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Employer and employees' perceptions on implementation of health and safety regulations in the platinum mining sector of South Africa

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Maintaining occupational health and safety (OHS) is always a priority in many organisations. The purpose of this study was to investigate employer and employees' perceptions on the implementation of OHS regulations in the Platinum mining industry in South Africa. Using questionnaires, data was collected from 22 employers and 153 employees in the platinum mining industry. The data was subjected to a number of statistical analyses including one way ANOVA. Findings from the research indicated that even though employers and employees have a positive perception on implementation of OHS regulations, there is still a mismatch between implementation and execution of the policies. Consequently, many suggestions are not always turned into actual action to maintain the OHS of employees.

Key words: Perceptions, implementation, safety and health.

INTRODUCTION

The mining sector is one of the industries that are exposed to many hazards. These include explosions (methane, coal dust, or other), fires, rock and roof falls, landslides, blackdamp and toxic gases outbursts, and water inrush/sudden inundations (Saleh and Cummings, 2011). It is known that developing nations tend to pay less attention to worker health and safety (Baram, 2009) and bear 80% of the burden of workplace accidents and occupational illnesses worldwide (DCPP, 2007). It is also known that transfers of production from developed countries to developing countries are ever increasing (Hämäläinen et al., 2009). The results are the exposure of under-trained and often illiterate workers to unfamiliar environments and new risks (Baram, 2009). These risks are known and means of eliminating them exist (DCPP, 2007). Vinodkumar (2010) showed that in plants that had low injury rates, the employees' perception of management commitment to safety is highly positive. On the other hand, in plants where injury rates were high, the employees' perception of management commitment to safety was negative there the major focus of management's safety efforts was on Occupational Health and Safety Act compliance with limited employee involvement

Employees who positively engage in safety-related communication with their leaders should have a better understanding of safety issues. Worker participation in occupational health and safety generally achieve better outcomes than do unilateral management initiatives

In recent years there has been increasing public interest in the subject of health and safety in relations to employee rights. The right of employees to be informed about health hazards in the workplace has become a major issue in occupational health policy, especially in developed countries. Many workers have an intuitive feeling that to work in South African factories and mines is dangerous as supported by Leger (1990). For effective

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action against hazardous work, accident statistics can be very useful to help focus campaigns on the most dangerous industries and jobs. They are vital for analyzing trends and for making comparisons with other countries and can assist unions in their negotiations around specific health and safety issues.

Despite significant reductions in mining injuries, incidence rates remain high compared to other industries (Komljenovic et al., 2008). On average, one worker dies in the South African mining industry every working day, and about 16 are injured in daily mine-related accidents (Van Wyk, 2006). Employees are made to work in unfamiliar conditions because the job can be given to someone else who is willing to work under the prevailing conditions. Accidents can be prevented if there are effective safety and health regulations to be complied with in different industries considered as most hazardous. Very little literature, if any, can be found on employer and employee perceptions concerning the implementation of health and safety regulations in the mining industry.

This study focused on the knowledge and practice of employers and employees relative to health and safety regulations in the platinum mining sector at selected platinum mine in Mpumalanga province of South Africa. In view of the worrying statistics the researchers were concerned about the high accident rate in the mining industry. The statistics raise more questions such as: Are the labour inspectors doing their job? What is the major cause of such accidents? Does management abide by the health and safety regulations? Are the minimum safety requirements being met? Are accidents being caused by employees fatigue and negligence? What is being done to ensure that all accidents are reported? Does the problem lie with the state being the sole legislator? Hence, the objectives of the study were to assess the knowledge and practice of mine workers relative to occupational health and safety regulations in their place of work and to investigate whether employers follow up on proper procedures pertaining to safety in the mine. It was hypothesized that employees are not well informed on health and safety regulations, and that employers do not abide by the provisions of the health and safety regulations.

RESEARCH METHODOLOGY

A quantitative research approach using questionnaires was used to solicit data to understand the knowledge and practice of employers and employees relative to health and safety regulations in the platinum mining sector at selected platinum mine in Mpumalanga province of South Africa. The entire research process is objectively constructed and the findings are usually representative of the population being studied (Babbie and Mouton, 2003). The researcher utilised a quantitative approach because, as noted by Leedy (2001), quantitative research design allows the researcher to answer questions about the relationships between measured variables with the purpose of explaining, predicting and controlling certain phenomena.

