BioOne COMPLETE

Effect of Occupational Health and Safety on Employee Performance in the Ghanaian Construction Sector

Authors: Segbenya, Moses, and Yeboah, Esi

Source: Environmental Health Insights, 16(1)

Published By: SAGE Publishing

URL: https://doi.org/10.1177/11786302221137222

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Effect of Occupational Health and Safety on Employee Performance in the Ghanaian Construction Sector

Environmental Health Insights
Volume 16: 1–11
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11786302221137222

Moses Segbenya[1] and Esi Yeboah[2]

[1]Department of Business Studies, College of Distance Education, University of Cape Coast, Ghana, West Africa. [2]College of Distance Education, University of Cape Coast, Ghana, West Africa.

ABSTRACT: The contribution of the construction sector to the socio-economic development of Ghana cannot be underestimated. However, these benefits are not without challenges such as frequent industrial accidents and diseases leading to the loss of lives of workers and or influencing employee and organisational performance. Construction firms are therefore required to ensure workers' health and safety at the construction sites. This study therefore explores the influence of occupational health and safety (OHS) on construction workers' performance in Ghana. This study employed the descriptive research design from the quantitative approach, and a sample of 120 employees was drawn out of 200 workers from the sector. Means, standard deviations and multiple standard regression were used to analyse the data. The study found that OHS policies in the construction sector had a statistically significant effect on employee performance and related well with best international practices. However, the construction sector lacks regular health and safety induction, orientation and refresher courses for construction workers. Hence there were still occupational accidents and diseases affecting workers in the sector. For fear of being sacked, workers hardly report pains and injuries suffered at the construction sites. Also, construction workers felt that the high cost of training could explain why employers were not providing regular refresher training and induction training on OHS in the workplace. The study, therefore, concluded that more efforts were required from the management of construction firms than workers, as opposed to the position of Heinrich Domino's theory, to ensure occupational safety and health in the sector. It was recommended that the management of construction companies in the sector should prioritise the health and safety of workers over the economic concern with regard to the cost of training.

KEYWORDS: Health and safety, work environment, construction workers, performance

RECEIVED: August 24, 2022. **ACCEPTED:** October 19, 2022.

TYPE: Original Research

FUNDING: The author(s) received no financial support for the research, authorship, and/or publication of this article.

DECLARATION OF CONFLICTING INTERESTS: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

CORRESPONDING AUTHOR: Moses Segbenya, Department of Business Studies, College of Distance Education, University of Cape Coast, Ghana, West Africa. Email: moses.segbenya@ucc.edu.gh.

Introduction

Occupational health and safety (OHS) relate to how the facility and human resources are being protected and preserved in the workplace. OHS ensures that people are not injured or become ill due to workplace hazards. Occupational safety and health is also a field wherein professionals attempt to prevent catastrophic losses. In practice, occupational safety and health include moral and economic issues. OHS is a science focused on ensuring safety in the workplace.[1,2]

Many activities in the construction sector, including manual handling loads, working at height, nearness to falling materials, and working in confined spaces, are integrally risky to health and safety at the workplace. Other construction activities that are very risky to human lives are noises, handling hazardous substances, dust, exposure to live cables and fire, and using plants and equipment. A greater number of workers in present jobs in the construction sector are exposed to health risks or hazards related to their work.[3,4] The hazards emerged in the form of radiation and noise termed as *physical hazards*, asbestos and disinfectants called chemical hazards. Other hazards include *ergonomic hazards* manifesting in the form of poor work postures, irregular work situations such as night work and shifts/rotations, raising of bulky equipment, irregular workdays and *workplace violence* such as harassment.[5]

Due to inadequate attention given to OHS by industry and the governments in Africa, OHS issues are predominant in most African countries.[6] One reason for the predominance is that most African countries, as well as developing economies, are associated with poor cultures in relation to health and safety issues. Additionally, due to competing political, social and economic interests, OHS issues are mostly neglected in most African countries.[7,8] The effect of poor or lack of occupational health and safety policies in organisations in Africa is mostly deaths, permanent disabilities, severe injuries and absenteeism. One of Africa's key sectors or industries closely associated with health and safety issues is the construction industry.

The construction industry in Ghana has experienced considerable progress in construction activities. The high proportion of development and urbanisation has induced high demand by residential and commercial consumers, increasing the number of construction and manufacturing activities. This further led to both unskilled and skilled labour finding employment in the construction sector.[9] The Ghanaian construction industry plays a socio-economic role in the development and growth of the economy of Ghanan. Typically, construction activities grew by 8.5% in 2010, 8.9% in 2011, 10.55% in 2012 and 12.6% in 2013.[10] Also, the construction industry in Ghana contributed

*Esi Yeboah is currently affiliated to Advans Ghana Savings and Loans Ltd, Accra, Ghana, West Africa.

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (https://us.sagepub.com/en-us/nam/open-access-at-sage).

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

13% to the national Gross Domestic Product in 2018, compared with 11% in 2017. About 14.0 % of the Ghanaian workforce is employed in the construction industry in Ghana.[11]

The Ghanaian construction industry is regulated with rules and regulations in terms of health and safety. Among these regulations are Workmen's Compensation Law 1987, PNDC Law 187, and Ghana's Factories, Offices and Shops Act 1970, Act 328.[12] The Factories Offices and Shops Act 1970 focuses on ensuring progress to achieve internationally accepted standards on welfare, health, and safety of workers found in offices, shops, factories, or manufacturing sites. It is, however, difficult to find standards against which services will be measured in the Factories Offices and Shops Act.

Despite the socio-economic importance and growth of the construction sector and the associated regulatory framework, ill health and fatalities suffered by the construction workers at construction sites are still high and dangerous. These accidents are associated with risks of severe injuries, deformation of the body, which may be permanent and even results in death.[13] The consequence of such occurrence impacts the nation's economy as it lowers the population of the workforce, diminishes productivity and negatively affects the overall work performance.[14]

Like many African countries, Ghana is confronted with lack of a comprehensive national policy on OHS.[12,15] Enforcement of legal provisions concerning OHS in the Labour Act is also a challenge in Ghana. Other challenges identified were inexperienced and insufficient OHS professionals, feeble OHS infrastructures, and lack of proper monitoring and surveillance for OHS diseases and injuries.[16] Rowlinson et al[17] posits that there are several feeble records on OHS and risky behaviour among workers in the construction sector, leading to serious workplace accidents.

