International Journal of Humanities & Social Science: Insights & Transformations
Vol. 5, Issue 1 – 2020
ISSN: 2581-3587

Do Occupational Health and Safety Measures Influence Job Productivity in a Manufacturing Company in Jamaica?

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Abstract

Many businesses continue to experience on the job occupational hazards. These occupational hazards have influenced the health of employees, production, equipment, and sometimes account for the loss of lives and properties. Occupational hazards and safety also form a critical part of the manufacturing business modus operandi because people are employee in their operations, and as such must be protected as outlined in the International Standards on Quality Assurance and Quality Management (ISO 9000). This study seeks to evaluate the effect of occupational health and safety programmes on job productivity among workers who are employed in XYZ manufacturing company in Kingston, Jamaica (pseudo name). A descriptive research design will be employed to conduct a probability cross-sectional survey of employees who are actively engaged in the work at XYZ manufacturing company between January and June 2020. For this study, a standardized instrument employed by Kaynak, Toklu, Elci, & Toklu (2016) to evaluate safety procedure and risk management, safety and health rules, organizational commitment, work alienation, organizational safety supports, and occupational hazards prevention and job performance was used to collect the data. The data will be entered, stored, and retrieved using the Statistical Packages for the Social Sciences (SPSS) for Windows, Version 25.0. The data will be analyzed by way of descriptive statistics, and ordinary least square regression. A p-value of 5 per cent will be used to determined statistical significance, and the reliability analysis will be done in keeping with Principal Component Analysis (PCA). A moderate statistical relationship emerged between 1) occupational hazards prevention programme and job performance (r_{xy}=0.516, $P < 0.001$) and 2) occupational hazards prevention programme and job productivity (r_{xy}=0.485, $P < 0.001$). However, weak direct statistical correlations existed between occupational safety supports and 1) job performance (r_{xy}=0.329, $P < 0.001$) and 2) job productivity (r_{xy}=0.413, $P < 0.001$). On the other hand, a moderate positive correlation emerged between safety and health rules and job productivity (r_{xy}=0.512, P < 0.001). In addition, a direct statistical correlation existed between job performance and job productivity (r_{xy}=0.477, P < 0.001). The five selected occupational health and safety programme variables and job performance can be linearly used to model job productivity (F[6.385]=46.772, P <0.0001), with four of the six variables accounting (employees' wellness, safety and health rules, and safety procedures and risk management) for 41.3 per cent of the variance in job productivity (adjusted R^2=0.413). Using stepwise regression, it was determined that safety procedure and risk management programmes contribute the most to job productivity (r=26.2%) followed by job performance (r=9.6%), employee wellness programme (r=4.5%), and lastly by safety and health rules (r=1.6%). Occupational health and safety procedures hold a crucial role in the success of a company. These issues are not merely meeting international standards instituted by the International Labour Organizations; but they are social and economic good for an organization.

Keywords: Occupation Health And Safety, Job Productivity, Job Performance.

Background of the study

Occupational health and safety (OHS) are a human resource phenomenon that plays an influential role in the continued functioning of an organization (Cassio, 2004). Organizations are equally concerned about profitability, productivity, job performance, and serving customers as well as workers' safety and a healthy milieu. The matter of safety and a healthy work environment is critical to meeting the organization's goals and continuity (Hassam, Zainal, Akbar, Shaharudin, & Kamalrudin, 2018; Amponsah-Tawaih, & Adu, 2016). Hassam, et al. (2018) also noted that "organizations need to create a strategy to promote workplace health and safety and take steps to eliminate or minimize the hazards" (p. 254), which highlights the importance of organizational safety in the process of business operations (Choudhry, 2014; Kaynak, Toklu, Elci, & Toklu, 2016; Jaafar, Choong, & Mohamed, 2017). It is not left solely to the organizations to provide a safe and healthy place for work but they are regulated by International Safety Standards (ISO) as well as governmental regulations, which they are expected to comply with in order to continue in operation (Gressgård, 2014; Crumbley, 2014). This explains a culture of safety and healthy milieu in many organizations as well as continuous safety training for employees (Atak, & Kingma, 2011; Amponsah-Tawaih, & Adu, 2016; Mashia, Subramaniam, & Johari, 2016). As such, occupation health and safety speak to the adherence and maintenance of the greatest level of physical, mental and social well-being of employees within an organization (Taderera, 2012; Oluoch, 2015).

Jamaica is a signatory to numerous Human Rights Conventions and International Safety Organizations such as the ISO 9000 and United Nations (1948), which explains the rationale for organizations' adherence to internationally accepted practices and standards. Hence, manufacturing businesses must adhere to ISO guidelines and standards. In this research XYZ manufacturing company (pseudo name) went from employing permanent employees to contracting the services of fixed term contractors continued to enjoy all their previous benefits, which were in keeping with international standards and practices (Crumbley, 2014; Gressgård, 2014; Mashia, Subramaniam, & Johari, 2016; Jaafar, Choong, & Mohamed, 2017). The company now competes in the Agri-processing industry and their main products are poultry and poultry products. The XYZ manufacturing company focused on operational excellence as it main Strategic Business Objective by providing their consumers with quality and safe foods as outlined by the Bureau of Standards (2019). Their strong belief in agriculture as a means of growing a country's economy and its role in job creation and food security, led them to take the initiative to start the "Safe Food Movement" in Jamaica, and is certified by ISO 9000 standard.