For the purposes of this research, a Likert five-point interval scale, was used as interval scales of measurement have the power (abilities) of nominal and ordinal scales, plus one other strength of incorporating the concept of equality of interval (the distance between 1 and 2 equals the distance between 2 and 3, 3 and 4, and so on). Besides this equality interval scales also have a zero point that has been established arbitrarily, as in temperature (Cooper and Schindler, 2005).

Research participants

The sample consisted of 153 employees and 22 employers of a selected mining company. Based on the merits of the sampling frame and sampling unit described above, a simple random sampling was employed. Simple random sampling gives each member of the population an equal chance of being chosen. Each element in the sampling frame was given a number (e.g. give everyone on the Electoral register a number) and then use random numbers to select the required sample. Random numbers were obtained using a Stat Trek's Random Number Generator.

Measuring instrument

Questionnaires are research instruments to source primary data are associated with both positivistic and phenomenological methodologies (Alexander, 2010). A structured questionnaire was used to source the primary data with regards to the perception of mine employers and employees on the effectiveness of health and safety regulations in the selected platinum mine. Most of the statements in the questionnaire were adopted from Bennett (2007). The questionnaire was comprehensively modified and expanded to address present-day requirements. The requirements of a well designed research instrument were considered in drafting the questionnaire. Two instruments were administered: one for employers (management) and the one for employees. Respondents were requested to express their opinions (perceptions) by means of a Likert Five point interval scale where 1 for example is ‘strongly disagree’ and 5 ‘strongly agree’

A pilot study was deemed necessary to ensure operational administration, validity and reliability of the questionnaire. Cronbach's alpha coefficient was computed to assess internal consistency.

Cronbach’s coefficient alpha:

Variables	Alpha
Raw	0.885463

Data analysis

The assumption of quantitative research is that if a quantitative method of data collection is used, then a quantitative method of analysis should be used (De Vos, 2005). Descriptive statistics was used to assess demographic data. Further analysis employed inferential statistical methods to investigate whether the employers follow up on proper procedures pertaining safety conduct in the mine. A T-test of independent samples was used to test whether employers and employees had similar attributes on the implementation of health and safety regulations.The researchers also used analysis of variance (ANOVA) to find out the difference between distributions and to measure any statistical significance between the means and distributions of samples (Welman et al., 2005). An Alpha level of 0.05 was set to test if there was a significant difference between the mean scores of respondents.

Ethical considerations

Mining management was informed and consent obtained. Informed

Table 1. T-test on employer and employee.

Variable	Mean employer	Mean employee	T value	P value
Promotion	4.0625	4.111888	0.1861	0.057
Involvement	4.0625	4.034965	-0.1042	0.051
Progress	3.9375	3.895105	-0.1701	0.053
Resources	3.6875	4.167832	2.0552	0.067916
Corrective action	4.0625	3.972028	-0.4161	0.069809
New technology	3.75	3.895105	0.5993	0.091539
Training new employees	4	4.132867	0.5367	0.083057
Discussion of health and safety	3.875	3.909091	0.1424	0.052296
Equipment	3.75	3.846154	0.3618	0.064936
Risk taking	1.9375	2.706294	-2.0291	0.042755*
Protective equipment	4.25	4.265734	0.0730	0.051

consent was obtained from the respondents who were to participate in the study. Confidentiality was maintained by omitting names and personal identification while the information obtained from this research is strictly used for academic purposes. Ethical clearance was obtained from Higher Degrees Committee of the University of Fort Hare.

RESULTS

T-test on employer and employee perception

A T-test of independent samples was used to determine whether employers and employees shared the same perception on the implementation of health and safety regulations. An Alpha level of 0.05 was set to test if there was a significant difference between the mean scores of respondents. When the p-value is less than 0.05 the mean groups are said to be statistically different. Where data was normally distributed the Equal-Variance T-Test was used and while Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians was adopted when data was not normally distributed.

The results as shown in Table 1 indicated that the difference in means was statistically insignificant for employers and employees. Due to the minor difference in the mean values results of this study indicated that employees are well informed on health and safety regulations, and that employers do abide by the provisions of the health and safety regulations. Thus in light of the objectives of the research mine employees know and practice occupational health and safety regulations in their place of work. However the result for often taking risks taking the job done revealed means that was significantly different. The p value of 0.042 and the mean values were 1.9375 vs. 2.706294 for employers and employees respectively. The null hypothesis for a difference <> 0 was rejected (1.9375 vs. 2.706294, t=-2.0291, p= 0.042755). The difference in means is therefore statistically significant. This difference was attributed to acquiescence which was a weakness note by the researcher.

