Effects of Occupational Health Interventions on Quality of life among Factory Workers in Oyo State

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Abstract

The study is on the effects of occupational health intervention on quality of life among factory workers in Oyo state. Although, there are existing studies on the factors influencing the health-related quality of life to reduce the rate of occupational injuries, many surveys still report insignificant or no reduction in occupational hazards even with the introduction of health interventions. The study explored the Effects of Occupational health intervention on Quality of life among factory workers in Oyo State.

The study adopted Quasi-experimental design; Two hundred and twelve (212) industrial workers were selected purposively as the participants of the study. One validated questionnaire was used to gather data for the research. This is: WHOQOL-BREF questionnaire (r = 0.75). The data aggregated were analysed using Pearson correlation and t-test analysis.

Relationship exist between occupational health interventions and the incidence of occupational injuries among the industrial workers (r = 0.529, p = 0.00). There is positive moderate significant relationship between occupational health interventions and the health-related quality of life of the industrial workers (r = 0.311, p = 0.000). Significant difference exists between level of health-related quality of life between the workers (intervention and control groups) and the mean difference is in favour of workers enrolled to health and safety trainings (intervention group) P-value of 0.017 and t-value of 2.41.

The study suggested that: Quality, weather-sensitive and durable PPE should always be provided for the employees by the managements and immediately replaced when worn out.

Key words: Occupation-hazard, Safety-Culture, Health-intervention, Quality-of-life

Introduction

The industrial sector is one of the major sources of revenue in most developing nations and in addition to the economic advantages it creates, most construction industries also come with lot of devastating challenges owing to it strong association with work-related accidents (Bernardi, 2019). According to Ogundare et al (2020), industrial sectors is a very high-risk industry due to their working environment and condition, and production processes especially in an organisation that placed lesser priority to health and safety. Several studies have highlighted increasing prevalence of occupational accidents among industrial workers. Safety culture is an

important part of an organisation culture and numerous evidence have established a direct link with employees' productivity and performance (Bhattarai & Subedi, 2024).

Establishment of an effective organisational safety culture will help promote individual and organisational performance and productivity respectively. In defining the organisational safety culture, the International Labour Organisation (ILO) described it as the maintenance and promotion of employee's health; and improvement of working environment (Ciavarelli, 2016). In other terms, safety culture can be described as the attitude, behaviour, perceptions and competences of employees in relation to the safety as well as the proficiency and effectiveness of the health and safety management in the organisation while others have described safety culture based on different components (Eboh, Taiwo & Owumi, 2018).

Workers' health and safety performance involves the act of maintaining safe work place and one of the ways to achieve this is through employee's safety behaviours. Highly performing employee in terms of safety will be able to assist organisation to achieve its objectives and set goals thus sustaining the organisation competitive advantage (Singh, 2016).

The success of any organisations is largely dependent on the performance of its workers since the performance of an organisation arises from employees who are the movers of organisational resources (Schoenfisch, Lipscomb & Sinyai, 2016). Safety performance is defined by two main dimension- safety compliance and safety participation (Oginni, Ajibola & Olaniyan, 2022). In a model generated by some authors to interpret safety performance concluded that safety compliance and safety participation as the components of safety performance (Spurlock, 2017). The safety compliance means "adhering to safety procedures and carrying out work in a safe manner", while the safety participation refers to "the behaviours that may not directly contribute to workplace safety, but they do help to develop an environment that supports safety. Occupational health and safety management prescriptions are by no means unsophisticated in their analysis. The constituent parts draw widely upon occupational health and safety research findings and case examples to describe and explain key points. For example, an article employs a sociotechnical systems approach in their predominantly psychological treatment of occupational health and safety management (Adeuti, 2020).

Studies on Occupational Health and Safety (OHS) management have tended to cluster in certain areas during historical periods of time, focusing on for example, policy and practice, individual characteristics and social relationships, events and incidents of injuries and accidents, and management control and industrial relations (Dufour, Draghci, Ivascu & Sarfraz, 2020). The Occupational Safety and Health Act of 1970 (OSHA) "guarantees workers the right to a safe and healthful workplace". This legal right should be enjoyed by all workers, union and non-union, alike. Clearly, trade unions should be insisting that employers meet their obligation under Section 5(a)(i) of the Act— "to furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees (Communications Workers of America, n.d.).
Occupational injuries have been recognized as one of the public health challenges impacting industrial workers and have been associated with increasing morbidity and mortality rate. The International Labour Organisation (ILO) reported over 2.78 million deaths from an

occupational accident and work-related disease annually, of which 2 million are attributed to work-related disease (United Nations Global Compact,n.d. **)**. Studies conducted in Nigeria have also reported high incidence of occupational accidents among the industrial workers. A study conducted among cement factory workers in Nigeria reported about 3000 occupational injuries within a 10 year-period with an associated mortality rate of 2.2% (Haslam, O'Hara, Kazi, Twumasi & Haslam, 2016). Another industry-based study conducted among cement factory workers showed higher incidence rate of occupational injuries.