Study Gap

Studies on health and safety in Ghana by Laryea and Mensah[18] used only observation method for 14 construction sites in Ghana; Puplampu and Quartey[13] was a review or conceptual paper; Amponsah-Tawiah and Dartey-Baah[12] focused on wood processing, safety practices and injuries among timber workers in Ghana. The study by Amponsah-Tawiah and Mensah[19] also concentrated on the Ghanaian Mining Industry in terms of organisational commitment and occupational health and safety practices. The most recent study by Amankwah et al[20] on-trend air quality and lung function analysis was also limited to the Nwabiagya District in Ashanti Region. Most of these studies were conducted from an ecological perspective, not from the human resource perspective. Meanwhile, humans control the ecological systems and with the right policies in place by an organisation to ensure a safe working environment for their workers, performances could be improved for the betterment of the individuals, society and country. Even though some organisations could afford to pay for the cost associated with injuries at the workplace, no amount of compensation can ever bring the dead to life or restore the amputated legs or arms. Thus, the need for health and safety measures to ensure employees' safety is urgent than ever in Ghanaian workplaces. Thus, there is a gap in the literature regarding recent empirical studies on how health and safety practices in the construction sector and how it affects employee performance in Ghana. This study thus fills this gap by examining the effect of occupational health and safety on employee performance in the Ghanaian construction sector. Thus this study contributes to the literature on employment, health and safety, wellbeing and decent working conditions of workers. It is expected that the outcome of this study will inform both policy and practices of health and safety in the construction sector of Ghana during and after the pandemic. For this reason, the study is guided by 4 research questions, and these were:

1. How are the OHS policy and practices in Ghanaian workplaces compatible with best practices?
2. How does the level of awareness of OHS among employees in Ghana influence workers' attitudes towards hazardous conditions associated with their work?
3. How do occupational health and safety practices influence employee performance in Ghana?
4. What challenges are associated with implementing OHS policies and practices at the Ghanaian workplaces?

The rest of the paper focuses on the theoretical and empirical review, methodology, results and findings, discussion, conclusions and recommendations.

Literature Review

Theoretical and conceptual perspectives

Heinrich Domino's theory of accident causation was used in this study to explain the causes and behaviour perspective of accidents or health and safety issues at the workplace. Heinrich Domino's theory of accident causation, propounded by Heinrich,[21] explains what factors and stages lead to industrial accidents. Factors identified were how workers relate to machines, the relationship between severity and frequency, risky acts, costs associated with accidents, and how efficiency is impacted by safety. About 88% of the fatalities are caused by risky acts of work and 10% by risky conditions and 2% by natural disasters or acts of God.[21]

The theory revealed the 5 stages of an accident at the workplace: ancestry and social environment (knowledge and skills), physical condition or unsafe act, personal fault of carelessness, mechanical and accident or injury.[22] According to Heinrich, breaking the chain of the sequence is the solution to the prevention of accidents. Thus, the elimination of unsafe acts/conditions can lead to the prevention of accidents and associated injuries. The 2 main axioms of the Heinrich Domino theory of accident causation are, first, workers (humans), are the main reasons for accidents. Secondly, management is responsible for

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Table 1. Variables of the study.

S. NO	VARIABLES OF THE STUDY	CONSTRUCTS	REFERENCES
1	OSH awareness	Training on safety, safety policy programmes, reporting injuries	Obese[32]
2	OSH policies	Provisions of PPEs, safety notices	Bitire and Chuma[11] and Obese[32]
3	OSH practices	Using the right tools and reporting injuries and accident	Bitire and Chuma[11] and Obese[32]
4	Employee performance	Timely completion of task, quality of work	Bitire and Chuma[11] and Segbenya and Hatsu[33]
5	Safety of employees	Onforcement of OSH policies, safe working environment	Ngaruiya et al[4]

Source: Field Survey.[34]

preventing accidents.[23] Thus positive behaviour of workers by adherence based on awareness or knowledge is key for ensuring that accidents are prevented in the workplace.

Construction sector and health and safety nexus

Construction work includes developing commercial, residential and industrial properties. The associated activities necessitate work amenability with OHS regulations, which consider the safety of construction workers and the public in general. The Labour Act of Ghana (Act 651) compels every employer to provide a safe working environment, a safe method of working, and proper equipment and machinery for their employees. Employers are liable for work-related injuries, especially those that lead to injuries or fatality of a worker during workers' employment.[24]

Fenson[25] postulated that critical areas of construction work that must be considered for effective health and safety management include excavation and demolition, shoring, and working on scaffolds and ladders. It involves activities such as laying of services, sewage, drainage and pipework. Accidents associated with excavation include bodily contact with underground services and the collapse of a wall on people.[26] Scaffolding to a height for work schedules to be carried out involves some sort of health and safety issues in the construction sector.

Ghana has some regulatory frameworks on health and safety, such as the Factories, Offices and Shops Act 1970, Act 328; Workmen's Compensation Law, Act 1987 (PNDC 187); National Labour Act 2003, Act 651; Code of Practice on Health and Safety in Construction Sites[27]; Building Regulations and Mining Regulations 1970, LI 665.[25] The regulatory framework has specific provisions on how workers and their management should ensure occupational health and safety measures. Thus, even though Ghana is yet to adopt the ILO convention 155 on health and safety, national and sector regulatory provisions check the health and safety of workers in Ghana.

Meanwhile, the need for health and safety in the workplace goes beyond the legal requirement as enshrined in the regulatory provisions of the country. Economic and humanitarian factors are the other 2 important reasons for the need for health and safety in the workplace. Proponents of the economic requirements perspective of health and safety at the workplace argue that industrial accidents come with an associated cost to the organisation. The legal process of lawsuits also comes at a cost, and time wasted on the lawsuit can also result in an economic burden to the organisation. These costs have a direct impact on the organisation's profitability. Another factor for which health and safety are required in the construction sector of Ghana also relates to humanitarian factors. Proponents of the humanitarian argument are of the view that no life lost as a result of an industrial accident can ever be brought back to life again. The fact that some organisations have the financial muzzles to settle all the financial costs associated with industrial accidents does not give them the licence to be negligent with OHS issues at the workplace. This is because, chopped hands or legs, and workers who pass on due to accidents cannot be revived.