It should be recalled that the second objective of the research was to determine whether employers following up on proper procedures pertaining to safety in the mine. From this objective, it was hypothesized employers do not abide to the provisions of health and safety regulations. As indicated in Table 1 the difference between employers and employees was not statistically significant. Employers' were involved in the implementation of health and safety regulations (4.0625 vs 4.034965, t=-0.1042, p= 0.051). Corrective action was carried out quickly and putting effective and permanent solutions into place (4.0625 vs 3.972028, t=-0.4161, p= 0.069809). Training needs were being systematically analysed with the introduction of new technology (3.75 vs 3.895105, t=0.5993, p= 0.091539). Employers' were achieving progress in the implementation of health and safety regulations (3.9375 vs 3.895105, t=-0.1701, p= 0.053).

Resources were readily available and allocated to ensure health and safety (3.6875 vs. 4.167832, t=2.0552, p= 0.067916). Equipment was kept in a safe operating condition and was easily accessible (3.75 vs. 3.846154, t=0.3618, p= 0.064936). Employees discussed on how to improve health and safety and was supported by management (3.875 vs. 3.909091, t=0.1424, p= 0.052296). The difference in means was therefore statistically insignificant

T-test on gender

The findings of this research revealed no significant differences in perception from the T test for male and female respondents as indicated in Table 2 the means were not significantly different, the absolute difference being small. Both groups had a positive perception indicating satisfaction on the implementation of health and safety in the workplace

Due to the minor difference in the mean values results

Table 2. T-test on gender.

Variable	Mean male	Mean female	T value	P value
Promotion	4.242522	4.319448	-0.9124	0.9299
Involvement	4.147818	4.394875	-0.2104	0.833608
Progress	4.050635	4.248233	-0.0665	0.9205
Resources	4.285343	4.462519	-0.0522	0.911281
Corrective action	4.120774	4.277452	-0.1594	0.785754
New technology	4.089716	4.04497	-1.5108	0.194100
Training new employees	4.33676	4.614166	0.7309	0.945323
Discussion of health and safety	4.063652	4.218348	-0.3021	0.805217
Equipment	3.994997	4.212539	-0.1345	0.888099
Risk taking	2.920685	2.852635	-1.4689	0.199330
Protective equipment	4.450685	4.471966	-0.7738	0.055222

the results as shown in Table 2 indicated that the difference in means was statistically insignificant for employers and employees. Resources were readily available and allocated to ensure health and safety (4.285343 vs. 4. 462519 t=-0.0522, p=0.911281). Employees discussed on how to improve health and safety and was supported by management (4.063652 vs. 4.218348, t=-0.3021, p=0.805217). Equipment was kept in a safe operating condition and was easily accessible (3.994997vs. 4.212539, t=-0.1345, p=0.888099). Employers' were achieving progress in the implementation of health and safety regulations (4.050635 vs 4.248233, t=-0.0665, p=0.9205).

Employers' were involved in the implementation of health and safety regulations (4.147818 vs 4.394875, t=-0.2104, p=0.833608). Corrective action was carried out quickly and putting effective and permanent solutions into place (4.120774 vs. 4.277452, t=-0.1594, p=0.785754). Training needs were being systematically analysed with the introduction of new technology (4.33676vs 4.614166, t= 0.7309, p= 0.194100). The difference in means was therefore statistically insignificant.

Analysis of variance testing on employees

Table 3 indicates the ANOVAs testing done on employees against the attributes and significant differences are highlighted.

Race vs. attributes

White employees (33) had a higher mean on perception as to whether new employees were trained in a timely and effective manner so that they could do the job safely (mean=4.26 vs. 3.63; DF=150; MSE=0.7799487; Critical value=3.3477; p-value=0.0016). Black employees had a higher mean on perception on the availability of health and safety information. The null hypothesis for a difference < 0 was rejected, as indicated by a significance level of 0.0075 (mean=4.2 vs 3.78; DF=150; MSE=0.461457; Critical value=3.3477; p-value=0.0075). Black employees (118) had a higher mean on how well they were trained to respond to incidents that occur in the workplace. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.001946 (mean=4.22 vs 3.67; DF=150; MSE=0.6277025; Critical value=3.3477; p-value=0.001946). The difference in means was statistically significant.

