

## Analysis of factors affecting employee productivity

Suryani<sup>1</sup>, Marliza Ade Fitri<sup>2,\*</sup>

<sup>1,2</sup> Universitas Muhammadiyah Bengkulu, Indonesia

\* Email Correspondent Author: marlizafitri@umb.ac.id

### ARTICLE INFO

#### Article History

Received: 26-03-2024

Revised: 19-04-2024

Accepted: 20-04-2024

#### Keywords

Occupational Health and Safety;  
Work Environment;  
Employee Productivity.

**Paper Type:** Research paper

### ABSTRACT

**Purpose-**Internal and external factors can affect employee productivity. This study examined the relationship between occupational health, safety, and work environment, which is thought to affect employee productivity.

**Design/Methodology/Approach-**The study population focused on the employees of the Semen Merah Putih Branch Company. The research data was collected through questionnaires administered to all employees, totaling 47 respondents. The research data were then processed using SPSS.

**Findings-**Occupational health, safety, and working conditions all had a favorable impact on employee productivity. That is, when workplace support systems and occupational health and safety policies are implemented as effectively as possible, productivity at work will rise, thereby enhancing company performance.

**Research limitations/implications-**Every business actor needs to focus on optimizing occupational health and safety to encourage increased employee productivity. To support this, business actors must also pay attention to other factors, such as creating a comfortable and safe work environment, to maximize efforts to achieve employee productivity.

**Originality/value-**Currently, there is a dearth of research on employee productivity, especially for companies engaged in the industry. Previous studies of employee productivity have examined the internal and external aspects of employees, such as motivation, leadership, and organizational culture.

This is an open access article under the [CC-BY-SA](#) license.



## 1. The Introduction

Human resource management is one of the activities carried out by the company for human resources because it plays an important role in business continuity (Hamouche, 2021). There are several forms of human resources management responsibilities, one of which is managing the work environment (Genc, 2014). The work environment includes the material and psychological conditions that exist in a company. The company must provide an adequate work environment, such as a physical environment (comfortable layout, clean environment, good air circulation, color, and adequate lighting) and a non-physical environment (employee working atmosphere, employee welfare, relationships between fellow employees, relationships between employees and leaders, and places of worship) (Kagwi, 2018).

Every company realizes that professional and competent human resources are key to achieving its goals (Paais & Pattiruhu, 2020). Employees, as the dominant resource in a company, play a role in producing quality performance. Good staff performance can improve a company's overall performance (Al-dalalmeh et al., 2018). When workers reach their full potential, they generate work that is either satisfactory or beneficial to the company. Therefore, company leaders must try to create conducive situations to support the creation of good performance.

Occupational health and safety factors are prerequisites for triggering employee productivity in the era of industrial development (Parker, 2020). In the industrial sector, most work is conducted using machine tools that require technical knowledge and skills to operate. The use of machines has the potential to cause injuries that threaten the physical, mental, and health conditions of employees (Abdalla et al., 2017). Work accidents can occur because of errors that occur during the operational process. Therefore, when operational measures are not properly considered or handled, they are likely to result in work injuries and accidents.

Makhamara (2016) argues that workplace accidents encourage companies to look for certain measures to anticipate and maintain a more conducive situation. Therefore, practically all businesses, especially those in the industrial sector, require occupational health and safety measures (Sousa et al., 2014). Even though technology makes sectors more productive, demand cannot be met if employee productivity is lower than expected (Lefter et al., 2018). Consequently, employees who are not competent in using technology run the risk of having accidents at work (Manzoor et al., 2019). Therefore, companies should implement occupational health and safety practices to encourage employee performance and productivity (Suárez-Albanchez et al., 2021).

Concerns about increased employee productivity have increased recently. Higher levels of productivity can help organizations improve their profits and performance (Nguyen, 2022). Employee productivity refers to the amount or quantity of output that employees produce over a period of time. Many organizations associate the productivity of their employees with the acquisition of skills. However, most problems in employee productivity stem from the organizational environment. According to Hafee et al. (2019), the workplace is one of the key elements influencing employee productivity. Furthermore, a supportive work environment supports optimal employee efficiency in completing activities (Sherehiy & Karwowski, 2014). Organizations are responsible for providing a suitable workplace to increase employee productivity (Hanaysha, 2016).