The XYZ manufacturing company made it their personal mission to improve the safety standards of foods produced in Jamaica, which is a part of the organization's commitment as is equally evident in other nations (Kaynak, Toklu, Elci, & Toklu, 2016; Hassam, Zainal, Akbar, Shaharudin, & Kamalrudin, 2018). Since that time, they invested heavily in their production facilities, including erecting a new feed mill and completely transforming the processing facilities and operations for poultry and eggs, as well as occupational safety department. Over this time, they spent a lot of time training their staff on the importance of occupational health and safety as well as meeting the various quality standards (Oluoch, 2015; Mashia, Subramaniam, & Johari, 2016; Jaafar, Choong, & Mohamed, 2017), and its value on well-being and performance (Dollard, Opie, Lenthall, Wakerman, Knight, Dunn, & MacLeod, 2012; Kaynak, Toklu, Elci, & Toklu, 2016; Huyghebaert, Gillet, Fernet, Lahiani, & Fouquereau, 2018). From their farms, feeds, processing facilities, to all the supporting teams that contribute to delivering their top-quality brands to families all across the region, every day they choose to live by a higher standard to maintain this global standard for quality and integrity. Despite the best efforts and practices of the XYZ manufacturing company, there have been cases of danger against workers. Yet study has ever been conducted on occupational health and safety, and how these influence job productivities.

The Canadian Centre for Occupational Health and Safety (2007) opined that good safety practices aid in the reduction of accidents and cases of occupational diseases. Many companies take OHS very seriously and continuously put measures in place to enhance its practice. Although these companies seek to follow the regulations, guidelines, and procedures outlined by the international standard organization (ISO 9000), there are still cases of injuries and accidents. A part of OHS is training of staffers in suitable protective practices and safety at the workplace.

For decades, XYZ manufacturing company has anecdotally bypassed an empirically examination of the impact of OHS on job productivity simply because the hazards are few. The company has introduced many safety and health regulations and procedures; but the absence of an empirical examination means that it continues to make decision based on hunches, authority, traditions, and speculations. Failure will also occur in life and in business and these can severely affect the productivity, profitability and competitiveness of the company. Hence, XYZ manufacturing company should conduct a quantitative study on OHS to evaluate how these influence job productivity as these will provide critical information for decision making. The problem in this case is ignorance on a matter so critical to survivability, productivity, and profitability. As such, this research will employ the Goal-Freedom Alertness and Distraction Theory to objectively evaluate how occupational health and safety programmes influence job productivity at XYZ manufacturing company, which will provide critical insights for policy making.

The purpose of this research is to evaluate occupational health and safety programmes and how they influence job productivity at XYZ manufacturing company in an attempt to aid policy makers with information that will guide principles, practices, procedures, and future policy formulations. In order to attain the purpose of this study, three research questions will be examined. These are 1) To what extent do employees at XYZ manufacturing company perceive that occupational health and safety standards are being adhered to, and support their job performance and productivity? 2) Is there a relationship between occupation health and safety programmes and employees' productivity? and 3) Do employees at XYZ manufacturing company believe that they are satisfactorily performing their jobs and having the relevant support/systems to be productive?

Literature Review

Theoretical Framework

A Theoretical Framework is important in setting the foundation of a research that will explain, predict and assist in understanding the phenomena of a research topic (Crotty, 2005). Abend (2008) defined theoretical framework as the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists (Abend, 2008). There are several theories that relates to Occupational Health and Safety (OHS) and Job Productivity/ Performance; however, on careful examination of the literature, the best fitted theory for this research is the Goal-Freedom Alertness Theory and Distractions Theory (Kerr, 1950; Oluoch, 2015). These theories speak to the effect of occupation health and safety programmes on employees' performance or productivity.

The Goal-Freedom Alertness theory was developed by Kerr (1950) and is widely employed in occupational health and safety research He contended that safe work performance is as a

International Journal of Humanities & Social Science: Insights & Transformations
Vol. 5, Issue 1 – 2020
ISSN: 2581-3587

result of the psychologically rewarding work milieu. As such, accidents are owing to low-quality work behaviour as a result of an unrewarding psychological environment. Kerr outlined that psychological rewarding work climate influences workers' willingness to attain stated goals as well as practicing and accepting the right safety programmes that will attain desired health and safety goals (Oluoch, 2015; Kemei, 2019). On the other hand, Heinrich, et al. (1980) referred to this as a positive work environment that facilitates safety and health practices by workers as they understand the importance of alleviating workplace hazards. Distraction theory can be attributed to Hinze (1997) who indicated that safety is situational. This means that hazards are likely to reduce workers' well-being because of the harm that may result therefrom. Oluoch (2015) contended that leaders (supervisors and managers) should take into consideration human capabilities as well as health and safety viewpoints in the placement of workers. Those propositions were made because of the socio-technical cause of human performance.