Years in organisation vs. attribute

Using the number of years employed in the organization, the employees were required to indicate if employers had effective meetings on health and safety regulations (mean 4.03 vs. 3.43; DF=149; MSE=0.7463276; Critical value=3.6745; p-value 0.033001). Employees who were employed for more than 10 years had a higher mean, (4.03 vs. 3.43) indicating that employers and supervisors were effective at running meetings and presenting information on health and safety regulations. Group 1 (less than 1 yr) had a higher mean, on training needs were being met with the introduction of new technology. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.027027 (mean=4.24 vs. 3.73; DF=149; MSE=0.7518066; Critical value= 3.6745; p-value= 0.027027). The difference in means was statistically significant.

Occupation vs. attributes

Shop stewards, miners and belt attendants' perception on employer involvement in promoting health and safety regulations differed from that of the other occupational groups. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.009 (mean=4.17 vs. 2.4; DF=137; MSE=1.077234; Critical

Table 3. Demographic variables vs attributes

Perception	Mean	P value	df	Decision
Race vs.attributes				
Race perception on training	4.26 vs.3.63	0.0016	150	Reject H0
Race perception on communication	4.21 vs.3.78	0.0075	150	Reject H0
Race perception on reaction to incident	4.22 vs.3.67	0.0019	150	Reject H0
Years in organisation vs.attributes				
Effective meetings on health and safety regulations	4.03 vs.3.43	0.033	149	Reject H0
Training with introduction of new technology	4.24 vs.3.73	0.027	149	Reject H0
Occupation vs.attributes				
Employer involvement in promoting health and safety regulations	4.17 vs.2.4	0.009	137	Reject H0
Employers focusing on productivity	4.29 vs.2.1	0.042	137	Reject H0
Health and safety regulations effective and well implemented	4.33 vs.2.4	0.027	137	Reject H0
Management supports programs to improve health and safety regulations	4.12 vs.2.6	0.005	137	Reject H0
Equipment is kept in safe operating condition and are easily accessible	4.6 vs.2.4	0.025	137	Reject H0
Risk taking on job	4 vs.1.2	0.009	137	Reject H0
Level of study vs.attributes				
Supervisor encouragement to improve health and safety	4.15 vs. 3.12	0.014	169	Reject H0
Hazard identification risk assessment regularly reviewed With people who do the work	4.37vs. 2	0.036	169	Reject H0
Training needs systematically met with introduction of new technology	4.08 vs. 2	0.024	169	Reject H0
New employees trained to do the job safely	4.5 vs. 2	0.016	169	Reject H0

value=4.9368; p-value=0.009390). Operators, Fitters and belt attendants were asked if employer focused on productivity than health and safety regulations. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.042 which is less than Alpha of 0.05 (mean=4.29 vs. 2.1; DF=137; MSE=1.424242; Critical value=4.9368; p-value=0.042215). The difference in means was statistically significant.

Shop steward perception differed from that of engineers, miners, operators, belt attendant and environment officers who agreed that health and safety regulations were effective and well implemented. The null hypothesis for a difference < 0 was rejected this is indicated by a significance level of 0.027 (mean 4.33 vs. 2.4 DF=137 MSE=0.7846335 Critical value=4.9368 p-value 0.027012). A significant difference was noted from Shop stewards, miners, operators and belt attendants on whether management supports programs to improve health and safety regulations. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.005 (mean=4.12 vs. 2.6; DF=137; MSE= 0.9517252; Critical value=4.9368; p-value=0.0052113). The difference in means was statistically significant.

Shop stewards were not of the same opinion as miners, operators and belt attendants who agreed that equipment was kept in safe operating condition and is easily accessible. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.025 (mean=4.6 vs 2.4; DF=137; MSE=0.9613867; Critical value=4.9368; p-value=0.025330). Shop Stewards were not of the same opinion as Pipes Tracking Ventilation, Drill Rig operators, LDV Drivers, Supervisors on that they often take risks to get the job done. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.009 (mean=4 vs. 1.2; DF=137; MSE=1.711049; Critical value=4.9368; p-value= 0.009545). The difference in means was statistically significant.

