

EXTENDED ABSTRACT

THE EFFECT OF INDUSTRIAL ACCIDENTS ON EMPLOYEE PERFORMANCE: A CASE OF MANUFACTURING INDUSTRIES

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Abstract

Employee performance was found to be significantly associated with health and safety of them. During the COVID-19 pandemic, this has even become critical in the face of organizational survival. Previous studies offer abundant evidences for a substantial relationship between these variables in different contexts. Yet, the empirical evidence pertaining to the same association in the context of the Sri Lankan manufacturing industry is scant. Thus, using deductive reasoning, desk research was performed to test the relationship between industrial accidents and employee performance in the manufacturing industry of Sri Lanka. Secondary data drawn from a leading biscuit manufacturing organization on the accidents, employee turnover, employee absenteeism, and employee productivity are analyzed descriptively to arrive at conclusions. The study concludes an inverse relationship between accidents and critical performance measures of employees. Implications sought to nurture a culture with the best healthy and safe practices so as to reach the optimum performance targets.

Keywords: Health and safety, manufacturing industries, industrial accidents, employee performance

1. Introduction

The term Occupational Safety and Health (OSH), according to the Industrial Accident Prevention Act (No. 2007), is identified as keeping the work environment relatively free from actual and potential hazards that can injure employees. Failure to implant a clear plan of action on how to manage OSH at the workplace will lead to a rise in work-related injuries (Fonseca & Carvalho, 2019). The proper implementation of OSH at the workplace is equally important to individuals, organizations, and also to the country (Gul, 2018; Buniya et al., 2021). The concept of OSH management system has become increasingly popular among different stakeholders. OSH, in general, is known as a service of anticipating, recognizing, evaluating, and control of hazards (Whysall et al., 2006; Myeza, 2015). The analysis of the OSH system would raise the understanding of the possible impacts that can be emerged from the workplace. Thus, the health and well being of the workers is a critical concern of any employer (Muchemedzi & Charamba, 2006; World Health Organization (Agbola, 2012; Bas, 2018). The International Labour Organization (ILO) reported that every 15 seconds a worker dies from work-related accidents or diseases (ILO, 2013). Furthermore, every 15 seconds, somewhere in the world, 150 workers are injured. It has been estimated that work-related accidents

and illnesses account for 4% of the Global GDP. In the EU, this is EUR 476 billion every year. The cost of work-related cancers alone amounts to EUR 119.5 billion (ILO, 2013). Additionally, every day 6300 people die as a result of occupational accidents of work-related diseases and more than 2.3 million deaths per year occur on the job (ILO, 2013). Besides death or injury, accidents result in extended absence from work. The human cost of these daily adversities is enormous and the economic burden of OSH practices is estimated at 4% of global gross domestic product each year. Most of these deaths and injuries occur particularly in developing countries where a large population is engaged in hazardous activities (ILO, 2012).

The shop floor employees are certainly highly vulnerable to health and safety hazards, specifically the safety threats due to the lack of machine safety, chemical safety, behavioral, and technical safety. The European Agency for Health & Safety stated that Sri Lanka is considered to be one of the most vulnerable countries, and it is ranked at a low level of OSH performance (Jayaneththi, 2017). Improving health and safety practices at work is a key to the success of a contented workforce with more innovative, efficient, and effective in every area of the business (Kim et al., 2016). Industrial accidents have been identified as the outcome of inadequate health and safety practices of the industries. These industries indeed have heavy use of several packaging machines, cutters, and electrical surveillance and most dangerous enough machines that can be identified as hazards among the shop floor workers. Employee performance is affected by numerous factors among which unexpected accidental injuries are at the prompt. Loss of productive working hours, cost of labour replacements, cost of medical treatments and compensation costs need to be reduced for sustainable business performance (Shikdar & Sawaqed, 2003; Hoel et al., 2001). Thus, the effect of industrial accidents on the performance of the shop floor employees appears highly significant. However, little understanding is available on how the industrial accidents affect the employee performance, particularly in the context of the Sri Lankan manufacturing industry. Provided the importance of human capital over other forms of capital in an organization, it is of paramount importance to provide safe and sound working conditions to the workers so that employees' productivity can be sustained (ILO, 2012). Thus, the main objective of this study was to examine the relationship between the effects of industrial accidents and employee performance in the Sri Lankan manufacturing industry. As far the significant contribution of manufacturing sector towards overall production of the nation is concerned, this research is adding a substantial contribution to the existing understanding on the determinants of employee performance.