These occupational injuries are a major contributor to work absenteeism, and morbidities such as musculoskeletal diseases and mental disorder (Koch & Schultz, 2019). Some studies have also reported a poor health-related quality of life among industrial workers who are exposed to occupational injuries. A study conducted on the effect of occupational hazard on workers' performance revealed that occupational accidents impact negatively on workers' health and overall performance (Mischke et al 2013). A descriptive correlational study that assessed the predictors of health-related quality of life among industrial workers also showed that longer working hours and work overload which can predispose to occupational injuries significantly affects all the domains of health-related quality of life. Another study on the factors influencing the health-related quality of life revealed a negative impact of occupational stress and injuries on the quality of life of the workers. To reduce the rate of occupational injuries, many occupational health interventions have been implemented. These include safety training, campaigns, legislations etc. Even though some of these interventions have been effective in some studies, many surveys still report insignificant or no reduction in occupational hazards even with the introduction of health interventions. The researcher therefore explored the Effects of Occupational health intervention on Quality of life among factory workers in Oyo State.

Hypotheses

Ho1: There is no significant relationship between occupational health interventions and the incidence of occupational injuries among the industrial workers.

Ho2: There is no significant relationship between occupational health interventions and the physical health domain of health-related quality of life among industrial workers

Ho3: There is no statistically significant difference in the mean level of health-related quality of life between the industrial workers who are enrolled to health and safety trainings (intervention group) and those who were not (control group).

Method

Quasi-experimental design was used to assess the effect of occupational health interventions on occupational health hazards and the workers' Health Related Quality of Life. This research design was preferred since the researcher manipulated the treatments among the study participants. Occupational health studies often involve a diverse range of staff within industrial settings. Accordingly, the population for this study included employees, managers, supervisors, and labourers across selected industrial sectors in Oyo State. Two hundred and twelve (212) industrial workers were selected as the participants of the study.

A semi-structured questionnaire consisting of socio-demographics (for example gender, age, marital status, ethnicity, and religion), socio-economic (for example educational status and monthly allowances), health-related factors (quality of life), occupational hazards and work-related factors (for example work schedule, job tenure, working hours, workload, occupational accidents, and conflict between work and individual, family, and social lives). The WHOQOL-BREF guide was used to assess the workers overall Health-Related Quality of Life (WHO, 2012). The WHOQOL-BREF questionnaire, developed by the World Health Organisation (WHO), is a short version of the WHOQOL-100 scale (Araujo, Jesus, Sa-Couto & Matos, 2023). The WHOQOL-BREF is a 26-item scale used to assess HRQOL among industrial workers. It is composed of four domains including: physical health (seven items), psychological health (six items), social relationships (three items), and environment (eight items). The items of the scale were scored using a five-point Likert scale ranging from 1 (very dissatisfied/very poor) to 5 (very satisfied/very good). The scoring of each domain was performed according to the WHOQOL-BREF manual, ranging from 4 to 20, in which high scores indicate better status of the functional domain. It was validated and the resulting reliability co-efficient is ($r = 0.75$)

Intervention Procedures

The occupational health intervention implemented in this study consisted of a structured workplace safety training and health promotion programme designed to reduce occupational health hazards and improve workers' health-related quality of life. The intervention focused on key domains of occupational health, including workplace safety practices, ergonomics, behavioural health, and work–life balance, and was guided by the adapted World Health Organization (WHO) Work and Safety Plan (Oginni, Ajibola & Olaniyan, 2022).

The intervention was delivered over a period of three months and involved a combination of educational training sessions, interactive discussions, workplace demonstrations, and visual risk communication strategies. The training programme was facilitated by the principal investigator with support from professional occupational health instructors. In addition, interested health and safety personnel within the participating industries were recruited to assist with coordination of training activities and reinforcement of safety messages during routine work processes (Agabor, Adebola, Ojeaburu & Ukpere, 2023).