Level of study vs. attributes

Employees with a degree were not of the same opinion that their supervisors encouraged them to make changes to improve employee health and safety as to those with a pre matric qualification. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.014 (mean=4.15 vs. 3.12; DF=169; MSE= 0.8521103; Critical value=4.0768; p-value 0.014246). Employees with a pre-matric qualification had a lower mean, (4.152 vs. 3.12) than individuals who had a degree. Degreed employees agreed that hazard identification, risk assessment was regularly reviewed with people who do the work, whilst those with other

Table 4. Analysis of variance employers.

Perception and attribute	Mean	P-value	df	Decision
Age				
Employees informed after investigating incidents for root causes and improvement control	4.33 vs. 3	0.0005	17	Reject H0
Years in organisation				
Plant being checked daily	4.42 vs. 3.16	0.021	18	Reject H0
Focus on Productivity than Doing Job Safely	4.28 vs. 2.67	0.025	18	Reject H0
Support of programs to improve health and safety	4.42 vs. 3.5	0.032	18	Reject H0
Race				
Race on employees aware of risks involved in their work	4 vs.3.9	0.0005	19	Reject H0
Noise control	5 vs. 3.63	0.027	19	Reject H0
Noise control effective	4.2 vs. 3.45	0.019	19	Reject H0
Management support for programs to improve health and safety	4.4 vs. 3.72	0.022	19	Reject H0
Management involvement in promoting health and safety regulations	4.5 vs. 3.72	0.025	19	Reject H0
Management involvement in implementing health and safety regulations	4.4 vs. 3.81	0.031	19	Reject H0

qualifications such as certificates did not agree. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.036 (mean=4.37 vs. 2; DF=169; MSE=0.8195524; Critical value=4.0768; p-value=0.035863). Employees with other qualifications such as a certificate had a lower mean (4.37 vs. 2) as than individuals who had a degree. Employees with other qualifications such as certificate had a lower mean, (4.089 vs. 2) than individuals who had a degree as to whether their training needs were being analysed with the introduction of technology. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.024 (mean=4.088608 vs. 2; DF=169; MSE= 0.7418883; Critical value=4.0768; p-value=0.024334).

Analysis of variance employers (one way)

Table 4 indicates the ANOVAs testing done on employers against the attributes and significant differences are highlighted.

Age vs. attributes

On employees being informed after investigating incidents for root causes and improvement control. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.0005 (mean 4.33 vs. 3 DF=17 MSE=3.921569E-02 Critical Value=4.3027 0.000587). This was because the perception of managers older than 56 years differed from the other age groups.

Years in organization vs. attributes

The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.021 (mean=4.42 vs. 3.16; DF=18; MSE=0.5859789; Critical value=3.9970; p-value=0.021010). From the responses it appeared that mobile plant was checked daily, and in a good condition, well maintained and met all standards of health and safety. The perception of those with less than one year was different from that of those with 6 to 10 years in the organization. Managers with less than one year was not sure while response of others were normally distributed for whether management support programs to improve employee health and safety. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.032 (mean 4.42 vs. 3.5; DF=18; MSE= 0.3382936; Critical value=3.9970; p-value=0.031743). Management was asked whether they focus on productivity rather than doing the job safely. The perception of those with less than one year was different from that of those with 6-10 years in the organization. Management with less than one year disagreed. The null hypothesis for a difference < 0 was rejected this is indicated by a significance level of 0.026 (mean 4.28 vs. 2.67; DF=18; MSE=0.9242725; Critical value=3.9970; p-value=0.025776). The difference in means was statistically significant.

Race vs. attributes

Black managers strongly agreed that employees were aware of the risks involved in their job; White managers were not sure while coloured managers agreed. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.00050 (mean=4 vs. 3.9; DF=19; MSE=4.736842E-02; Critical value=3.5928; p-value 0.000508). On whether the noise control measure was comprehensive, coloured managers had a higher

