17$; $SD=0.816$), the correct use of protective clothing($\bar{x}=4.36$; $SD=0.788$), the belief that safety adherence leads to good business performance ($\bar{x}=4.32$; $SD=0.771$), and the promotion of safety culture by managers ($\bar{x} =4.21$; $SD=0.832$) indicate that the majority of the employees were aware that it was important to adhere to safety standards in the workplace.

Perceptions towards the influence of rewards for health and safety

The mean scores and standard deviations for perception of employees towards rewards for health and safety are shown in Table 3.

Table3: Mean analysis for the influence of rewards on health and safety

Items	Description of items	N	Min	Max	Mean	SD
C1	Employees must be rewarded for achieving excellent safety records.	165	1	5	4.26	0.987
C2	Rewards lessen occupational accidents.	165	1	5	4.08	1.009



C3	In this organisation, employees are rewarded for achieving excellent safety records.	165	1	5	4.19	0.891
Scale denotation: Likert scale: 1= Strongly disagree to 5= Strongly agree						

The mean scores for the influence of rewards on health and safety scale ranged from \bar{x} =4.08 to \bar{x} =4.26. Item C1, indicating that employees agreed they felt that they should be rewarded whenever they experienced a low rate of accidents, scored the highest mean (\bar{x} =4.26; SD=0.897). In item C2 (\bar{x} =4.08; SD=1.009), employees agreed that they felt that rewards led to reduced occupational accidents. In Item C3 (\bar{x} =4.19; SD=0.891), employees concurred that their organisation rewarded employees for achieving excellent safety records. The results of this study imply that the efforts of employees to reduce accidents in the workplace should be acknowledged and rewarded. For example, bonuses could be awarded when specific behaviours and achievements are attained in the workplace as they serve as a motivator for safety adherence (Deeprise, 2007; Jensen, McMullen & Stark, 2007).

Perceptions towards the role of a labour union in health and safety

The mean scores and standard deviations for perception of employees towards the role of a labour union in health and safety are shown in Table 4.

Table 4: Means analysis of the role of a labour union in health and safety

Items	Description of items	N	Min	Max	Mean	SD
D1	My labour union is involved in health and safety matters.	165	1	5	4.04	1.050
D2	My labour union is proactive in health and safety meetings with the employer.	165	1	5	3.39	1.019
D3	Health and safety recommendations by the labour	165	1	5	4.01	0.913

	union are taken seriously by the employer.					
Scale denotation: Likert scale: 1= Strongly disagree to 5= Strongly agree						

There were three items measuring the role of the labour union in health and safety issues. The first item scored a mean value of $\bar{x}=4.04$; $SD=1.050$, thereby indicating that the labour union was actively involved in health and safety matters. According to the results of the second item ($\bar{x}=3.39$; $SD=1.019$), the labour union was proactively involved in health and safety meetings. Item D3 ($\bar{x}=4.01$; $SD=0.913$) showed that recommendations from the labour union regarding health and safety issues were taken seriously by the organisation. These results indicate that employees within the company firmly believed that trade unions perform a meaningful role in health and safety matters affecting employees in the workplace. Representatives of the labour union were often invited to attend safety meetings by the management, which depicts an approach by trade unions that is considerably more proactive than reactive. A proactive involvement is one in which the labour union is involved in health and safety matters before any crisis occurs, whereas a reactive approach is one in which the labour union gets involved only after a crisis (Flynn & Shaw 2008). Thus, the labour union movement in the organisation is vibrant and dedicated to addressing health and safety matters.

Perceptions towards the state of the workplace surroundings

The mean scores and standard deviations for perceptions of employees towards the workplace surroundings are shown in Table 5.