The Goal-Freedom Alertness and Distraction theory set the premise for Kaynak, Toklu, Elci, & Toklu (2016) examination of occupational safety and health programmes and job performance. In fact, Kaynak, Toklu, Elci, & Toklu (2016) developed an empirical model that included certain programmes and how they influence job performance (see Figure 1). This theory explains the establishment of Kaynak, Toklu, Elci, & Toklu's empirical model that guides the current research:

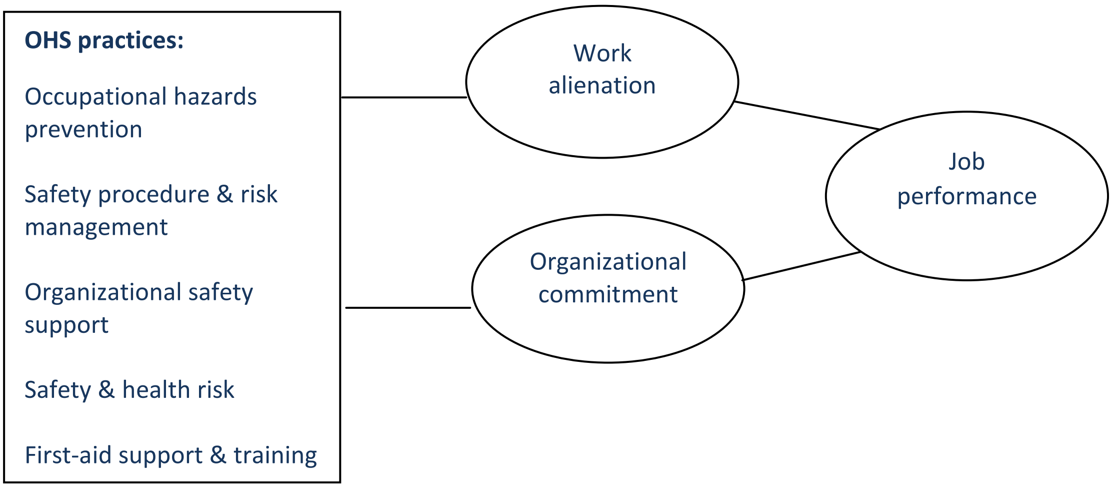

Figure 1.Kaynak, Toklu, Elci, & Toklu (2016) theoretical model of occupational health and safety

Like Kaynak, Toklu, Elci, & Toklu (2016), Oluoch (2015) used the same Goal-Freedom Alertness and Distraction theory to examine occupational health and safety programmes and their influence on job performance. However, Oluoch's empirical assessment of OHS had somewhat different dimensions compared to Kaynak, Toklu, Elci, & Toklu's study. For Oluoch, the dimensions of OHS were health and safety training, health and safety audits, health and safety inspections, health and safety policy, employee wellness programs, employee assistance program, health and safety committees, and occupational health surveillance. Comparatively the fundamental difference between the empirical studies was employee wellness programs. Hence for this study, the choice was to incorporate appropriate dimensions from each work. As such, the choice dimensional for this study is presented in Figure 2. However, a critical difference between this study and that of the previously mentioned ones is the dependent variable. For this study, the dependent variable is job productivity, and not performance as used by Kaynak, Toklu, Elci, & Toklu (2016), and Oluoch (2015).

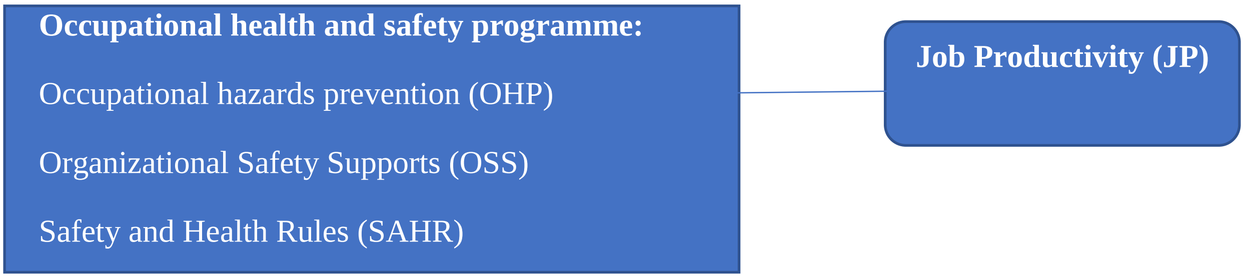

Figure 2.Current framework for occupational health and safety on job productivity

Dimensions of Occupational Health and Safety

Occupational hazards prevention (OHP)

For the past four decades OHS has become a priority for many industries due to the fact that many employees are exposed to occupational hazards whilst performing their tasks on a daily basis. Zimbabwe Congress of Trade Union Health and Safety Department (2001) divides occupational hazards into six categories; physical, chemical, biological, psychological, ergonomic and mechanical. These factors individually or collectively threaten the safety and health of workers thus reducing productivity and well-being (Health and Safety Executives, 2008). In addition, the International Labour Organization (2013) estimates that approximately 2.2 million workers die every year as a result of work-related injury. Of the 2.2 million, 350 thousand of these deaths are due to accidents and the rest due to occupational illness and accidents.

Considering the growing loss and suffering caused by occupational ill-health and diseases from many employment sectors around the world, employers are required to eliminate hazardous source, implement measures to prevent worker exposure, provide protective gears among other strategies to avoid occupational hazard (Cassio, 2004; Kerr, 1954).

Organizational Safety Supports (OSS)

The Social Exchange Theory defined organizational support as "employees' perception about the degree to which the organization values their contribution and cares about their wellbeing" Organizational support as perceived in line with the principle of reciprocity will ensure that employees work to the benefit of the organization.