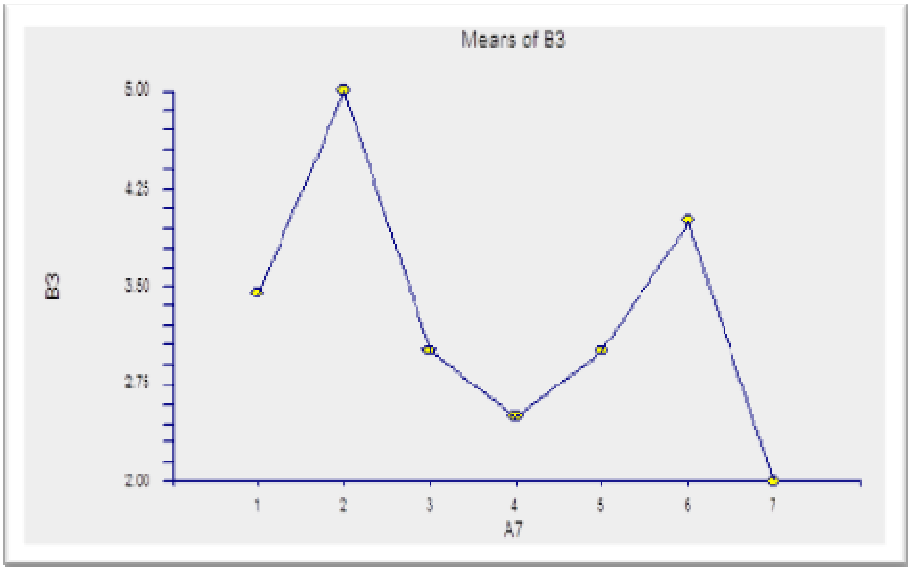

Figure 1. Nationality vs Attributes

mean indicating that they strongly agreed. Black managers were not sure while white managers agreed. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.027980 (mean 5 vs. 3.636364 DF=19; MSE=0.323445; Critical value=3.5928; p-value=0.027980).

On whether the noise control measures were effective, coloured managers had a higher mean indicating that they strongly agreed. Black managers were not sure while white managers agreed. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.019689 (mean=4.2 vs. 3.454545; DF=19; MSE=0.4382775; Critical value=3.5928; p-value= 0.019689). The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.022 (mean 4.4 vs. 3.72; DF=19; MSE=0.3464115; Critical value=3.5928; p-value=0.022387) indicating a difference in perception on management support for programs to improve health and safety. The perception of Black managers was different from that of white while that of coloured managers was normally distributed. Black managers were not sure and white management agreed that there was support for programs to improve health and safety. The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.025835 (mean 4.5 vs. 3.727273 DF=19 MSE=0.3516746 Critical Value=3.5928 p-value 0.025835) indicating a difference in perception between black and white managers. White managers strongly agree that they are actively involved in promoting health and safety regulations while black employers are not sure.

The null hypothesis for a difference < 0 was rejected as indicated by a significance level of 0.031 (mean 4.4 vs. 3.81; DF=19; MSE=0.2124402; Critical value=3.5928; p-value=0.031005) indicating a difference in perception between black and white managers. White managers were positive that they are actively involved in implementing health and safety regulations while black employees are not sure. This was computed by a mean 4.4 vs. 3.81.

Nationality vs. attributes

As shown in Figure 1 South Africans had a lower mean (1.43 vs. 3.36) suggesting that they disagreed that management focus was on profit and productivity rather than safety. Respondents from Lesotho were not sure. Other nationalities were normally distributed. The null hypothesis for a difference < 0 was rejected this is indicated by a significance level of 0.033 (Mean=1.43 vs. 3.36 DF=168; MSE=1.436102; Critical Value=4.2206; p-value=0.033).

DISCUSSION

Hypothesis 1 stated employees are not well informed about the regulations of health and safety, Burke et al. (2006) found that as training methods became more engaging (that is, requiring trainees' active participation), workers demonstrated greater knowledge acquisition leading to reductions in accidents, illnesses, and injuries. All methods of training produced meaningful behavioural performance improvements they concluded. Training involving behavioural modelling, a substantial amount of practice and dialogue is generally more effective than other methods of safety and health training. Real (2008) developed a theoretical frame that provided practical

directions as to what shapes the safety behaviors and communication patterns of workers in dangerous jobs are and offers insights for safety information-seeking and workplace safety. He found that those respondents with greater efficacy beliefs displayed more positive safety outcomes than those with lower efficacy beliefs. Griffin and Neal (2000) distinguished perceptions of the work environment from perceptions of performance related to safety. Perceptions of knowledge about safety and motivation to perform safely influenced individual reports of safety performance and also mediated the link between safety climate and safety performance. The results support conceptualizing the safety climate as an antecedent to safety performance in organizations. Chaves et al. (2009) showed that the degree of implementation is associated with the employees' level of health/safety knowledge and training and communication between the occupational safety and the health team. These findings remain unchanged after adjustment for levels of education among managers and employees.