Effective management of health and safety will ensure the mitigation of costs associated with the occurrence of accidents, such as overtime costs, the cost of repairing or replacing damaged equipment and the cost of recruiting new workers to fill the position of injured workers. Other costs and areas of benefit include the cost of time lost in dealing with issues of accidents, the cost involved in compensating injured workers and the cost of medication that are unexpected and unbudgeted for by the company.

Furthermore, it is suggested that health and safety challenges can be dealt with in the Ghanaian construction sector if employers will ensure the continued creation of awareness on safety within the organisation[28]; and hire competent safety officers.[29] Other measures include the Implementation of safety policies[30]; having workplace inspections checks, training and coaching,[31] regulatory compliance, periodic safety performance reviews, awareness of site responsibility for health and safety.

OSH policies as a variable (See Table 1) in this study relate to the framework of an organisation that gives strategic and overall direction, and commitment of management towards OSH and how OSH-related issues should be handled as well as how employees should respond to OSH in an organisation.[32] This study is of the view that all other attitudes or activities of

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

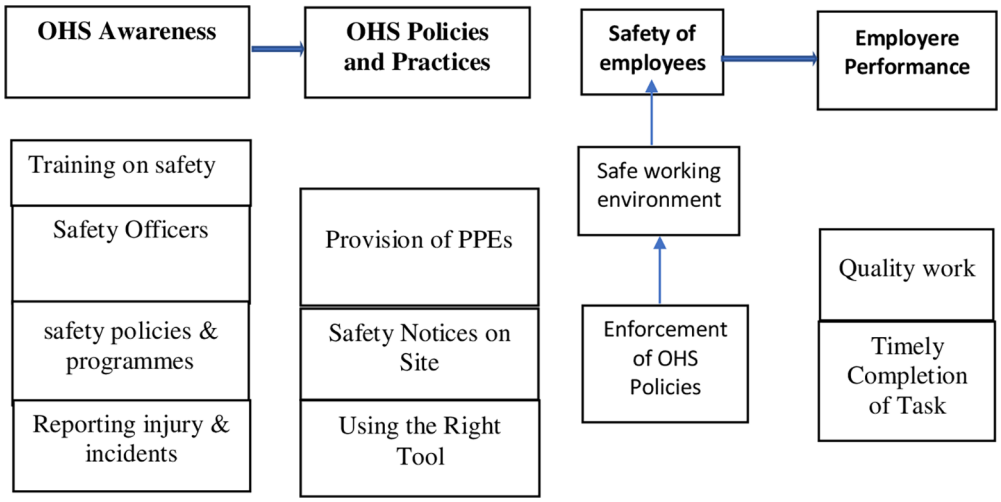


Figure 1. Conceptual framework of the study showing the effect of OHS on organisational performance.

OSH in an organisation stem from the availability of OSH policies. Thus, the 3 main dimensions of OSH policies are important to this study. These are the need to consider policies on provisions and usage of PPEs, policies on regularity and places earmarked for pasting notices on occupational health and safety.[11] The last dimension of the policy considered in this study is the policy on the procedure for using the right tools to curtail industrial disease and accidents at construction sites in Ghana. Closely related to the existence of OSH policies are practices of OSH in an organisation (See Table 1). OSH practices in this study relate to putting the policies on OSH into action or actualising the content of the OSH policies.[11] Thus, a review of OSH policies can only happen if the policies are implemented and evaluated. This is to suggest that it is not enough to have OSH policies but rather implementation of practices that harnesses OSH's benefits to both management and workers.[32]

Also, OSH awareness as another variable in this study also explains the extent to which organisation's workers are very much informed about the existence of OSH policies.[32] It also covers knowledge on safety measures put in place by management for its workers in the organisation against injuries and diseases.[32] OSH awareness in this study also looks at the degree to which employees are very much informed about hazards associated with their work, hazardous work locations and what steps workers should take to avoid injuries as well as knowledge of reporting injuries when they occur.[32] Additionally, OSH awareness looks at the regularity of OSH training provided to workers in general and specific safety officers.

Safety of employees, as another variable in this study, represents the degree to which workers work for a longer period of time without suffering from work-related accidents and diseases.[35] This study takes the position that until the OSH policies exist and are implemented, it will be very difficult to achieve the safety of workers.[4] Thus, enforcement of OSH policies leads to a safe working environment for workers. Additionally, the safety of workers is not only the managers' responsibility but also requires workers' commitment.[36]

Performance relates to the amount of output produced from a unit of input. The construction sector's output has been calculated as equal in wealth to the total input.[37] Thus, performance should be measured with changes in educational status instead of the number of lessons taught; patient health instead of the number of patients treated.[38] Several factors contribute to performance, including employee and management commitment, compensation system, training and performance management systems and community involvement.[39] In the construction industry, organisational core processes influence performance at organisational and process levels.[40,41]

General efficiency is also associated with performance in the construction sector.[42] The safety and health of workers is closely linked to company performance.[43] Individual workers' job performance environment influences organisational performance.[44] Thus, most of the explanatory power in employee performance is determined by work systems.[45] Furthermore, job designs have been found to have an effect on performance.[46] Also, studies on workplace innovation revealed that higher participation by workers and autonomy affect learning and skill development and subsequently lead to productivity.[47-49]

The dimensions and the 3 independent variables of the study-OSH awareness, OSH policies and OSH practices were adopted from Obese[32] and Bitire and Chuma.[11] However, dimensions of employee performance were adopted from Segbenya and Hatsu[33,50] and Bitire and Chuma.[11] A detailed list of all variables with references can be seen in Table 1. From the conceptual discussion so far, a conceptual framework was constructed to guide the study, as shown in Figure 1.