Semen Merah Putih Branch Company is an industry that contributes to the economy of Bengkulu. Semen Merah Putih Branch Company is one of the companies that implements occupational health and safety practices and pays attention to the work environment for its employees. This is evidenced by the availability of procedures and support equipment for employees' occupational safety and health. In addition, occupational health and safety training is regularly provided to employees to encourage comfort and security. Environmental factors are a problem for businesses both inside and outside the building. To facilitate the development of a comfortable work environment, the room's conditions are set up to oversee the neatness and cleanliness of the workplace and foster a positive work culture. To give employees the impression that they are working in a comfortable atmosphere, the organization keeps its exterior tidy and uses green space.

## 2. Literature Review and Hypothesis Development

Mondy and Noe (2016) argue that safety is the protection of employees from occupational risks, while health is physical and emotional protection. Occupational safety and health coverage includes factors that are at risk of causing injury. According to Bronkhorst and Vermeeren (2016) and Subramaniam et al. (2016) that occupational health and safety affect employee performance. Furthermore, Obeidat et al. (2023) explained that by paying attention to employee health and safety, the company has implemented the human resource management function well, so that employees will be motivated to stay productive at work and achieve company goals. Good occupational health and safety practices will help companies in building a positive culture in the company and ultimately improve employee performance (Bathan & Joy, 2023). The implementation of occupational health and safety programs will be successful if it involves all

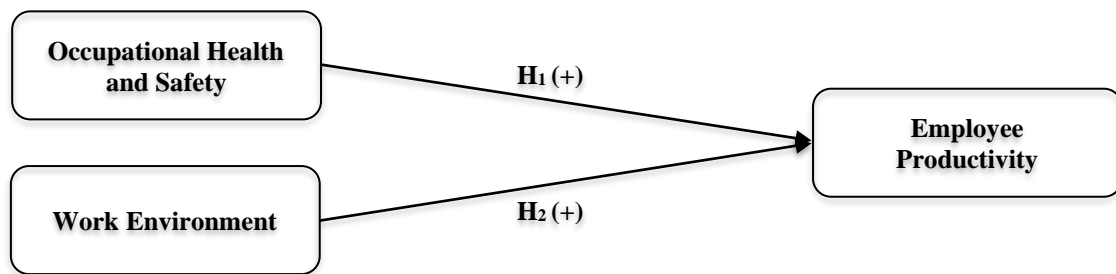
parties in the company (Thaba & Mbohwa, 2016). According to Miller (2016), employee welfare and security in the workplace are closely related to profitability and productivity.

**H<sub>1</sub>: Occupational Health and Safety has A Positive Effect on Employee Productivity**

Adequate work facilities and comfortable workplaces increase employee productivity, and good relationships with employees or superiors create a comfortable working atmosphere, which can increase employee productivity (Neher & Maley, 2020). Several work environment factors affect employee productivity, such as opportunities to develop abilities for employees, friendly and helpful colleagues, competent supervision, and clear responsibilities (Pawirosumarto et al., 2017). Kundu and Lata (2017) believed that the quality of the work environment can affect the ability to recruit and retain talented people from an organization. Furthermore, Ginting et al. (2024) added that behavioral factors in the work environment can affect employee performance, including engagement, productivity, morale, and comfort levels. A better work environment motivates employees and results in improved productivity. Working in a harmonious environment can result in increased employee productivity and performance throughout the organization (Ramli, 2019).

**H<sub>2</sub>: Work Environment has A Positive Effect on Employee Productivity**

Figure 2 illustrates the framework of the study. This study sought to reveal employee productivity from occupational health and safety factors and the work environment. Both factors are thought to positively influence employee productivity.



**Figure 1. Research Framework**

**3. Research Methodology**

The population of this study was all employees of Semen Merah Putih Branch Company, which totaled 47 employees consisting of 10 staff members, 30 production sections, and seven technicians. The sample used was all employees who constituted the population of this study. The research data collection technique uses the distribution of questionnaires directly to the respondents. The questionnaire contained statement indicators that represented each research variable and had to be answered by each respondent. Occupational health and safety variables consisted of eight indicators, work environment variables consisted of seven indicators, and employee productivity variables consisted of seven indicators.