Training sessions addressed identification and prevention of common occupational hazards, safe work practices, appropriate use of personal protective equipment, and accident prevention strategies. Ergonomic components of the intervention focused on correct body posture, proper workstation arrangement, safe lifting techniques, and prevention of musculoskeletal disorders associated with repetitive tasks and prolonged working hours. Behavioural health and work–life balance sessions emphasized stress management, fatigue reduction, coping strategies for work-related pressures, and the importance of maintaining balance between occupational demands and personal life.

To reinforce the training content, posters, flyers, and other infographics highlighting optimal workplace safety practices, consequences of unsafe behaviours, and principles of good ergonomics were developed and distributed. These materials were also displayed in offices and work areas throughout the intervention period to promote sustained awareness and adherence

to safety practices. All training activities were conducted in a language understood by participants, and active participation was encouraged through discussions and practical demonstrations.

Intervention Groups II

Industries and employees assigned to the intervention group were enrolled in the occupational health intervention programme and received the full package of workplace safety training, ergonomic education, behavioural health sessions, and visual risk communication materials over the three-month period.

Control Group

Industries and employees randomised into the control group did not receive any form of occupational health training or intervention during the study period. They continued with their routine organisational safety practices and standard operating procedures without additional input from the research team.

Ethical Approval

Approval was obtained from the Oyo State Ethical Review Committee (NHREC/OYOSHRIEC/10/11/22) and all participants provided informed consent after being assured of the purpose of the data solely for research purpose, voluntary nature of their participation and the confidentiality of the information they provided. All forms and questionnaires used in this study carried the HREC assigned number and the duration of the HREC approval.

Method of Data Collection and Analysis

Data was collected from sampled industrial workers. This was carried out through the help of four (4) research assistants who were trained and exposed to the significance of the research. Pearson product moment correlation and t-test analysis was used to analysed the data gathered for the study.

Results

Ho1: There is no significant relationship between occupational health interventions and the incidence **o**f occupational injuries among the industrial workers.

Table 1: Correlation between Occupational Health Interventions and Incidence of Occupational Injuries among the Industrial Workers

Variables	No	(r)	P	Remark
Occupational Health Interventions	212	0.529	0.000	Significant
Incidence of Occupational Injuries among the Industrial Workers	212			

Significant at p < 0 .05. n =212

Table 1 presents the Pearson product moment correlation result of the relationship occupational health interventions and the incidence of occupational injuries among the industrial workers. The table revealed positive high significant relationship between the two variables at (r = 0.529, p = 0.000), Therefore the null hypothesis one (Ho1) which stated that: There is no significant

relationship between occupational health interventions and the incidence of occupational injuries among the industrial workers was rejected. The result implies that there is a significant relationship between occupational health interventions and the incidence of occupational injuries among the selected industrial workers in the coverage area.

Ho2: There is no significant relationship between occupational health interventions and the physical health domain of health-related quality of life of the industrial workers

Table 2: Correlation between Occupational Health Interventions and Physical Domain of Health- Related Quality of Life of the Industrial Workers

Variables	**No**	**(r)**	**P**	**Remark**
Occupational Health Interventions	212	0.311	0.000	Significa
Physical Domain of HRQOL of the Industrial Workers	212			nt

Significant at p < 0 .05. n =212

Table 2 presents the Pearson product moment correlation result of the relationship occupational health interventions and the physical domain of health-related quality of life of the industrial workers. The table revealed positive moderate significant relationship between the two variables at (r = 0.311, p = 0.000), Therefore the null hypothesis two (Ho2) which stated that: There is no significant relationship between occupational health interventions and the physical health domain of health-related quality of life of the industrial workers was rejected. The result implies that there is a significant relationship between occupational health interventions and the physical health domain health-related quality of life of the industrial workers in the coverage area.

Ho3: There is no statistically significant difference in the mean level of health-related quality of life between the industrial workers who are enrolled to health and safety trainings (intervention group) and those who were not (control group).