Methodology

The study organisation was Consar Construction Ltd. Consar Construction Ltd has gained popularity in Ghana for the

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

massive and strategic construction projects it undertakes. Consar Construction Ghana Ltd is one of the leading building and construction companies. Consar Construction Ghana Ltd has been recognised for ensuring efficiency and quality in large, complex projects. However, the company suffered a legal suit in 2018 for occupational health and safety issues that led to the death of 6 workers in mining activity in the Ahafo Region of Ghana. It cost the company a court fine of $200,000. Similar unfortunate incidents continue to occur at construction sites, and it is not clear whether it was solely due to failure to adhere to regulative directives/provisions or could be partially blamed on workers' attitudes. Thus, using Consar Construction Limited will provide ample evidence on the causes of health and safety challenges in the construction industry and how best to address them during and after the COVID-19 pandemic. This study employed the descriptive research design from the quantitative approach.[36] A sample of 120 employees was drawn from a study population of 200 employees who were directly engaged in the construction work, drivers and heavy machine operators, and employees from the office. The Cochran formula was used to determine the sample size as given as:

$$\frac{\frac{z^2 \times p(1-p)}{e^2}}{1+\left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

Where:

N = population size; **e** = Margin of error (percentage in decimal form) and z = z-score, **Z** = Z value (eg, 1.96 for 95% confidence level) z is at 95% confidence level. The z-value is found in a Z table. A 95 % confidence level gives us Z values of 1.96; **p** = percentage picking a choice expressed as a decimal (0.5 used for sample size needed); **c** = confidence interval expressed as a decimal (eg, 0.5 = ±5).

Using the formula to calculate the sample size:

$$\frac{\frac{1.96^2 \times 0.5(1-0.5)}{0.05^2}}{1+\left(\frac{1.96^2 \times 0.5(1-0.5)}{0.05^2(200)}\right)} = 120$$

The study context is Ghana using construction sites and branches of a construction firm (Consar Construction Ltd). Consar Construction Ltd was adopted for this study, because it was one of the few leading building and construction companies in the construction sector of Ghana. The company has branches in almost all regions of Ghana and has records of OSH-related issues and legal suits and charges. Thus, using its branches all over the country helps to get feedback from all parts of the country on several construction sites. Thus, the inclusion criteria for this study was a construction firm with branches and construction sites in almost all the regions in the country and a record of OSH-related issues. In terms of the inclusivity of respondents in this study, only workers with 5 years of working experience and above who have worked with the construction firm as permanent workers qualified as respondents for the study.

A self-designed semi-structured questionnaire was the instrument used for the study. The questionnaire had items grouped into 3 parts. Part 1 collected information on the demographic characteristics of respondents, and part 2 of the research instrument focused on employees' level of awareness, understanding and attitudes towards OHS issues. Part 3 also centred on employee performance and the associated challenges associated with OHS standards among construction workers. The reliability and validity of the data collection instrument were ensured since all instrument sections obtained a Cronbach alpha value above the minimum threshold of .700. Data collection was done from July 2020 to October 2020. All forms of ethical consideration were ensured, including confidentiality, anonymity, consent, freedom to withdraw even after commencement of the process, and free from harm. Data obtained was analysed with mean and standard deviation, frequency and percentages and multiple linear regression. Ethical approval was obtained from the University of Cape Coast Institutional Review Board through the Department of Business Studies, College of Distance Education. The entire methodology deployed for the study is summarised and presented in Figure 2.

Results and Findings

The presentation of the results for this section is done in two-folds-demographic characteristics and results for the research questions guiding the study. The results for respondents' demographic characteristics can be seen in Table 2. The results in Table 2 clearly show that the majority of the respondents were males (75%), 31 to 45 years old (56.7%), undergraduate certificate holders (49.2%), had worked for 15 to 20 years in the construction sector of Ghana.

Research question 1: How compatible is the OHS practices in the Ghanaian construction sector with best practices?

Research question 1 was answered with descriptive analyses, and the responses were represented with mean and standard deviation values, as shown in Table 3. The results from Table 3 indicate that respondents agreed with 6 out of the 7 items used to measure the practice of occupational health and safety policies which is a strong precursor of international OHS policy and best practices. Usage of safety materials provided by the organisation (M = 4.45, SD = 0.897) was rated highest, followed by the wiliness of *co-workers* to ensure the safety of fellow workers (M = 4.43, SD = 0.896) and checking of emergency

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

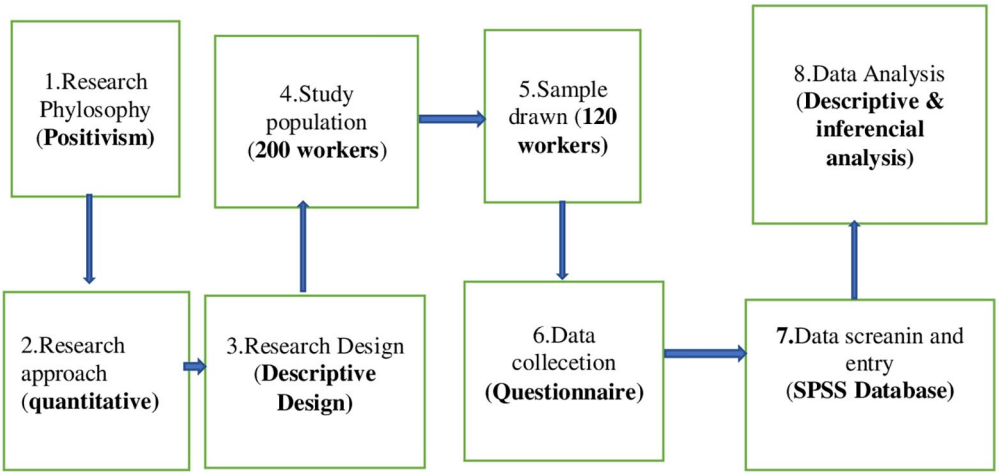


Figure 2. Data collection process.

Table 2. Demographic information.

DEMOGRAPHICS	SUBSCALE	FREQUENCY	PERCENT
Gender	Male	90	75
	Female	30	25
	Total	120	100.0
Age	16–30 years	15	12.5
	31–45 years	68	56.7
	46–60 years	37	30.8
	Total	120	100.0
Level of education	Senior high school	3	2.5
	Diploma	15	12.5
	Under-graduate	59	49.2
	Graduate	43	35.8
	Total	120	100.0
Working experience	1–5 years	10	8.3
	6–10 years	15	12.5
	11–15 years	22	18.3
	16–20 years	68	56.7
	Above 21	5	4.2
	Total	120	100.0

Source: Field Survey.[34]

Table 3. Level of OHS practices in the construction sector.