2. Methodology

The study followed a deductive approach in deriving the research arguments. It adopts the quantitative approach and the desk research method which was based on the secondary data, collected from the factory inspecting engineer's office of one of the two leading biscuit manufacturers in Sri Lanka where the workforce is around 2500. Out of that, around 1500 employees are shop floor employees. The data reflected the OHAS indices for seven years (2014- 2020) namely, the records of the shop floor level accidents, employee absenteeism, employee turnover, and labour productivity (kg per hour). Trend analysis and other graphical analytical tools analyzed the data.

3. Results and Discussion

The total number of accidents are distributed relatively identical within the time period from 2014 to 2020 except in 2016 and 2017. Both major and minor accidents appeared relatively high in 2016 and 2017 compared to the other years. However, in any year no fatal accidents were reported. These data produced an average of 67 accidents per year. In contrast, the effects of accidents show a decrease in terms of total leave granted and as well the total loss of labour hours due to accidents in the recent past (Table 1).

Table 1. Accident summary report 2014-2020

Year	Accidents					Average annual accidents	Effects of accidents			
	Minor*	Major*	Disabled	Fatal	Total		Total leave	Average annual leave	Total loss labour hours	Average annual loss of labour hours
2014	31	12	-	-	43		206		1648	
2015	42	44	-	-	86		373		2984	
2016	48	59	01	-	108		565		4520	
2017	44	47	01	-	92	67	523	349	4184	2790
2018	40	30	-	-	70		365		2920	
2019	24	28	01	-	53		328		2624	
2020	06	11	-	-	17		081		0648	

* Accidents caused below 3 days of absence: ** Accidents caused above 3 days of absence

Source: Company A General register of accidents - authorized by Factory Inspecting Engineer

Even though the ideal accident rate of zero is far behind due to numerous reasons, industry records showed that these values, however, are not exceeding the industry averages. Fig. 1 shows the trends in three main measures of effective safety management practices.

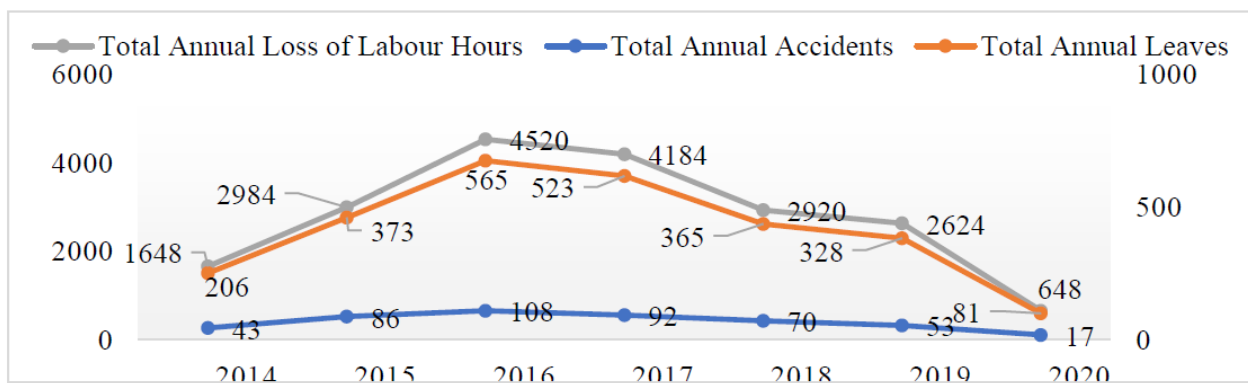


Figure 1. Total Annual Accidents, Total Annual Leaves, & Total Annual Loss of Labour Hours Source: Internal records – Company A