Table 4.17: T-Test Analysis on the mean Difference in Level of Health-Related Quality of Life between the Industrial Workers Enrolled to Health and Safety Trainings (Intervention Group) and those who were not (Control Group)

				t-test for equality of Means						
Level of Health-Related Quality of Life Between The Industrial Workers	**Grouping**	**Mean**	**Std Dev**	**t**	**df**	**Sig**	**Mean Diff**	**Std Error Diff**	**95% Confidence Interval of Difference**	
									Lower	**Upper**
	Intervention Group **(health and safety trainings)**	15.89	0.32	2.41	210	.017	0.133	0.05	0.24	0.02
	Control Group	11.76	0.43							

An independent–sample t-test analysis was carried out, comparing the mean scores of level of health-related quality of life between the industrial workers enrolled to health and safety trainings (intervention group) and those who were not (control group), given the P-value of 0.017 and t-value of 2.41. The finding in table 4.17 shows that significant difference exists between level of health-related quality of life between the industrial workers (intervention and control groups) and the mean difference is in favour of industrial workers enrolled to health and safety trainings (intervention group). Which implies that health and safety trainings is impactful on workers' level of health-related quality of life in the study coverage.

Discussion of Findings

The level of awareness about occupational health hazards in an industry could be a function of certain socio-demographic and work-related factors (Subramaniam et al 2016). These factors may include the age at which individuals start working, educational status, health and safety training, job schedule, and permanent job status. In this context, some socio-economic factors such as age, educational status, and the use of safety measures have been associated with the level of awareness of occupational hazards (Timms et al, 2015). Similarly, a study found an association between educational level and awareness of occupational health hazards.

Additionally, a study among mine workers in India revealed that virtually all respondents were aware of at least one form of hazard related to their job functions. However, none had received health and safety training in the year prior to the study. While a high percentage of mine workers were aware of personal protective equipment (PPE), only a few actually used them while working. The occurrence of at least one occupational injury during their work life was linked to the use of dust masks, while work-related diseases were associated with lower educational levels, underweight status, and current smoking. Interestingly, awareness of occupational hazards was significantly related to age and work experience. Failure to use PPE was likely influenced by factors such as work schedule, lack of safe drinking water, and social considerations like caste and tribal identities.

Evidence have shown that the occurrence of occupational injuries is related to many different factors. According to a systematic review conducted on the predictors of occupational injuries among industrial workers, working overtime (more than 8 hours/day), lack of supervision for labour workers, lack of personal protective equipment, and lack of occupational health and safety training were identified as the major predictors of occupational injuries among industrial workers (Reese, 2018).

A study among the iron and steel industrial workers in Ethiopia reported that working night shifts, working more than 48 hours per week, lack of safety training and poor utilization of personal protective equipment were the main predictors of occupational injuries among these employees (Gutterman, 2023). Among the Ghanaian industries, a cross-sectional quantitative survey on the prevalence and determinants of occupational injuries among solid waste collector identified tedious work duty and lack of personal protective equipment as the determinants of occupational injuries (Duarte, Marques & Santos Baptista, 2021).

A Nigerian study conducted among waste picker showed age of the employees, their educational status and working experiences were the major significant influencing factors to the prevalence of injuries among waste pickers (Omolara & Ochieng, 2024). Another Nigerian study conducted among construction workers in Niger Delta revealed the major predictor of the occupational illness to be lack of effective safety management in the organisation (Siegrist & Li, 2024)

The result from this study revealed that significant mean difference exists in the level of health-related quality of life among the industrial workers enrolled to health and safety trainings, ergonomic programmes, behavioural health programmes (intervention groups) and those who were not (control group). This result appears in this way because the intervention exposes the workers to the need to cater for their life. The results indicate that safety training plays a vital role in management practices to enhance safety performance and, consequently, improve employee performance (Takala et al, 2017).

Similarly, the findings suggest that safety training is essential as it helps make accidents more predictable (Ilies & Metz, 2017). Effective training ensures that employees understand the work-related hazards they are exposed to and how to prevent injuries to themselves and others. It involved educating the employees on the adherence to safety rules and procedures (Zambwe, Bwembya; Mutemwa & Gasana, 2021). The level of perceived hazards increases employee compliance to warning and instructions, hence, training the entire employees to identify and react against the hazards associated with workplace is crucial (Kennedy, 2018).

An Algerian study on the assessment of safety in petrochemical industries reported a positive relationship between safety training and employee safety behaviours (Kennedy, 2018). Also, safety training through seminars, workshops etc. as one of the ways to improve employees' safety performance (Shifrin & Michel, 2022). Hence, to improve health and ensure employees safety, effective and continuous safety training especially in the areas of stress management, the use of safety tools and maintenance of safety environment is required (Bisbey, Linhardt et al, 2025). The perceived benefits of not being exposed to the occupational health hazards and

at the same time maintaining healthiness may make the respondents to use PPE while working. However, the knowledge or awareness of the availability of PPE and hazard exposure may provide the cue to action to comply with safety rules and standards by the factory workers (Awodele, Popoola, Ogbudu, Akinyede, Coker & Akintonwa, 2014) .