The validity test was used to determine the validity of each variable indicator. If a research instrument can measure the difference between the data reported by the researcher and actual data, the instrument is considered valid (Cooper & Schindler, 2014). The assessment of the validity of this study using Pearson product moment data of 47 samples for validity is considered acceptable if the r-count value is greater than the r-table value (Ismail, 2022), which is 0.444 in this study. A total of 47 research samples were used to examine the reliability of the test findings. Cronbach's alpha was used to determine the reliability of the scale. A research instrument is considered accurate if the value of Cronbach's alpha for each variable is more than 0.6 (Mohamad et al., 2015). Hypothesis testing was performed by comparing the significance value with the alpha. The alpha value used in this study is 5% (0.05), so the hypothesis is accepted if the significance value is less than 0.05 (Damasceno, 2020).

#### 4. Result and Discussion

##### Validity Test

Table 1 presents the results of the validity test of the study. Based on these results, it can be concluded that all the indicators representing the variables of occupational health and safety (OHS), work environment (WE), and employee productivity (EP) are valid. This was evidenced by the r-count value being greater than the r-table value.

**Table 1. Validity Test Result**

Indicator	Occupational Health and Safety	Work Environment	Employee Productivity
OHS 1	0.768		
OHS 2	0.690		
OHS 3	0.872		
OHS 4	0.982		
OHS 5	0.859		
OHS 6	0.866		
OHS 7	0.683		
OHS 8	0.831		
WE 1		0.596	
WE 2		0.520	
WE 3		0.628	
WE 4		0.692	
WE 5		0.648	
WE 6		0.687	
WE 7		0.628	
EP 1			0.568
EP 2			0.737
EP 3			0.546
EP 4			0.804
EP 5			0.535
EP 6			0.594
EP 7			0.737

Source: Primary Data Processed

##### Reliability Test

Table 2 shows the results of reliability testing in this study. Based on these results, it can be concluded that the variables of occupational health and safety, work environment, and employee productivity are reliable. This is evidenced by Cronbach's alpha value of more than 0.6.

**Table 2. Reliability Test Result**

Variable	Cronbach's Alpha
Occupational Health and Safety	0.716
Work Environment	0.702
Employee Productivity	0.706

Source: Primary Data Processed

##### Hypothesis Test

Table 3 shows the results of the hypothesis testing in this study. Based on these results, it can be concluded that the occupational health and safety variables have a positive effect on employee productivity (the first hypothesis is accepted). Work environment variables have been shown to positively affect employee productivity (the second hypothesis is accepted). This was evidenced by a significance value smaller than the alpha value of 0.05.

**Table 3. Hypothesis Test Result**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Occupational Health and Safety → Employee Productivity	0.588	0.329	0.350	2.571	0.001
Work Environment → Employee Productivity	0.540	0.151	0.453	2.267	0.003

Source: Primary Data Processed

## Discussion

### The Effect of Occupational Health and Safety on Employee Productivity

Previous research has proven that occupational health and safety issues are closely related to operations, organizational competitiveness, and safety performance (Ghahramani & Salminen, 2019). Gopang et al. (2017) stated that occupational health and safety issues are sufficient to affect employee productivity and performance. A safe work environment predicts employees' psychological well-being (Xiao et al., 2021). Kaynak et al. (2016) revealed that the implementation of occupational safety and health procedures significantly affects the level of productivity among employees. The safer the workplace, the lower the work accident rate, and the greater the peace of mind employees will increase employee productivity. These findings corroborate those of Bitire and Chuma (2022) that occupational health and safety affect employee productivity. Sinelnikov et al. (2015) found that occupational safety and health management are predictors of high productivity and performance among employees.

### The Effect of Work Environment on Employee Productivity

The work environment is an important factor in achieving expected employee performance (Milana et al., 2017). While ensuring that employees have the adequate skills to complete their tasks, companies must provide a comfortable working environment so that employees can work at their best. According to Diamantidis and Chatzoglou (2019), the environment is a force with the potential to affect employee productivity. By creating a comfortable work environment, employees can provide good performance and increase loyalty and company growth. The work environment and conditions are all physical, psychological, and regulatory aspects that affect employee satisfaction and productivity (Schultz & Schultz, 2020). According to Höber and von Korfflesch (2017), the work environment encourages employees to participate in and complete their duties and responsibilities. Employees have different perceptions of the work environment, and these perceptions affect their employee productivity (Belias & Koustelios, 2014). Work-environment factors play an important role in employee performance (Ginting et al., 2024). If the workplace environment hinders employees from achieving creativity, it is the cause of low employee productivity and vice versa (Dul & Ceylan, 2014). A comfortable and safe working environment helps increase employee productivity (Al Horr et al., 2016).