Accidents of any nature cost to the organizations. This is clearly evidenced by the trend among the number of accidents, total leaves and total loss of labour hours. Likewise, numerically smaller accident value has caused an intensified effect on the loss of labour hours and on the number of leaves granted (Fig. 1.) The loss of labour hours can directly hit the production targets unless otherwise well-managed with the available productive man power.

It's interesting to note the possibility of lowering the negative effect of accidents regardless of the number of accidents. Both total annual leaves and total annual loss of labour hours due to accidents have decreased while total annuals accidents remain identical. Every employer must offer an accident-free workplace. Thus, employees will be assured of their safety at work leading to greater motivation to go for performance targets. Yet, it is unlikely to reach the zero-accident target, especially for an organization of low-income countries where there are less infrastructural amenities for ensuring workplace safety (Wijekoon, 2016). On the other hand, the nature of the organization, workforce quality in terms of their education, and professional posture are critical for the management of workplace accidents. In fact, the biscuit manufacturing industry usually deploy many numerous machineries that are dangerous and thus handled with extreme care. On the contrary, more than 90% of production employees are less-educated and thus can hardly be trained to be 100% accurate in handling these hazardous machineries. However, best human resource planning and associated management practices would enable an employer to reduce the possible disruption to

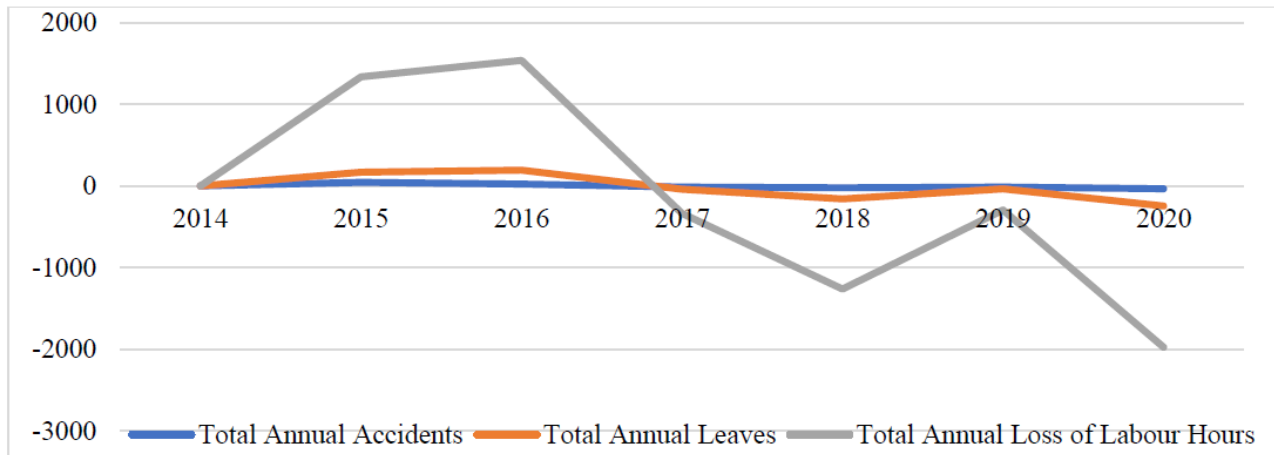


Figure 2. Rate of increase: Total Annual Accidents, Total Annual Leaves, and Total Annual Loss of Labour Hours Source: Internal records – Company A