OCCUPATIONAL HEALTH AND SAFETY PRACTICES	N	MEAN	STD. DEV.
1. My company provides *safe place* of work.	120	4.05	1.222
2. My company provides adequate equipment, materials, and personal protective equipment (*PPEs*) to enable employees to carry out their work safely.	120	4.01	1.306
3. Safety materials provided by my organisation are *used all the time* at the workplace	120	4.45	0.897
4. My company provides *notices* on all health and safety measures.	120	4.06	1.292
5. Safety *induction, orientation*, and refresher courses are conducted by my organisation at the workplace	120	3.78	1.498
6. *Fire drills* are conducted periodically at the workplace to check for emergency responses and preparedness of the workers and systems.	120	4.24	1.250
7. *Co-workers* in my organisation ensure the safety of fellow workers.	120	4.43	0.896

Source: Field survey (2020).
Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Lowly Disagree, 4 = Agree and 5 = Strongly Agree.

responses and preparedness of the workers and systems as well as conduction of periodic *fire drills* at the workplace (M = 4.24, SD = 1.250). The only item with the lowest rating or with somewhat or lowly disagreement from respondents was organising safety induction, orientation, and refresher courses for workers (M = 3.78, SD = 1.498).

Research question 2: What is the level of awareness of OHS policies and hazards among construction workers in Ghana?

Table 4 presents results for the level of awareness of OHS policies and hazards among construction workers in Ghana. The results show that the majority of the workers saw fatalities occurring at the workplace for the past 12 months (71.7%) even

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Table 4. Level of employee awareness of OHS policies in the construction sector.

AWARENESS MEASURES	N	YES – %	NO – %	MAYBE %	MEAN	STD. DEVIATION
I am aware my organisation has a safety policy	120	70.8	22.5	6.7	2.48	0.840
I am aware my the organisation has a written health and safety policy that includes programmes and procedures for environmental, health, safety (EHS) and working conditions?	120	69.2	15	15.8	2.54	0.744
My organisation's written health and safety policy or programmes available to all employees	120	60.8	20.8	18.3	2.40	0.814
I am aware of accidents/diseases that have occurred in your company for the past 12 months	120	71.7	5.8	22.5	2.66	0.587
Am I aware my organisation has procedures for employees reporting pains or other diseases related to the job processes?	120	40	16.7	43.3	2.23	0.719
I am aware that there is an accident book or similar accident record system	120	68.3	11.7	20	2.57	0.695

Source: Field Survey.[34]
1 = No; 2 = Maybe; 3 = Yes.

Table 5. Effect of OHS on employee performance in the construction sector.

	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG
Regression	38.759	1	38.759	51.519	.000
Residual	88.773	118	0.752		
Total	127.531	119			
BETA	**SIG**	**R^2**	**ADJUSTED R^2**	**T**	
.728**	.000	0.304	0.298	6.435	

Source: Field Survey.[34]
Dependent variable: Employee performance.

though their organisation had an OHS policy (70.8%), and the content of existing health and safety policy had provisions on procedures for environmental health and safety (EHS) and working conditions (69.2%). The procedure for reporting industrial accidents by workers was, however, not confirmed to have existed at the construction sites (43.3%).

Research question 3: How do OHS practices influence performance among construction workers?

Results for research question three, which sought to explore the influence of OHS on workers' performance, can be seen in Table 5. The regression results represented by R-Square (R^2) suggest that OHS explains approximately 30.4% variance in explaining the performance of construction workers in Ghana. The results mean that about 69.6% of the variance in employee performance could be explained by other factors or variables not considered in this study. Meanwhile, the individual contribution of OHS to employee performance is represented by the beta value of .728 worth noting. More importantly, OHS had a statistically significant effect on employee performance in the construction sector of Ghana (Beta = .728, P = .000).

Research question 4: What challenges are associated with the implementation of OHS practices in the Ghanaian construction sector?

The last research question for the study on challenges faced with OHS practices in the construction sector was analysed with descriptive statistics. The results are represented with mean and standard deviation values, as shown in Table 6. The results in Table 6 revealed that construction workers in Ghana agreed to 7 out of 8 items used to measure the challenges associated with OHS practices in Ghana. Key among these items was low literacy, and awareness levels on health and safety among construction workers in Ghana (M = 4.48, SD = 0.987) was a challenge for OHS practices in the construction sector in Ghana. Other notable challenges identified were the high cost of training workers on OHS (M = 4.47, SD = 0.755); workers' refusal to report minor injuries for fear of being sacked (M = 4.29, SD = 1.126), and getting competent health and safety personnel for the promotion of OHS at workplaces (M = 4.26, SD = 0.874). Meanwhile, respondents lowly disagreed provision of health and safety materials was a cost burden for their organisation (M = 3.91, SD = 1.277).

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Table 6. Challenges associated with health and safety practices.

CHALLENGES	N	MEAN	STD. DEVIATION
1. The provision of health and safety materials had been a cost burden on the organisation.	120	3.91	1.277
2. The huge working population with a low literacy rate and low awareness of health and safety is a challenge.	120	4.48	0.987
3. Lack of clarity about the issues surrounding health and safety in the organisation is a problem.	120	4.18	1.270
4. Getting the right personnel to help in promoting health and safety practices in the organisation is a challenge.	120	4.26	.874
5. Getting management to be committed to health and safety had been a challenge to the organisation.	120	4.27	1.209
6. Workers' refusal to report minor injuries or near misses as a result of fear of being sacked is a challenge.	120	4.29	1.126
7. Workers' refusal to wear personal protective equipment (PPEs) in the organisation is a challenge	120	4.13	1.199
8. Cost involves in training employees on health and safety in the organisation is a challenge.	120	4.47	0.755

Source: Field Survey.[34]
Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Lowly Disagree, 4 = Agree and 5 = Strongly Agree.