Safety and Health Rules (SAHR)

Workplace safety is of paramount importance both nationally and internationally and is considered as a basic human right. Brown (1996) and Pagell et al. (2013) noted that safety should be considered an operational priority in addition to cost, quality, flexibility, delivery and innovation. Therefore, organization that focuses on safety in their daily operations will help to reduce workplace accidents and decrease relevant costs.

Safety measures can prevent accidents and ensure regular flow of work thereby improving employee morale and productivity (Naidoo & Willis, 2002). The Public Health England (PHE 2015) conduct a research entitled “Measuring employee productivity”. The research findings reveal that there is a negative impact on productivity when employee is absent as a result of illness, it is also noted that absenteeism is a growing concern on organizations negative output. Therefore, a safe and healthy workplace is directly related higher productivity owing to a few lost workdays, increase efficiency, higher quality work from a healthier workforce, reduced medical and insurance costs. As noted by McCunney (2001), the primary benefit to be derived from OHS on productivity is reduced absenteeism.

Safety Procedures and Risk Management (SPRM)

Operation safety climate relies on the perception of workers and that safety climate as created by the so-called shared perception of workers is associated with policies. Procedures and practices associated with the value and importance of safety within the organization (Griffin & Neal, 2000). A major part of occupational health and safety procedures is dependent on management’s commitment to safety policies and procedures. A research conducted by Katsuro et. al (2010), revealed that bad OHS practices in food factories decrease workers’ performance leading to the decline of productivity. Katsuro et. al (2010) further states that a worker who suffers from an occupational illness is slower and weaker which resulted in targets not being met.

The goal of all occupational health and safety program is to foster a safe work environment. Nutbeam, (1990) asserts that it requires far more than reducing the number of job-related accidents in order to effectively manage workplace safety and health. It however requires both the social and personal resources as well as the physical capabilities. Claussen (2007) added that education is important in highlighting employees’ safety and them working safely. The article “Beyond the Company Door” provides some insights into the significance of a strong occupational safety program to protect employees' health and well-being. Employees must be educated on safety work habits and on the use of protective equipment and safeguarding machinery to reduce workplace injuries and deaths. Additionally, Training provides individuals with the basic theoretical and practical knowledge to successfully complete their tasks (Millmore et. al, 2007). OHS training provides rules and information on potential hazards and how to avoid them. Armstrong, (2006) postulates that managers, supervisors and employees need to be trained in occupational health and safety policies and procedures.

Employee Wellness Programmes (EWP)

Sommers-Krause (2007) sought to examine the relationship between employees' wellness relative to job performance in the article "Exploring the relationship of employee wellness and job performance." The results showed that there was a significant inverse relationship between stress and job performance. That is, those employees experiencing more stress had lower job performance scores while those employees who managed their stress more effectively had better scores overall. In addition, there was a positive relationship between exercise and job performance. In other words, those employees who exercised regularly had better job performance scores than their more sedentary counterparts.

Health and safety promote good and safe quality of a working environment, which has a strong influence on productivity and profitability. It was also quoted according to a study by Lamm et al (2006), that there is increasing and compelling evidence that providing a healthy and safe working environment had the potential to increase labour productivity which resulted in the increase in business profits. Gahan, Sievewright and Evan (2014) noted that poor occupational health and safety had contributed to lower levels of workplace productivity and profitability. This was also supported by Hesapro Partners (2013), who identified that the management, the quality of workforce and the working conditions, had generally been recognized to have improved quality of working life, which then improve and increase productivity in the business. In addition, the physical, mental and social conditions of the workplaces, along with the adequacy of health and safety measures, positively contributed to a good quality of working life.

A study was conducted in Bangladesh entitled "Impact of Motivation on Employee Performances (Nabi et al. 2017)". The study reveal that it is of great importance that employees of an organization not only have a good relationship with the senior management, but also, they foster a healthy and professional relationship with their coworkers. In maintaining a good health relationship among coworkers, it will help minimize stress levels within the working environment and as a result employee with lower stress levels will be more productive. A critical finding of the study is that employees are motivated differently some monetary and others by extrinsic factors.

Abad et al. (2013) suggested that adoption of OHSAS 18001 within the organization can result in the improvement in safety, performance, and workforce productivity. As such, managers should use this the foregoing framework as a mechanism in order to improve safety conditions in the workplace.

Materials and methods

Within the nature of the study, the depth of information sought, the essence of what obtains in Occupational Health and Safety (OHS) on job productivity, the researchers employed an objective methodology, survey research. Survey research methodology will be employed to investigate the topic and provide scientific answers to selected research questions and test particular hypotheses. Survey research methodology lends itself to a positivistic (and/or post-positivistic) theoretical framework that is derived from objectivism (Crotty, 2005; Neuman, 2014; Babbie, 2010), which some people refer to as quantitative research. Survey research methodology, therefore, accommodates 1) measurement and conceptualization; 2) sampling; 3) questionnaire design; and 4) statistical analyses (Neuman, 2014; Babbie, 2010; Blalock, 1982; Fowler, 2009; Rea & Parker, 2014) and offers a wide cover of information particular issues, which lends itself to 1) numerical description; 2) generalizability of information from collecting data from a sample of the population (Fowler, 2009; Blalock and Blalock, 1968). As such, this methodology will explain why it was selected to evaluate the research topic.