## 5. Conclusion

The Based on the results of previous studies, we concluded that occupational health, safety, and work environment have a positive effect on employee productivity. That is, the first and second hypotheses of the study proved acceptable. An increase in occupational health, safety, and work environment also affects employee productivity. This study had some limitations. First, it only examined the level of employee productivity, which was limited to companies. Semen Merah Putih Branch Company cannot represent the employee productivity level of various companies. Second, the level of employee productivity can be measured by various factors, not only occupational health, safety, and work environment. Based on these limitations, future researchers can use variables that have not been studied, such as motivation (Basit et al., 2018) and job satisfaction (Shobe, 2018). In addition, research objects can also be replaced, such as the education industry (Edo & Nwosu, 2018) and the banking industry (Awan & Tahir, 2015).

## REFERENCES

- Abdalla, S., Apramian, S. S., Cantley, L. F., & Cullen, M. R. (2017). Occupation and risk for injuries. In *Disease Control Priorities, Third Edition: Injury Prevention and Environmental Health*. [https://doi.org/10.1596/978-1-4648-0522-6\\_ch6](https://doi.org/10.1596/978-1-4648-0522-6_ch6)
- Al-dalahmeh, M., Masa'deh, R., Abu Khalaf, R. K., & Obeidat, B. Y. (2018). The effect of employee engagement on organizational performance via the mediating role of job satisfaction: The case of IT employees in Jordanian banking sector. *Modern Applied Science, 12*(6). <https://doi.org/10.5539/mas.v12n6p17>
- Al Horr, Y., Arif, M., Kaushik, A., Mazroei, A., Katafygiotou, M., & Elsarrag, E. (2016). Occupant productivity and office indoor environment quality: A review of the literature. *Journal of Building and Environment, 105*. <https://doi.org/10.1016/j.buildenv.2016.06.001>
- Awan, A. G., & Tahir, T. (2015). Impact of working environment on employee's productivity: A case study of banks and insurance companies in Pakistan. *European Journal of Business and Management, 7*(1).
- Basit, A., Hermina, T., & Al Kautsar, M. (2018). The influence of internal motivation and work environment on employee productivity. *KnE Social Sciences, 3*(10). <https://doi.org/10.18502/kss.v3i10.3424>
- Bathan, J., & Joy, C. A. (2023). Modeling the mediating effects of occupational safety and health management between organization culture and business performance among employees of construction companies. *International Journal of Open-Access, Interdisciplinary & New Educational Discoveries of ETCOR Educational Research Center, 2*(4), 131–156.
- Belias, D., & Koustelios, A. (2014). Organizational culture and job satisfaction: A review. *International Review of Management and Marketing, 4*(2).
- Bitire, A. A., & Chuma, L. L. (2022). Effects of occupational health and safety strategies on the organizational performance: A case study on electric power corporation in Wolaita Sodo District, Ethiopia. *Journal of Legal, Ethical and Regulatory Issues, 25*(1).
- Bronkhorst, B., & Vermeeren, B. (2016). Safety climate, worker health and organizational health performance: Testing a physical, psychosocial and combined pathway. *International Journal of Workplace Health Management, 9*(3). <https://doi.org/10.1108/IJWHM-12-2015-0081>
- Cooper, D. R., & Schindler, P. (2014). *Business research methods*. McGraw-Hill Education.
- Damasceno, B. (2020). *Research on cognition disorders: Theoretical and methodological issues*. Springer International Publishing.
- Diamantidis, A. D., & Chatzoglou, P. (2019). Factors affecting employee performance: An empirical approach. *International Journal of Productivity and Performance Management, 68*(1). <https://doi.org/10.1108/IJPPM-01-2018-0012>
- Dul, J., & Ceylan, C. (2014). The impact of a creativity-supporting work environment on a firm's product innovation performance. *Journal of Product Innovation Management, 31*(6). <https://doi.org/10.1111/jpim.12149>
- Edo, B. ., & Nwosu, I. . (2018). Working environment and teachers' productivity in secondary schools in Port-Harcourt Metropolis. *International Journal of Innovative Psychology and Social Development, 6*(4).
- Genc, K. Y. (2014). Environmental factors affecting human resources management activities of Turkish large firms. *International Journal of Business and Management, 9*(11). <https://doi.org/10.5539/ijbm.v9n11p102>
- Ghahramani, A., & Salminen, S. (2019). Evaluating effectiveness of OHSAS 18001 on safety performance in manufacturing companies in Iran. *Safety Science, 112*. <https://doi.org/10.1016/j.ssci.2018.10.021>
- Ginting, J. G., Sopiah, S., & Suharsono, N. (2024). The role of affective commitment: Do servant leadership and non-physical work environment promote employee performance? *Jurnal Fokus Manajemen Bisnis, 14*(1), 107–122. <https://doi.org/10.12928/fokus.v14i1.10007>
- Gopang, M. A., Nebhwani, M., Khatri, A., & Marri, H. B. (2017). An assessment of occupational health and safety measures and performance of SMEs: An empirical investigation. *Safety Science, 93*. <https://doi.org/10.1016/j.ssci.2016.11.024>