Discussion of Results

The agreement for 6 out of 7 items used to measure the compatibility of OHS practices in the construction sector against best practices suggests that the sector is largely doing well regarding the practice of OHS policies, as suggested by Terry and Galloway.[51] This means that workers in the construction sector of Ghana used safety materials provided by their organisation, ensured fellow workers' safety, and conducted periodic *fire drills* at the workplace to check for emergency responses and preparedness of the workers and systems. This means that most of the indicators of OHS best practices have been introduced in the construction sector of Ghana.[32,52] The best practices are needed to ensure workers' health and safety and minimise the occurrence and the rate of industrial accidents at the workplace.[5,29,53] The results, therefore, suggest the accident causation process by Heinrich Domino's theory of accident causation that workers' safety reduces accidents at the workplace.

Meanwhile, the construction sector of Ghana could not meet the best practices in terms of organising regular health and safety induction, orientation, and refresher courses for workers. This challenges the sustainability of the existing OHS practices in the sector. This is because new workers keep on joining the existing ones, and new technology and tools continue to emerge and were used in the construction sector of Ghana. Therefore, regular health and safety induction, orientation, and refresher courses remain very important conduits. New and existing employees must be educated and reminded of how new and existing technologies/methods could be used to avoid accidents at the workplace. Unfortunately, the sector has not done well in this regard and has the propensity to worsen or increase industrial accidents. This finding agrees with the finding of Bianca and Ngaruiya et al,[4] who indicated that educating workers on safety policies and procedures is an important part of reducing the risk of injuries and deaths in the workplace.

The findings for research question 2, that most respondents have witnessed accidents/diseases at the workplace for the past 12 months, need further deliberation. The results mean that construction sites are still not very safe, and workers continue to suffer injuries at the workplace. However, this finding challenges the respondents' assertion that there was the existence of OHS policy, and its content covers provisions on working conditions and a healthy, safe environment. Juxtaposing the 2 perspectives will mean that probably the implementation, conscientisation, and enforcement of rules on OHS policies at the workplaces could have some loopholes paving the way for continued occurrences of industrial accidents. This means that good OHS policies are not enough; rather, awareness and monitoring for evaluation are needed to ensure that policies work to reduce accidents in the construction sector. The results agree with the earlier findings that although OHS policies exist in Ghana, implementing and monitoring challenges have made them unproductive.[2,12,53]

The findings for research question 3 on the statistically significant effect of OHS on employee performance in the construction sector of Ghana comes to confirm the relevance of this study. This means that employers in the construction sector can enhance the performance of their workers by paying attention to OHS issues in the workplace. The safer the workplace, the lesser the industrial accidents, the greater the peace of mind and the chances that employees' performance will be enhanced in the construction sector. The results also suggest that if attention to OHS policies is taken for granted, the possibility that occupational accidents and disease will escalate in the sector and employees' lives and performance will be the greatest victims. These findings corroborate the findings of Abuga[49,54-56] and Bitire and Chuma[11] that occupational health and safety affect employee performance.

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

The study found for its research question 4, challenges confronting OHS practices in the construction sector, and these include the high cost of training workers on OHS, workers' refusal to report minor injuries for fear of being sacked, and difficulty with getting competent health and safety personnel for the promotion of OHS at workplaces. This means that more accidents at the workplaces were not reported since workers fear being sacked if they should report some industrial accidents. It is, however, important to note that the high cost of training cannot be placed above human lives. Thus, despite the cost, employers need to find a way to train workers on safety precautions at the workplace. The cost of training for OHS is also closely associated with the training method used. The cost of training for OHS in the construction sector could differ depending on whether it is on-the-job or off-the-job training. Therefore, the economic challenge for employers is not tenable with the humanitarian and legal proponents for a need for a safe working environment for workers. This is because no amount of compensation can bring the dead to life.

Thus, the findings of that health and safety training for construction workers is essential for their safety at the construction site needed for safety, hazard management and emergency procedures for safety management is upheld by this study. Furthermore, Taylor et al[22] and Cao et al[8] found that if general health and safety policies are to be incorporated into specific job practices and skill levels are to be raised to an acceptable standard, training is required, further corroborated by this findings study.

Implication for theory

The findings of the study have implications for Heinrich Domino's theory of accident causation. Firstly, the outcome of the study has confirmed that both workers and management play critical roles as the main factors influencing work-related accidents at the workplace, as posited by the theory guiding the study. Thus, the first factor on the part of the employer, identified which had implications for theory was irregular health and safety orientation and training for construction workers. Safety orientation and training for workers are very much linked to enhancing the knowledge and skills of workers on health and safety measures. Thus, in the absence of orientation and training on new development in the construction landscape, there is the possibility that accidents and diseases at the workplace will rise. The rise in the occurrence of accidents equally has a cost implication for the management of construction firms and life implications for workers. The second theoretical implication relates to a stage of accident identified in terms of how workers related to machines and the risky behaviour of workers. Thus, this study confirms that both management and workers really deal with industrial accidents. However, this study further contributes to Heinrich Domino's theory of accident causation that management has a greater stake in terms of the provision of policies, their implementations, evaluation, as well as orientation and training on health and safety issues. Thus, management actions have the propensity to compel workers to comply with the dictates of OHS policies and reduce accidents at construction sites. This study unlike earlier studies, places higher demand for OSH in the construction sector of Ghana on employers than workers.

Practical implication

The outcome of this study has 3 practical implications for construction companies and economies managers. The first implication relates to the financial implication of OHS at the construction site. This means that educating and training workers on OHS comes with cost implications for managers in the short term but could be beneficial in the long run. Thus education and training could be considered an investment. The second managerial implication of the findings of the study was the legal implication. That is, failure to adhere to ensuring health and safety measures at the workplace does not only make the work environment risky but also an affront to the legal provision in the Labour Acts (Act 651) for workers. The consequences of this failure on the part of the employer have several dire consequences if found.

The last managerial implication of the findings of this study is the humanitarian implication. The humanitarian implication means that if the employer can afford legal costs and cost of compensation for industrial accidents, the lost body par or life through fatalities cannot be replaced. Thus, human life should be prioritised above all other elements in the working environment. For these reasons, management needs to take OHS seriously in the construction sector.