While an objectivistic epistemology speaks to some absolute truth about reality and that there is a separation of reality from ideas on reality, it does not capture the essence of people's behaviour (i.e. the meanings behind the behaviours). It can be deduced from objectivism that its weakness is strength of interpretivism, and that the truth is equally found outside of philosophical stance of positivism (Kuhn, 1996; Schlick, 1979; Neuman, 2014; Babbie, 2010; University of Leicester, 2011; Creswell, 2014). It can be deduced from the works of Schlick (1979), Rabinow and Sullivan (1979) and Kuhn (1996) that truth about human beings are both objectively and subjectively measured and that this therefore justifies subjectivism in the human inquiries. Like University of Leicester (2011) aptly forwards that "...we endow it with meaning, we create or construct its reality by thinking about it and acting towards it in particular ways" (p. 29), suggesting that there is no physical or material reality, but that reality is a social construction. This is highlighted by a scholar who wrote that "If we believe something to be reality, it is real enough in its consequences for we behave as if it does exist" Smith (1998:161 in University of Leicester, 2011:30). Hence, a likely delimitation of this study is not using mixed methodology to capture the entire scope of the problem of occupational health and safety's influence on job productivity in a manufacturing business.

Research Design

The prime focus of this study was to evaluate the influence of occupational health and safety programmes on employees' productivity at XYZ manufacturing company. The study will be conducted using a non-probability approach (i.e. purposive sampling). This research is a descriptive cross-sectional design, using a standardized instrument. The survey method allows for the 1) measurement, 2) statistical analyses, and 3) objectivism (Rea and Parker, 2014; Powell, Bourne and Waller, 2007; Crotty, 2005; Creswell, 2014; Burnham, et al., 2004; Blalock and Blalock, 1968; Bastick and Matalon, 2007).

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According to Bastick and Matalon (2007), descriptive research which is quantitative in nature is a type of investigative research that measures the characteristics of a sample or population on pre-specified variables. This study fits this design because it typically sought to ascertain respondents' perspectives or experiences on a specified subject in a predetermined structured manner, and it will allow for evaluating the widespread perspective on the studied phenomenon.

Population and Sampling design

The population for this research will be all supervisors, managers, and line staffers at the XYZ manufacturing company, that is located at 46 Arnold Road at the time of data collection. It is estimated that there are 1,000 workers employed to XYZ company (pseudo name) and the sample will be selected (inclusion-exclusion criteria) based be 1) actively employed workers of XYZ company at the time of data collection; 2) not on any form of leave at the time of data collection (sick, maternity, or casual leave). The sample will be carried out by stratified random sampling method (see Table 1). The number of people for the sample will be computed by using a population of 1,000, 95% confidence interval and a 3% margin of errors. Based on those values, the sample size should be 517 workers. The distribution of the 517 workers are presented in Table 1.

Table 1.Population and Sampling for the current study

Details	**Population**		**Sample**	
	N	**%**		**%**
Directors	4	0.4	2	0.4
Junior managers	60	6.0	31	6.0
Supervisions	200	20	103	20
Human resource personnel	12	1.2	6	1.2
Line staffers	724	72.4	374	72.4
Total	1000	100.0	517	100.0

Conceptualizations and operationalizations

Definition of Terms

Health is not merely the absence of diseases or infirmity, but it is the state of complete physical, social and psychological wellbeing, which is perspective offered by the World Health Organization (1948) and adapted for this study.

Occupational safety is protecting the well-being (social, psychological, physiological, and environmental) of people who are employed in an organization by lowering risk factors and hazards in the workplace (Bureau of Standards, 2019).

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Occupational health and safety are concerned with protecting human life and property in an organization, which includes health and safety of the work environment (Cole, 2005; Gomez-Mejia, Berrone, & Franco-Santos, 2010; Armstrong, 2012; Oluoch, 2015). This is simply accident prevention (Lyneis and Madnick, 2008).

Job productivity is how a well-structured system employs resources to achieve a set goal, which is obtaining the most output for a set of inputs (Dunnette, & Hough, 1991; Palvia, 1991; Linna, Pekkola, Ukko, & Melkas, 2010; Djellal, & Gallouj, 2013).

Table 2.Summary of the operationalizations and levels of measurement for the five dimensions of OHS and productivity

Details	Operationalization (see)	Items*	Level of measurement
	Appendix I	**36-53**	
Occupational health & Safety:			
Occupational hazards	Appendix I	1-7	Ordinal
Organizational safety support		8-12	Ordinal
Safety and health rules		13-20	Ordinal
Safety procedures		21-26	Ordinal
Employee wellness		27-30	Ordinal
Productivity		31-35	Ordinal

*These are questions on the instrument (see Appendix I)

Instrumentation

A standardized questionnaire was developed in order to evaluate 'The influence of occupational health and safety programmes on job productivity' at Caribbean Broilers. The primary purpose of survey questionnaire was to solicit general information from a wide sample of respondents (Appendices I). The OHSPS consist of 43 close-ended items (Appendix I). All the items on were Likert scale questions, where items ranged from strongly disagree to strongly agree (Appendix I). The items were adapted and modified from three research-Oluoch (2015), Kaynak, Toklu, Elci, & Toklu (2016) and Northern Caribbean University (2017). The items taken from Oluoch (2015) were employee wellness; safety procedure and risk management, safety and health, occupational hazard procedure, and organizational safety support were from Kaynak, Toklu, Elci, & Toklu's study, and job productivity was taken from Northern Caribbean University's Work Climate Survey.