The increasing incidence of occupational accidents and compromised health-related quality of life among industrial workers have led to the recommendation of many occupational health and safety interventions such as safety inspections and regulations, training, ergonomic programmes, and exercises (Mohammadi, 2020) . In an interventional study that investigated the effectiveness of safety regulations on the incidence of occupational injuries and diseases revealed that despite the introduction of occupational health interventions, industrial workers still experienced occupational accidents and consequently affecting their health-related quality of life (Ilies & Metz, 2017) . This finding also indicates that safety regulations are not sufficient to reduce occupational injuries and improve the overall health related quality of life of industrial workers. Organisational health and safety were formulated as 'action by workplaces to improve the health of workers, customers and communities', and seeks to integrate with a risk management approach for hazard and harm prevention.

Conclusion and Recommendations

Owing from the findings of the study, which revealed that significant mean difference exists in the level of health-related quality of life among the industrial workers enrolled to health and safety trainings, ergonomic programmes, behavioural health programmes (intervention groups) and those who were not (control group) and similarly with notable improvement in the quality of life of sampled industrial workers selected for intervention after the administration of intervention.

It can be reiterated that every occupation and industry have some hazards and health risks that the employees must contend with day in, day out. But the more important issue is whether they are aware of or not aware of the hazards associated with their respective job functions.

Therefore, the researcher submitted that when safety unit in every industry continue to organise monthly workshops aimed at cultivating a heightened sense of vigilance regarding potential occupational hazards, this will go a long way to enhance desirable quality of life among industrial workers. Therefore the researcher recommended that:

1. Quality, weather-sensitive and durable PPE should always be provided for the employees free of charge by the managements and where some of them become worn out, they should be replaced immediately.
2. The health and safety units of the companies should organise seminars once in a month for the factory employees on occupational hazards and the control measures like the use of the protective equipment.
3. The companies should organise free, compulsory and periodic medical check-ups for all the factory employees to detect and treat early, some undisclosed work-related sicknesses and diseases that may manifest in the nearest future.

References

Adagbor, P. U., Adebola, A. M., Ojeaburu, B. L., & Ukpere, W. I. (2023). The effectiveness of health and safety programmes in addressing occupational diseases and injuries at manufacturing facilities in Ibadan Southwest Local Government of Oyo State, Nigeria. *Annals of Spiru Haret University. Economic Series, 23*(2), 311–326. https://doi.org/10.26458/23217

Adeuti, B. R. (2020). Analysis of environmental pollution in developing countries. *American Scientific Research Journal for Engineering, Technology, and Sciences, 65*(1), 39–48.

Araújo, A. F. S., Jesus, L. M. T., Sa-Couto, P., & Matos, M. A. C. (2023). Adaptation and validation of the World Health Organization Quality of Life – BREF for people with aphasia. *Aphasiology, 38*(8), 1331–1350.

Awodele, T., Popoola, T. D., Ogbudu, B. S., Akinyede, A., Coker, H. A. B., & Akintonwa, A. (2014). Occupational hazards and safety measures amongst the paint factory workers in Lagos, Nigeria. *Safety and Health at Work, 5*(2), 106–111.

Bernardi. (2019). Using the capability approach and organizational climate to study occupational health and safety. *Insights into Regional Development, 1*(2), 138–154.

Bhattarai, & Subedi, P. (2024). Knowledge and preventive practices among construction workers in KTFT project regarding occupational health hazards and safety: A descriptive cross-sectional study. *KTFT Journal, 4*, 45–62.

Bisbey, T., Linhardt, R. M., Woods Herron, A., Kilcullen, M. P., & Salas, E. (2025). How does training contribute to workplace safety? A meta-analysis examining the effects of safety training. Journal of Applied Psychology. Advance online publication. https://doi.org/10.1037/apl0001309

Ciavarelli.A. (2016). Integration of human factors into safety and environmental management systems. In *Offshore Technology Conference (OTC),* https://doi.org/10.4043/27015-MS).

Communications Workers of America. (n.d.). Duty of fair representation: Health & safety fact sheets. Communications Workers of America. https://cwa-union.org/national-issues/health-and-safety/health-and-safety-fact-sheets/duty-of-fair-representation

Duarte, A. T., Marques, A., & Santos Baptista, J. (2021). Occupational accidents related to heavy machinery: A systematic review. *Safety, 7*(1), 21.