- Hafee, I., Yingjun, Z., Hafeez, S., Mansoor, R., & Rehman, K. U. (2019). Impact of workplace environment on employee performance: Mediating role of employee health. *Business, Management and Education*, 17(2). <https://doi.org/10.3846/bme.2019.10379>
- Hamouche, S. (2021). Human resource management and the covid-19 crisis: Implications, challenges, opportunities, and future organizational directions. *Journal of Management and Organization*. <https://doi.org/10.1017/jmo.2021.15>
- Hanaysha, J. (2016). Work Environment and organizational learning as key drivers of employee productivity: Evidence from higher education sector. *International Journal of Human Resource Studies*, 6(2). <https://doi.org/10.5296/ijhrs.v6i2.9203>
- Höber, B., & von Korfflesch, H. (2017). *Firm internal innovation contests: Work environment perceptions and employees' participation*. Springer International Publishing.
- Ismail, A. (2022). Validity and reliability test for the questionnaire: The role of the existence of pharmacists on pharmaceutical services in public perceptions. *Journal of Pharmaceutical and Medicinal Sciences* 2022, 7(1).
- Kagwi, C. W. (2018). Influence of physical workplace factors on the employees' performance in organizations (A case of Huduma Centre-Nyeri County). *Human Resource and Leadership Journal*, 3(1). <https://doi.org/10.47941/hrlj.235>
- Kaynak, R., Tuygun Toklu, A., Elci, M., & Tamer Toklu, I. (2016). Effects of occupational health and safety practices on organizational commitment, work alienation, and job performance: Using the PLS-SEM approach. *International Journal of Business and Management*, 11(5). <https://doi.org/10.5539/ijbm.v11n5p146>
- Kundu, S. C., & Lata, K. (2017). Effects of supportive work environment on employee retention: Mediating role of organizational engagement. *International Journal of Organizational Analysis*, 25(4). <https://doi.org/10.1108/IJOA-12-2016-1100>
- Lefter, V., Davidescu, A. A., & Casuneanu, I. (2018). Identifying the main factors of workplace flexibility among romanian employees. In *Solutions for Business, Culture and Religion in Eastern Europe and Beyond*. [https://doi.org/10.1007/978-3-319-63369-5\\_9](https://doi.org/10.1007/978-3-319-63369-5_9)
- Makhamara, J. (2016). Influence of occupational health and safety on organizational performance in the manufacturing sector in Kenya: A case study of kapa oil refineries limited. *Strategic Journal of Business & Change Management*, 3(3). <https://doi.org/10.61426/sjbcm.v3i3.273>
- Manzoor, F., Wei, L., Bányai, T., Nurunnabi, M., & Subhan, Q. A. (2019). An examination of sustainable HRM practices on job performance: An application of training as a moderator. *Sustainability (Switzerland)*, 11(8). <https://doi.org/10.3390/su11082263>
- Milana, M., Khan, M. K., & Munive-Hernandez, J. E. (2017). Design and development of knowledge based system for integrated maintenance strategy and operations. *Concurrent Engineering Research and Applications*, 25(1). <https://doi.org/10.1177/1063293X16665662>
- Miller, J. (2016). The well-being and productivity link: A significant opportunity for research-into-practice. *Journal of Organizational Effectiveness*, 3(3). <https://doi.org/10.1108/JOEPP-07-2016-0042>
- Mohamad, M. M., Sulaiman, N. L., Sern, L. C., & Salleh, K. M. (2015). Measuring the validity and reliability of research instruments. *Procedia-Social and Behavioral Sciences*, 204. <https://doi.org/10.1016/j.sbspro.2015.08.129>
- Mondy, R. W., & Noe, R. M. (2016). *Human resource management*. Pearson Education.
- Neher, A., & Maley, J. (2020). Improving the effectiveness of the employee performance management process: A managerial values approach. *International Journal of Productivity and Performance Management*, 69(6). <https://doi.org/10.1108/IJPPM-04-2019-0201>
- Nguyen, H. T. X. (2022). The effect of covid-19 pandemic on financial performance of firms: Empirical evidence from Vietnamese logistics enterprises. *Journal of Asian Finance*, 9(2).
- Obeidat, M. S., Sarhan, L. O., & Qasim, T. Q. (2023). The influence of human resource management practices on occupational health and safety in the manufacturing industry. *International Journal of Occupational Safety and Ergonomics*, 29(4). <https://doi.org/10.1080/10803548.2022.2120267>