Administrative procedure

In order to administer the questionnaire, the researchers will inform participants of their rights and responsibilities. Informed consent will be given or read to each participant and only those who agreed by way of verbal or written consent will be allowed to be engaged in the research process. The administrative procedure in completing the questionnaires will also be explained. In addition to the aforementioned issues, those who participate will be made cognizant of the likeliness of withdrawing at any time during the process if they so desire. The item will be placed in a sealed envelope and given to the selected and willing participant for completion. A box will be provided for the individual to submit on completion.

Pilot Study

Pilot testing will be done to validate the instrument and ensure its reliability as well as to verify readability of the items. The researchers will pilot tested the instruments with some 20 participants from a different XYZ manufacturing company in Kingston and St. Andrew. Following the vetting, editing and modification processes with the aforementioned stakeholders, the researchers will again pre-tested the instrument by way of factor analysis for suitability and reliability of the items. The estimated time for completion of the instrument should be about 15 minutes ± 10 minutes. If there are any errors or corrections to be made to the items, these modifications will be done before the final version of the document is printed for distribution to the prospective respondents.

Validity and Reliability

Kuhn (1996) indicated that the validation and verification of issues are important in scientific methodologies and is the basis for constituting a science. Knowing how things operate was not singly embedded in empiricism, objective measurability and statistical analyses (Kuhn, 1996; Balashov and Rosenberg, 2002) as meaning accounts for actions that are sometimes outside of the realm of objectivism. It can be extrapolated from Kuhn's perspectives that validity and reliability is equally important in all scientific inquiry, and the issues of conceptualization and measurement must include an aspect of validity and verification.

For any research project to be credible, its reliability and validity have to be clearly established (Babbie, 2010; Creswell, 2014). As such, the necessary steps taken to ensure that the proposed project has both internal and external validity and internal and external reliability on the instrument used are outlined. According to Babbie (2010) and Neuman (2014), reliability is concerned with the reliability and consistency of the methods, conditions and results while validity deals with the accurate interpretability of the results and the generalizability of the results.

In order to ensure a high response rate on the questionnaire, the researchers will ensure that all steps are taken to have the number of items not more than is necessary to elicit the required information; thus, avoiding unnecessary and ambiguous questions. The researchers will also establish a directory of the respondents so as to be able to make the relevant follow up calls. The researchers will also do personal deliveries and pickup of the instruments, in an effort to personally outline to the respondents the importance of their responses to the project.

In this study, reliability of some items will be based on *Equivalence Reliability*-Cronbach alpha (Neuman, 2014). This will be compared based on high or low values of Cronbach

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alpha. Reliability will also be increased by way of using 1) previously tested items (or questions); 2) pre-testing, testing and post-testing of items. The researcher will adhere to the following types of measuring validity-1) Face validity, 2) Content validity, 3) Criterion Validity, and 4) Concurrent validity, (Neuman, 2014).

Prior to administering the final question, the instrument will do thorough process of testing, retesting, and modifications in keeping with issues raised in the vetting and pilot testing process. Initially, the researchers will construct a number of items that would adequately collect data that could allow for the testing of the hypothesis and addressing the objectives of the study.

The researchers will carry out a pilot test using the modified questionnaire. On the questionnaire the scale items will be taken and sometimes modified in keeping with the culture and context of Jamaican workers. The pilot testing was done at Derrimon Trading Limited, with 10 employees at different employment status. The overall time to be taken to complete the instrument will be 20 minutes (± 10 minutes). Adjustments will be made to the final instrument based on any queries, word usage, context, lack of understanding and weakness in the construction of the data. Following that exercise, the modified instrument will be pilot tested with another group of workers at Derrimon Trading Limited. The final instrument that emerged will be modified and the final version will be administered to the actual participants of the study at Caribbean Broilers.

The entire process of instrument design was aided by Rea and Parker's book on designing and conducting survey research (Rea and Parker, 2014).

Method of Analysis

For this survey instrument (questionnaire), the large volume of data will be stored, retrieved and analyzed using the Statistical Packages for the Social Sciences (SPSS) for Windows version 25.0 (SPSS Inc; Chicago, IL, USA). Descriptive statistics will be performed on the data as well as percentage and frequency distributions (include percentages and frequency counts). Descriptive statistics will allow the researchers to meaningfully describe the many pieces of data collected (Gay and Airasian, 2000). Statistical significance will be determined based on a p-value less than or equal to five percentage points (≤ 0.05)-two-tailed. In addition to descriptive statistics, scatter plots and box plots will also be used to analyze or present the data. Multi-analysis of variance will be used to examine particular linear dependent variable by multi-independent variables. Factor analysis will be performed on the various components for indexation (i.e., job productivity, safety procedure and risk management, employee wellness programme, safety and health, organizational safety support, and occupational hazard prevention).