Conclusion and recommendation

This study explores the influence of OHS on the performance of Ghanaian construction workers. The conclusion is that OHS policies in the construction sector in Ghana had a statistically significant effect on employee performance. Also, OHS in the construction sector largely relates well with best international practices, and workers were aware of these policies in the industry. Despite these achievements in the sector, it was found that the construction sector of Ghana lacks the regularity needed for organising health and safety induction, orientation, and refresher courses for construction workers. Hence there were still occupational accidents and diseases affecting workers in the sector. For fear of being sacked, workers hardly report pains and injuries suffered at the construction sites. Also, construction workers felt that the high cost of training could explain why employers were not providing regular refresher training and induction training on OHS in the workplace.

These conclusions warrant a concrete step on the part of management of construction firms in Ghana to ensure that the construction sites become safer for workers to reduce the rate and type of industrial accidents in Ghana's construction sector.

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Therefore, it is recommended that the management of construction companies be more receptive and open to the needs and take care of the safety and health of its employees. This can be accomplished by providing a basis for suggestions for workers on how to enhance safety. This will also enhance the reporting mechanism in the sector without workers being identified and intimidated.

Management of construction companies in the sector should prioritise workers' health and safety over the economic concern with regard to the cost of training. Funds and investments should be made into health and safety training and induction as well as refresher programmes to continuously update workers on OHS issues in the sector. These programmes should include proactive measures such as crash reports, accident investigations, risk assessments, compliance audits and the use of proprietary technologies. The organisation should organise OHS competitions between departments for the best OHS practices to inspire employees and enhance their understanding of ergonomics. Awards and sanctions attached to the training programmes and competitions could be helpful in this regard.

Recommendations for further studies

OHS is only one of the human resource management issues in the construction sector of Ghana, and further studies could consider several other indicators of workers' work conditions in the industry. These include social security issues and the effect of the dusty environment on the health of construction workers after construction activities. Further studies could also look at retention or turnover challenges in the construction sector of Ghana.

Acknowledgement

We appreciate the time and responses of workers in the construction sector who served as respondents for this study. The support of the family of Esi Yeboah during the data collection is equally appreciated.

Author Contributions

MS reviewed literature, analyse the data, wrote the entire paper and proofread as well as serving as the corresponding author. EY Also conceptualised the topic and collected the data for the stresults discussions.

Data Availability Statement

Currently, data is not attached but can be provided later upon Request.

Ethical Approval Information

Ethical approval was obtained from the Institutional Review Board of the University of Cape Coast through the Department of Business Studies, College of Distance Education.

REFERENCES

1. Muchemedzi S, Charamba L. *National Health and Safety Training Course*. NSSA; 2006.
2. Tamene A, Afework A, Mebratu L. A qualitative study of barriers to personal protective equipment use among laundry workers in government hospitals, Hawassa, Ethiopia. *J Environ Public Health*. 2020;2020:5146786.
3. Eurofound. *Employment and Working Conditions of Migrant Workers*. Dublin: European Foundation for the Improvement of Living and Working Conditions (Eurofound), 2007.
4. Ngaruiya FW, Ogendi GM, Mokua MA. Occupational health risks and hazards among the fisherfolk in Kampi Samaki, Lake Baringo, Kenya. *Environ Health Insights*. 2019;13:1178630219881463.
5. Musab A, Tarawneh S. Impact of applying occupational safety and health programs on employees performance in construction sector. *Solid State Technol*. 2020;63:3331-3346.
6. Regional Committee for Africa Report. African countries propose a regional oral health strategy: The Dakar Report from 1998. *Oral diseases*. 2004;10(3): 129-137.
7. Gbadago P, Amedome SN, Honyenuga BQ. The impact of occupational health and safety measures on employee performance at the South Tongu District Hospital. *Glob J Med Res*. 2017;17:13-19.
8. Cao Z, Chen T, Cao Y. Effect of occupational health and safety training for Chinese construction workers based on the chaid decision tree. *Public Health Front*. 2021;9:623441.
9. Burt CD, Sepie B, McFadden G. The development of a considerate and responsible safety attitude in work teams. *Saf Sci*. 2008;46(1):79-91.
10. Ghana Statistical Service. *Ghana Living Standards Survey Round 6 (GLSS 6): Poverty Profile in Ghana (2005–2013)*. Ghana Statistical Service; 2014.
11. Bitire AA, Chuma LL. Effects of occupational health and safety strategies on the organizational performance: a case study on electric power corporation in Wolaita Sodo District, Ethiopia. *J Legal Ethical Regul Issues*. 2022;25:1-11.
12. Amponsah-Tawiah K, Dartey-Baah K. Occupational health and safety: key issues and concerns in Ghana. *Int J Bus Soc Sci*. 2011;2:100-126.
13. Puplampu BB, Quartey SH. Key issues on occupational health and safety practices in Ghana: a review. *Int J Bus So Sci*. 2012;3:19.
14. International Labor Organization. The effects of working time on productivity and firm performance, research synthesis paper. *International Labor Organization (ILO) Conditions of Work and Employment Series*, 2008;33.
15. Ghana Health Service (GHS). The Health Sector in Ghana and Figures. Accra. Ghana; 2007.
16. Ghana Health Service. *Ghana Health Service Strategic Plan 2007-2011*. Accra, GHS; 2007.
17. Rowlinson S, YunyanJia A, Li B, ChuanjingJu C. Management of climatic heat stress risk in construction: a review of practices, methodologies, and future research. *Accid Anal Prev*. 2014;66:187-198.
18. Laryea S, Mensah S. Health and safety on construction sites in Ghana‖ in the construction. *Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors, Paris, France*, 2–3 September, 2010. Dauphine Universite.
19. Amponsah-Tawiah K, Mensah J. Occupational health and safety and organizational commitment: evidence from the Ghanaian mining industry. *Saf Health Work*. 2016;7:225-230.
20. Amankwah EO, Owusu-Boateng G, Maxwell AB. Trend analysis on air quality and lung function - a case of consar Stone Quarry Limited, Barekese. *Am J Environ Resour Econ*. 2019;4:44-53.
21. Heinrich HW. *Industrial Accident Prevention*. McGraw-Hill; 1959.
22. Taylor G, Easter K, Hegney R. *Enhancing Occupational Safety and Health*. Elsevier; 2004.
23. Jhamb J, Jhamb R. The Patient Protection and Affordable Care Act and the utilization of health care services among young adults. *Int J Health Econ Manag*, 2015;1(1):8-29.
24. Osei-Asibey D. Challenges to construction research collaboration in Ghana. *J Const*. 2011;4(2):11-22.
25. Fenson L. *MacArthur-Bates Communicative Development Inventories*. Paul H. Brookes Publishing Company; 2007.
26. El-Dien FN. Thermodynamic study on the (NH4+-K+) exchange on K-saturated clinoptilolite clay. *Egypt J Chem*. 2000;43(1):31-51.
27. International Labour Organisation. *International Standard Classification of Occupations. Structure, Group Definitions and Correspondence Tables*. Geneva: International Labour Organization; 1992.
28. Leigh WA, Wheatley AL. US Healthcare Reform, 2009–2010: implications for African Americans. *Rev Black Polit Econ*. 2010;37:191-201.
29. Pleasant J. Treatment of intestinal schistosomiasis in Ugandan preschool children: best diagnosis, treatment efficacy and side-effects, and an extended praziquantel dosing pole. *Int Health*. 2010;2(2):103-113.