- Paais, M., & Pattiruhu, J. R. (2020). Effect of motivation, leadership, and organizational culture on satisfaction and employee performance. *The Journal of Asian Finance, Economics and Business*, 7(8), 577–588. <https://doi.org/10.13106/jafeb.2020.vol7.no8.577>
- Parker, L. D. (2020). The covid-19 office in transition: Cost, efficiency and the social responsibility business case. *Accounting, Auditing and Accountability Journal*, 33(8). <https://doi.org/10.1108/AAAJ-06-2020-4609>
- Pawirosumarto, S., Sarjana, P. K., & Gunawan, R. (2017). The effect of work environment, leadership style, and organizational culture towards job satisfaction and its implication towards employee performance in Parador Hotels and Resorts, Indonesia. *International Journal of Law and Management*, 59(6). <https://doi.org/10.1108/IJLMA-10-2016-0085>
- Ramli, A. H. (2019). Work environment, job satisfaction and employee performance in health services. *Business and Entrepreneurial Review*, 19(1). <https://doi.org/10.25105/ber.v19i1.5343>
- Schultz, D. P., & Schultz, S. E. (2020). *Psychology and work today*. Routledge.
- Sherehiy, B., & Karwowski, W. (2014). The relationship between work organization and workforce agility in small manufacturing enterprises. *International Journal of Industrial Ergonomics*, 44(3). <https://doi.org/10.1016/j.ergon.2014.01.002>
- Shobe, K. (2018). Productivity driven by job satisfaction, physical work environment, management support and job autonomy. *Business and Economics Journal*, 09(02). <https://doi.org/10.4172/2151-6219.1000351>
- Sinelnikov, S., Inouye, J., & Kerper, S. (2015). Using leading indicators to measure occupational health and safety performance. *Safety Science*, 72. <https://doi.org/10.1016/j.ssci.2014.09.010>
- Sousa, V., Almeida, N. M., & Dias, L. A. (2014). Risk-based management of occupational safety and health in the construction industry: Background knowledge. *Safety Science*, 66. <https://doi.org/10.1016/j.ssci.2014.02.008>
- Suárez-Albanchez, J., Blazquez-Resino, J. J., Gutierrez-Broncano, S., & Jimenez-Estevéz, P. (2021). Occupational health and safety, organisational commitment, and turnover intention in the Spanish IT consultancy sector. *International Journal of Environmental Research and Public Health*, 18(11). <https://doi.org/10.3390/ijerph18115658>
- Subramaniam, C., Shamsudin, F. M., Zin, M. L. M., Abdullah, O. Y., Malaysia, U. U., & Hassan, Z. (2016). Safety management practices and safety compliance in small medium enterprises: Mediating role of safety participation in Subramaniam Sri Ramalu. *SMEs Asia-Pacific Journal of Business Administration*, 8(3).
- Thaba, S. C., & Mbohwa, C. (2016). The impact of lack in occupational health and safety implementation in small businesses. In *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 8-10 March 2016.
- Xiao, Y., Becerik-Gerber, B., Lucas, G., & Roll, S. C. (2021). Impacts of working from home during covid-19 pandemic on physical and mental well-being of office workstation users. *Journal of Occupational and Environmental Medicine*, 63(3). <https://doi.org/10.1097/JOM.0000000000002097>