Data Analysis

The data collected will be entered into the Statistical Packages for the Social Sciences (SPSS) for Windows Version 25.0 as well as Microsoft Excel. The responses for each statement on the questionnaire will be added up and the sum will be the score for the survey. Descriptive statistics including frequencies and measures of central tendency will be used to obtain the mean, mode and standard deviation of participants attitude towards occupational health and safety. Furthermore, statistical analyses will be used to find the association between the variables which are occupational health and safety and job productivity. Correlation coefficients will be used to determine the relationship between the variables as well as Pair-sample t-test.

Ethical considerations

The researchers will seek permission from Office of Graduate Studies and Research at the University of the Commonwealth Caribbean and Managing Director as well as Human Resource Manager including the employees of XYZ company to conduct the research. The participants will be informed of the purpose of the study. Only agreed participants will be engaged in this study and they will be required to sign an informed consent form. The following safeguards have been outlined in the informed consent statement: The research questions as well as the instrument along with the purposes and procedures regarding this study will be forwarded to the people; participation can only be voluntary. If an individual refuse to participate, she/he will not be a part of this research process including those who withdraw from participation at any time without jeopardy; If, during the course of the study, significant new information that has been developed becomes available this must be related to the participants., and Any information derived from the research project that personally identifies a respondent will not be voluntarily released or disclosed without my separate consent.

Findings

In an effort to answer the research questions, statistical analyses will be done on the suitability and appropriateness of various scales and subscales. These are as follows: occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), job productivity (JP2), and job performance (JP1).

Reliability analysis of scales

Table 1 presents the reliability analysis of all the scales in this research (i.e., occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), job productivity (JP2), and job performance (JP1). The values of the Cronbach alpha

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for the particular variables (i.e., scale of occupational health and safety) were at least 70 per cent (i.e., 0.70), which means that they may be suitable for usage to measure the concepts (Table 1). This would require more analysis by way of factor analysis (i.e., principal component method) to precisely evaluate the suitability and appropriateness of index/scale.

Table 1.Reliability analysis of scales

Details	Number of items	Cronbach alpha
Occupational Hazards Prevention (OHP)	7	0.842
Organizational Safety Supports (OSS),	5	0.817
Safety and Health Rules (SAHR),	5	0.726
Safety Procedure and Risk Management (SPRM)	6	0.875
Employee Wellness Programme (EWP)	4	0.871
Job Performance (JP1)	6	0.748
Job Productivity (JP2)	20	0.833

Factor analysis

For this section, all variables were evaluated for suitability and appropriateness of the intended concepts (i.e., occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), job productivity (JP2), and job performance (JP1).

Occupational Hazards Prevention (OHP)

Factor analysis allows for the mathematical evaluation of many items that are likely to assess a single phenomenon/variable. This statistical tool will be used in this section to assess the suitability and appropriateness of examining many sub-items in evaluating a single construct. For this research, there are many items to assess occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), job productivity (JP2), and job performance (JP1). Although Cronbach alpha is a one of the assessments of evaluating the suitability of an indexed variable, it is not exhaustive and therefore should not be used as the sole measure of assessing the appropriateness of items in constructing an index. In fact, factor analysis is the ideal tool for assessing the suitability and appropriateness of constructing an index, and so this is the rationale for employing it this study.

Occupational Hazards Prevention (OHP)

For this study, seven items will be to assess occupational hazards prevention (OHP). A reliability analysis was performed on the seven items and it was found that they are good to assess occupational hazards prevention (i.e., Cronbach alpha=0.842; Table 1). As such, this justifies a further examination of items to assess occupational hazards prevention by way of factor analysis. A sample of 395 people would be used to assess occupational hazards prevention, To validate this index, samples of 2,571 people were used (see Table 2) indicates that this needs all required minimum number of cases by way of the recommendation of Tabachnick & Fidell (1996, 2007).

Table 2 presents a 5-point Likert scale system for the seven items that are likely to assess occupational hazards prevention. Descriptive statistics (i.e., mean and standard deviation) for the seven items ranged between 3.7 and 5, which means that all the items are relevant for constructing the index occupational hazards prevention.

Table 2.Descriptive Statistics for Occupational Hazards Prevention (OHP)

	Mean	Std. Deviation	N
Workers assigned to hazardous tasks use safety glasses, helmets, boots, gloves, masks, jumpsuits and shoes in my organization.	4.4118	.87223	391
Only those with necessary equipment and training and who are specifically assigned workers have access to hazardous places in my organization	3.8926	1.09015	391
Workers assigned to hazardous tasks are regularly monitored via internal audits to see whether they follow instructions and procedures set for workers' health and safety in my organization.	3.8900	.99004	391
Deficiencies and mistakes revealed during internal audits for safety and health are monitored and removed.	3.9156	.91177	391
There is appropriate lay-out and lighting in the organization where I work.	4.0614	.89231	391
Waste is disposed of in appropriate and effective ways in the organization where I work	4.1688	.80202	391
There are health and safety devices in my workplace.	4.1253	.87246	391

Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 3), which means that they appropriate for principal component analysis.

Table 4 presents the linear correlations of the seven items that are likely to assess occupational hazards prevention, all the bivariate correlations having a very weak to weak relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct occupational hazards prevention index without related redundancy.