the daily operations by the industrial accidents (Oloruntoba et al., 2012; Bayram & Ünğan, 2020). This may involve practicing flexible scheduling and proper engagement of available human capital (Ghahramani & Summala, 2017). For instance, in this particular organization, increase in accidents and total leave granted has been pressing the total loss of labour hours severely during the early years while it was later managed to a lower level (Fig. 2). The rate of change in the total accidents remains relatively identical across the period under consideration. However, the rate of change in the total leaves shows a declining trend. Importantly, the management has been effectively managed to lower the effect of accidents on the operational measures. Resultantly, the management of company A has succeeded in reducing the growth of loss labour hours resulted by accidents. This evidenced the possibility of preventing the accidents to affect the performance of the organization of any scale (Bas, 2018). Authors' discussions with key personnel of the human resource management function of the organization rectify this. As for him, the organization was pioneered in implementing numerous awareness and educational programmes, specially designed training programmes targeting line supervisors & team leaders of the production floor, and, importantly, a safety culture in which safety is considered as the first most concern. He commented that this cultural movement has created a wave of enthusiasm among employees when and where they tend to commit to performing extra work to cover up for an employee met with an accident (Kim et al., 2016). He added that the formation of safety teams with the participation of team leaders and line supervisor of the floor has created a tremendous effect on controlling the accidents at the production floor. The increase in floor level representation in safety committees has empowered the direct victims of accidents to have more control over the unpleasant experiences of the workplace accidents at the floor. Next, the reason for the accidents is examined for better clarification of the occurrence of the accidents (Fig. 3).

An effective OHSMS would essentially figure out the critical area of the operations that are proven to cause industrial accidents. Then these places need to be well-arranged and should be paid with due care to prevent possible damages from the accidents (Dwomoh et al., 2013). Fig. 4 presents the classification of total accidents from 2015 to 2020 based on the unit/place of the accidents. The packing department appears the most vulnerable unit towards industrial accidents in the biscuit manufacturing process (Fig. 4). Mixing, engineering, and finished goods stores are the next critical locations in terms of hazardousness. This implies the necessity of tailor-made risk assessments, unit of the organization when deciding and planning for OHSMS (Bas, 2018). Finally, the lasting effect of accidents on the overall performance of the organization is assessed in terms of employee turnover, absenteeism, and employee productivity. The short-term effect of accidents was previously analyzed with respect to leave granted and loss of labour hours and found a positive association. Yet, the effect

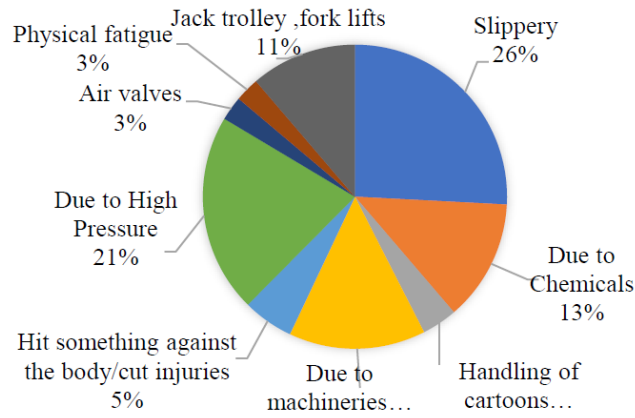


Figure 3. Reasons for accidents

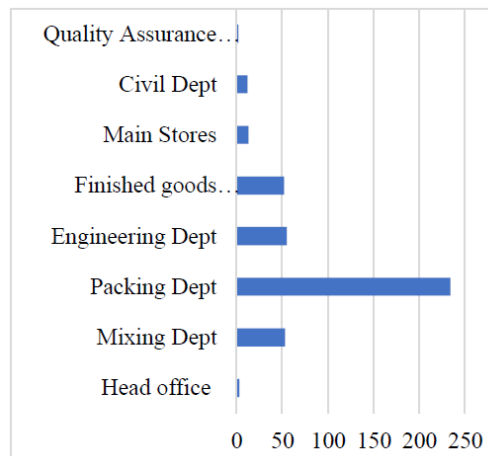


Figure 4. Classification of accidents (2015 -2020) by the unit/place

of accidents in the overall human capital performance is not assessed so far. Fig. 5 illustrated the trends among these measures of organizational-wide human capital performance.