However it is to be noted from the findings of this research that the difference in perception is with the union representatives. Shop stewards had a lower mean on equipment being kept in safe operating condition and being easily accessible, employers' involvement in promoting health and safety regulations and management's supports programs to improve health and safety regulations. Union representatives had a negative perception, indicating that they were not happy with how equipment was being kept with lack of employer involvement in promoting programs on health and safety and with a lack of managements support. Is this to say employers and unions disagree about the safety policies and why is it that the other groups could not note it? Is it that, as representatives of employees they are their spokesman and believe that more can be done to improve the health and safety of their representatives or it is a case of ignorance on the part of employees? Liu (2011) found that China's frequent coalmining accidents highlighted legislative defects that disabled enterprise unions from exercising their statutory functions effectively in regard to occupational safety. Are South African trade unions trying to avoid this or do they seek to empower workers on health and safety?

Based on the findings of the study Hypothesis 1 is rejected because employees had a positive perception indicating that they are well informed on the health and safety regulations.

Hypothesis 2 sought to find out if employers do not abide by the provisions of the health and safety regulations and the safety objectives. As indicated in the literature management of health and safety is an area that every organization needs to take seriously. This research focuses on issues of leadership associated with the role management plays with regard to safety. It is therefore expected that if there is a strong level of management or employer involvement in matters of health and safety regulations it will be reflected by a positive response on the perception to health and safety regulations. The results suggest that the perception of the groups under study were not significantly different in perception except on risk taking (mean score 2.706294 vs. 1.9375, t=-2.0291, p-value 0.042775). This means that employers are involved in the implementation of health and safety regulations.

However, the findings of this research reveal significant differences in perception from the respective races. White employees had a higher mean on management support for programs to improve health and safety; Management involvement in promoting health and safety regulations; Management involvement in implementing health and safety regulations showing a positive response for all these. Black employees had a higher mean on; employees being aware of risks involved in their work.

Is this to say that there are different training structures and that employees are treated differently along racial lines? Strong management commitment to safety can only be shown if management has the same perception. Questions need to be asked on the difference in perception between black and white employers in dealing with health and safety matters.

RECOMMENDATIONS FOR THE EMPLOYER

Although the results of this study cannot be generalised, the results can create an awareness of the areas that employers or managers and employees may have to focus on in order to enhance the effective implementation of health and safety regulations in the work place.

The extent to which employees feel that their employers meet obligations regarding pay and interpersonal treatment is also related to in-role and citizenship performance (Turnley et al., 2003). Similarly, leader-member exchange has been found to be related to safety citizenship behavior (Hofmann et al., 2003). In general, these results suggest that when employers are perceived to meet their obligations, treat employees fairly, and provide valued services and benefits, employees will reciprocate with higher levels of commitment and performance. Management needs to be more involved and if an incident occurs corrective measures and not punitive ones are put in place so that the root cause can be identified and resolved if possible.

In order for the employer to achieve health and safety goals it is essential that perceptions be regardless of race and that relation between unions and management must improve to have the same goal in keeping the workplace incident free.

RECOMMENDATIONS TO THE EMPLOYEES

This research has implications for employees. They need to understand the value of regulations that are in place so

as to keep the working environment safe. It highlights the importance of knowledge for it is only when one knows what health and safety regulations do that they can be realized in actual workplace policies and practices. Kitson et al. (1998) argued that successful implementation of research into practice is a function of the interplay of three core elements--the level and nature of the evidence, the context or environment into which the research is to be placed, and the method or way in which the process is facilitated.

LIMITATIONS AND DIRECTION FOR FUTURE RESEARCH

Financial and time constraints hindered the research from being a nationwide one as it only focused on a single mine. A larger sample size would have provided a more stringent research design, thus allowing results to be more generalized and providing greater insight into the perceptions of the groups under study. Due to practical operational requirements, only a third of the workforce was available at one any time to receive the perception survey.

Saleh and Cummings (2011) believe that more interaction and partnership between academia, beyond the traditional mining engineering discipline, and the mining community (mining operators, researchers, and regulators), would be particularly helpful in promoting safety innovations and advancing the safety agenda of the mining industry.

- Future studies should look whether employees have the power to say no to an unsafe working environment.
- Future research should also look into the impacts of poor health and safety regulations so that a holistic approach can be developed to combat the challenges of health and safety.

A qualitative approach to the study can also be fruitfully applied for problem areas

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