Dufour, A., Draghici, A., Ivascu, L., & Sarfraz, M. (2020). Occupational health and safety division of responsibility: A conceptual model for the implementation of the OHSAS 18001:2007 standard. *HSM, 39*(4), 549–563.

Eboh, P. A., Taiwo, & Owumi, B. E. (2018). *The Nigerian Journal of Sociology and Anthropology, 22*(2), 162.

Gutterman, A. S. (2023). Founders and organizational culture. *SSRN*. https://doi.org/10.2139/ssrn.4601553

Haslam, R., O'Hara, J., Kazi, A., Twumasi, R., & Haslam, R. (2016). Proactive occupational safety and health management: Promoting good health and good business. *Safety Science, 81*, 99–108.

Ilies, D., & Metz, D. (2017). Organizational culture: Key issues. A literature review. *The Annals of the University of Oradea. Economic Science, 26*(1), 797–805.

Kennedy, N. A. (2018). Assessment of psychosocial hazards among workers at the University of Port Harcourt. *Clin Depress, 4*(135), 2572-0791.

Koch, C., & Schultz, C. S. (2019). The production of defects in construction—an agency dissonance. *Construction Management and Economics, 37*(9), 499–512.

Mischke, J., Verbeek, J. H., Job, J., Morata, T. C., Alvesalo-Kuusi, A., Neuvonen, K., Clarke, S., & Pedlow, R. I. (2013). Occupational safety and health enforcement tools for preventing occupational diseases and injuries. *Cochrane Database of Systematic Reviews, 2013*(8), CD010183.

Mohammadi, S. (2020). Organizational culture and its impact on organizational productivity. *International Journal of Human Capital in Urban Management (IJHCUM), 5*(3), 267–276.

Oginni, B. O., Ajibola, K. S., & Olaniyan, T. S. (2022). A study of the effect of occupational health and safety and work environment on employees' job performance in a manufacturing organisation of Lagos metropolis, Lagos, Nigeria. *Annals of Spiru Haret University, 183*.

Omolara, J., & Ochieng, J. (2024). Occupational health and safety challenges faced by caregivers and the respective interventions to improve their wellbeing. *International Journal of Innovative Science and Research Technology (IJISRT), 9*(6), 3225–3251.

Reese, C. D. (2018). *Occupational health and safety management: A practical approach*. CRC Press.

Schoenfisch, A. L., Lipscomb, H., Sinyai, C., & Adams, D. (2016). Effectiveness of OSHA outreach training on carpenters' work-related injury rates, Washington State 2000–2008. *American Journal of Industrial Medicine, 60*(1), 45–57.

Shifrin, N. V., & Michel, J. S. (2022). Flexible work arrangements and employee health: A meta-analytic review. *Work & Stress, 36*(1), 60–85.

Siegrist, J., & Li, J. (2024). *Psychosocial occupational health: An interdisciplinary textbook*.

Singh, A. K. (2016). Environmental pollution and its impact on human health. *International Journal of Current Research, 8*(12), 44478–44480.

Spurlock. (2017). *Physical hazards of the workplace*. CRC Press.

Subramaniam, F., Shamsudin, M., Mohd Zin, M. L., Sri Ramalu, S., & Hassan, Z. (2016). Safety management practices and safety compliance in small medium enterprises: Mediating role of safety participation. *Asia-Pacific Journal of Business Administration, 8*(3), 226–244.

Takala, J., Hämäläinen, P., Nenonen, N., Takahashi, K., Chimed-Ochir, O., & Rantanen, J. (2017). Comparative analysis of the burden of injury and illness at work in selected countries and regions. *Central European Journal of Occupational and Environmental Medicine, 23*(1–2), 6–31.

Timms, P., Brough, M., O'Driscoll, M., Kalliath, T., Siu, O. L., Sit, C., & Lo, D. (2015). Flexible work arrangements, work engagement, turnover intentions and psychological health. *Asia Pacific Journal of Human Resources, 53*(1), 83–103.

United Nations Global Compact. (n.d.). Occupational safety and health. United Nations Global Compact. https://unglobalcompact.org/take-action/safety-andhealth

World Health Organization. (2012). *WHOQOL-BREF: Introduction, administration, scoring and generic version of the assessment: Field trial version*. World Health Organization.

Zambwe, M., Bwembya, P. C., Mutemwa, R., & Gasana, J. (2021). Patterns of occupational morbidity in Zambia, 2008–2018: A descriptive database study. *MedRxiv*. https://doi.org/10.1101/2021.04