Table 5: Means analysis of workplace surroundings

Items	Description of items	N	Min	Max	Mean	Std. deviation
E1	There is enough ventilation at my workstation.	165	1	5	4.19	0.860
E2	I am comfortable with the room temperature.	165	1	5	4.05	1.011



E3	I am satisfied with the level of hygiene at my workplace.	165	1	5	3.84	1.118
E4	There is sufficient lighting at my workplace.	165	1	5	4.12	1.021
K5	Chemical substances are clearly marked.	165	1	5	4.24	0.828

Scale denotation: Likert scale: 1= Strongly disagree to 5= Strongly agree

As indicated in Table 19, the mean scores ranged from $\bar{x}=3.84$ to $\bar{x}=4.24$, which shows that the majority of respondents agreed that the workplace surroundings in which they operated met the required health and safety standards. Item E1 ($\bar{x}=4.19$; $SD=0.860$) indicates that employees felt that there was sufficient ventilation at their workstations. Item E2 ($\bar{x}=4.05$; $SD=1.011$) reveals that employees felt comfortable with the temperatures in their workplace environment, whilst item E3 ($\bar{x}=3.84$; $SD=1.118$) indicates satisfaction with the hygienic standards in the workplace. Item E4 ($\bar{x}=4.12$; $SD=1.021$) shows satisfaction with lighting and item E5 ($\bar{x}=4.24$; $SD=0,828$) indicates agreement with the statement that chemical substances were clearly marked. These conditions prevent the spread of hazardous chemicals and the spreading of diseases within the workplace and indicate that appropriate measures are applied to prevent occupational accidents.

Reliability and validity

To determine the content validity of the instrument, 30 questionnaires were piloted on a convenience sample made up of part-time students who were studying for a Diploma in Safety Management at a university of technology which is based in Gauteng Province. Apart from their knowledge of safety management, the part-time students were also employed in the steel processing industry, and so they had some knowledge that was relevant to this study. To determine the reliability of the measurement scales, the Cronbach alpha coefficient was used. Feedback by the pilot sample led to the deletion of some scale items, which increased the reliability of the overall scale to 0,883. This value surpassed the recommended acceptable reliability level of 0.7 (Marre et al., 2010). These results are reported in Table 6.

Table 6: Scale Reliabilities

Section	Scale	Number of items Before Pilot Study	Number of items After Scale Purification	Reliability A
B	Employee safety adherence	6	4	0.868
C	The influence of rewards on health and safety	5	3	0.933
D	Role of labour unions in health and safety issues	5	3	0.846
E	Workplace surroundings	7	5	0.887
Overall scale		23	15	0.883

Conclusions and recommendations

The purpose of this study was to investigate adherence to health and safety standards in a selected steel processing company in South Africa. The study confirms that employees in the selected steel processing company are satisfied with the degree of adherence to health and safety standards. Employees felt that the company has in place various rewards which are offered to employees whenever they successfully follow health and safety rules. The study further revealed that the labour union in the company participates actively in health and safety meetings and that its recommendations are taken seriously by the company. Finally, employees are satisfied with the workplace surroundings in areas such as ventilation, room temperature, lighting and hygiene. The study recommends that there be periodic retraining of employees on the significance of the health and safety standards in



the company. Employees' awareness of the importance of hazard identification and risk assessment in the workplace should be enhanced. Employees should be monitored to ensure the correct usage of personal protective equipment. Health and safety meetings should be conducted on a regular basis and supervisors should conduct frequent inspections of various plants or departments.

The results of the study were limited to one organisation which was based in one South African province. This makes it necessary to exercise caution when generalising the results of this study to other companies and environments. It is therefore advisable that the study is extended to other steel processing companies in other regions of South Africa. This may provide a platform for comparative studies based on geographic location.

Acknowledgements

The authors would like to acknowledge all the employees at Arcelor Mittal Vereeniging Tubular Works, as well as the safety manager, who assisted in authorising the researcher. I would like to thank Professor Alain Ndedi go going to the first draft of the paper. Lastly, all thanks to the fieldworkers who assisted in the completion of the questionnaires in the study.

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