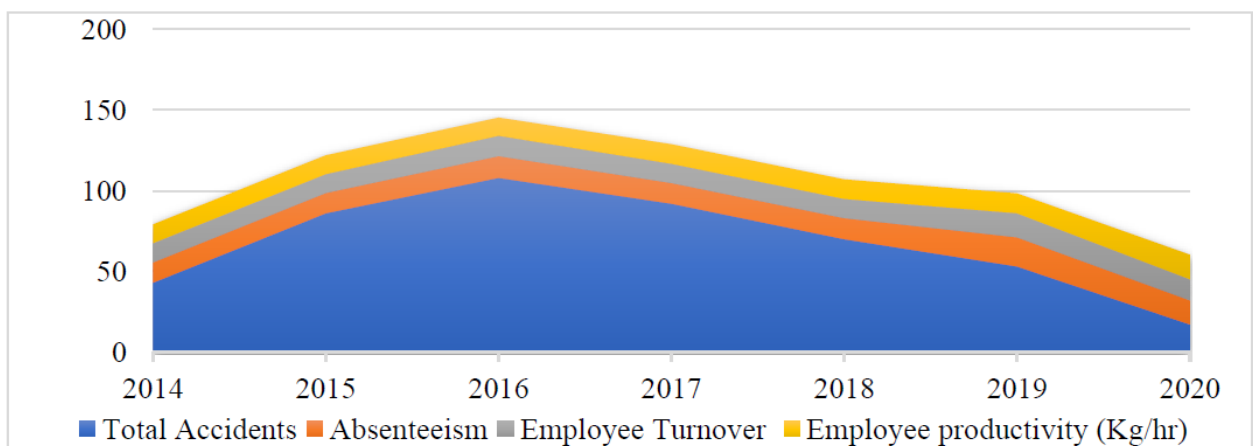


Figure 5. Classification of accidents (2015 -2020) by the unit/place

The stacked area chart detected positive associations among the total accidents, employee turnover, and absenteeism. Increase in accidents has led to a remarkable increase in employee turnover and

employee absenteeism. These findings are in line with the prevailing literature where previous authors have confirmed that accidents resulted in negative outcomes to an organization in terms of employee turnover and absenteeism (Bayram & Ünğan, 2020; Dwomoh et al., 2013). In contrast to the established relationship between accidents and productivity (Katsuro, et al., 2010), the present findings indicated a positive relationship. This is attributed to the other key factors affecting the employee productivity such as technological & process improvements, use of new production methods & high-quality raw materials, and investment in employee training & development. Specifically, in 2020, greater penetration towards multitasking, and increased engagement among the employees due to COVID 19 pandemic has resulted in an increase in employee productivity that overrides the negative effect of accidents.

4. Conclusion

The descriptive analysis performed with the data from the Sri Lankan biscuit industry confirmed that there is a positive relationship between the industrial accident and the performance of the shop floor employees of the company in terms of employee absenteeism and the employee turnover. Especially as per the Factories ordinance of 1942 and the workmen compensation ordinance 1934 organizations have been educated on the rules and regulations and the legal implications of safer and healthy working conditions. On the other hand, effective OHSMS will ensure safer and healthy practices at the workplace, those having a direct positive impact on employees' performance. Adherence to Factories Ordinance and comply with OHS standards should be given top concern while taking every measure to create a healthy culture of best health and safety practices across the company. In conclusion, the study recommended biscuit manufacturing organizations in specific and other manufacturing organizations in general, to analyze the theoretical models against the organization specific conditions in advances they plan for OHSMS.

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