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

30. Bianca S. Sirenomelia: an epidemiologic study in a large dataset from the International Clearinghouse of Birth Defects Surveillance and Research, and literature review. In *American Journal of Medical Genetics Part C: Seminars in Medical Genetics*, 2011;157(4):358-373.
31. Wendy Nga Man W, Samuel Kai Wah C, Hong H, et al. Cross-cultural quality comparison of online health information for elderly care on Yahoo! Answers. Proc Assoc Inf Sci Technol. 2014;51(1):1-10.
32. Obese E. *Occupational Health and Safety Practices of University of Cape Coast*. Doctoral dissertation. University of Cape Coast; 2012.
33. Segbenya M, Hatsu TAS. Effect of Job-Related stress on employee performance at selected banks in Ghana. *J Bus Enterp Dev*. 2022;10:51-72.
34. Field Survey. 2020.
35. Segbenya M. *Organising and Decent Work Conditions Among Informal Stone Quarry Workers in Ghana*. Doctoral dissertation. University of Cape Coast; 2019.
36. Segbenya M, Akorsu AD, Saha D, Enu-Kwesi F. Exploring gendered perspectives on working conditions of solo self-employed quarry workers in Ghana. *Cogent Soc Sci*. 2022;8:1-18.
37. Boyle EA, Hainey T, Connolly TM, et al. An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games. *Comput Educ*. 2016;94:178-192.
38. Putnam H. *Meaning and the Moral Sciences (Routledge Revivals)*, Routledge; 2013.
39. Holzer M, Seok-Hwan L. Mastering public productivity and performance improvement from a productive management perspective. In: Holzer M and Seok-Hwan L (eds), Public Productivity Handbook, 2nd ed., Marcel Dekker, New York, NY; 2004.
40. Gummesson C. Perceived stress and sources of stress among physiotherapy students from 3 countries. *J Phys Ther Educ*. 2012;26(3):57-65.
41. Segbenya M, Ansah J. Influence of human resource management practices on organisational performance at Atwima Mponua Rural Bank Limited. *J Bus Enterp Dev*. 2021;9:118-127.
42. McCunney RJ, Fischman M, Storey E, et al. National institute for occupational safety and health nanomaterials and worker health conference—medical surveillance session summary report. *J Occup Environ Med*. 2011;53:35-37.
43. Oxenburgh M, Marlow PS and Oxenburgh A *Increasing productivity and profit through health and safety: The financial returns from a safe working environment*. London: CRC Press, 2014.
44. Jex SM. *Aging and occupational health. Aging and work in the 21st century*, (pp. 213-233). Routledge, 2018.
45. Demmin D. Duration of attenuated positive and negative symptoms in individuals at clinical high risk: Associations with risk of conversion to psychosis and functional outcome. *J Psychiatr Res*. 2016;81:95-101.
46. Parker SK, Wall AM. Redesigning work design theories: The rise of relational and proactive perspectives. *Acad Manag Ann*. 2009;3(1):317-375.
47. Belanger LJ. Development and assessment of a physical activity guidebook for the Colon Health and Life-Long Exercise Change. *J Phys Act Health*. 2010;7 (6):794-801.
48. Black SE, Lynch LM. How to compete: The impact of workplace practices and information technology on productivity. *Rev Econ Stat*. 2001;83(3):434-445.
49. Terry MA, Galloway SM. The S-stamp in Descemet membrane endothelial keratoplasty safely eliminates upside-down graft implantation. *Ophthalmology*. 2013;123(1):161-169
50. Abuga G. Effects of occupational safety and health programs on employee performance. Masters degree. School of Business Administration, Kenyatta University; 2013. http://ir-ibrary.ku.ac.ke/handle/123456789/22135
51. Adinyira E, Fugar FD, Osei-Asibey D. Challenges to construction research collaboration in Ghana. *J Constr*. 2011;4:11-22.
52. Adu-Boateng M. *The Effects of Non-Compliance to Health and Safety Regulation by Building Contractors in Ghana (Case Study Accra Metropolis)*. Doctoral dissertation; 2015.
53. Asumeng M, Asamani L, Afful J, Agyemang CB. Occupational safety and health issues in Ghana: strategies for improving employee safety and health at workplace. *Int J Bus Manage Rev*. 2015;3:60-79.
54. Carrión RE, Demmin D, Auther AM, et al. Duration of attenuated positive and negative symptoms in individuals at clinical high risk: associations with risk of conversion to psychosis and functional outcome. *J Psychiatr Res*. 2016;81: 95-101.
55. Dergousoff SJ, Galloway TD, Lindsay LR, Curry PS, Chilton NB. Range expansion of Dermacentor variabilis and Dermacentor andersoni (Acari: Ixodidae) near their northern distributional limits. *J Med Entomol*. 2013; 50:510-520.
56. Wu CH, Parker SK, Wu LZ, Lee C. When and why people engage in different forms of proactive behavior: interactive effects of self-construals and work characteristics. *Acad Manag J*. 2018;61:293-323.

Downloaded From: https://complete.bioone.org/journals/Environmental-Health-Insights on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use