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Table 3.Tests of Normality for Occupational Hazards Prevention (OHP)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Workers assigned to hazardous tasks use safety glasses, helmets, boots, gloves, masks, jumpsuits and shoes in my organization.	.325	391	.000	.668	391	.000
Only those with necessary equipment and training and who are specifically assigned workers have access to hazardous places in my organization	.271	391	.000	.829	391	.000
Workers assigned to hazardous tasks are regularly monitored via internal audits to see whether they follow instructions and procedures set for workers' health and safety in my organization.	.291	391	.000	.828	391	.000
Deficiencies and mistakes revealed during internal audits for safety and health are monitored and removed.	.307	391	.000	.823	391	.000
There is appropriate lay-out and lighting in the organization where I work.	.283	391	.000	.805	391	.000
Waste is disposed of in appropriate and effective ways in the organization where I work	.258	391	.000	.803	391	.000
There are health and safety devices in my workplace.	.269	391	.000	.797	391	.000

a. Lilliefors Significance Correction

Table 4.Correlation Matrixa for Occupational Hazards Prevention (OHP)

		OHP1	OHP2	OHP3	OHP4	OHP5	OHP6	OHP7
Correlation	OHP1	1.000	.500	.462	.447	.330	.384	.417
	OHP2	.500	1.000	.443	.378	.286	.276	.265
	OHP3	.462	.443	1.000	.555	.478	.385	.432
	OHP4	.447	.378	.555	1.000	.539	.489	.548
	OHP5	.330	.286	.478	.539	1.000	.548	.573
	OHP6	.384	.276	.385	.489	.548	1.000	.516
	OHP7	.417	.265	.432	.548	.573	.516	1.000
Sig. (1-tailed)	OHP1		.000	.000	.000	.000	.000	.000
	OHP2	.000		.000	.000	.000	.000	.000
	OHP3	.000	.000		.000	.000	.000	.000
	OHP4	.000	.000	.000		.000	.000	.000

	OHP5	.000	.000	.000	.000		.000	.000
	OHP6	.000	.000	.000	.000	.000		.000
	OHP7	.000	.000	.000	.000	.000	.000	

a. Determinant = .078

Table 5 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.866, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 5.KMO and Bartlett's Test for Occupational Hazards Prevention (OHP)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.866**
Bartlett's Test of Sphericity	Approx. Chi-Square	984.402
	df	21
	Sig.	< 0.0001

The Total Variance Explained is presented Table 6. The findings revealed that only one component had an eigenvalue exceeding 1 (explaining 52.322% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 1). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

Table 6.Total Variance Explained for Occupational Hazards Prevention (OHP)

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	3.663	52.322	52.322	3.663	52.322	52.322
2	.979	13.979	66.301			
3	.590	8.435	74.736			
4	.518	7.402	82.138			
5	.458	6.543	88.681			
6	.421	6.021	94.702			
7	.371	5.298	100.000			
Extraction Method: Principal Component Analysis.						

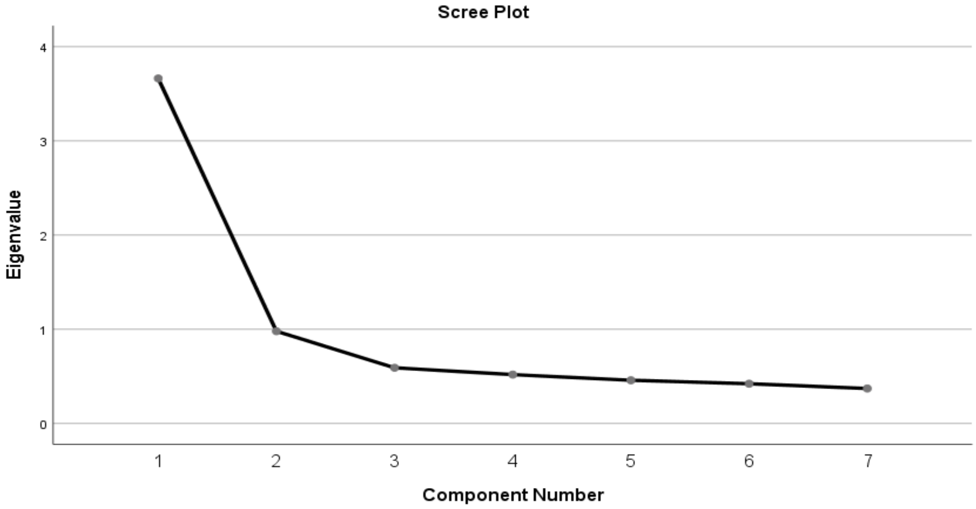

Figure 1.Scree plot for Occupational Hazards Prevention (OHP)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 7. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for 2 variables below 0.50. Higher communalities are desirable (i.e., 5 variables-See Table 7).

Table 7.Communalities for Occupational Hazards Prevention (OHP)

	Initial	Extraction
Workers assigned to hazardous tasks use safety glasses, helmets, boots, gloves, masks, jumpsuits and shoes in my organization.	1.000	.475
Only those with necessary equipment and training and who are specifically assigned workers have access to hazardous places in my organization	1.000	.355
Workers assigned to hazardous tasks are regularly monitored via internal audits to see whether they follow instructions and procedures set for workers' health and safety in my organization.	1.000	.555
Deficiencies and mistakes revealed during internal audits for safety and health are monitored and removed.	1.000	.631
There is appropriate lay-out and lighting in the organization where I work.	1.000	.567
Waste is disposed of in appropriate and effective ways in the organization where I work	1.000	.512
There are health and safety devices in my workplace.	1.000	.566

Extraction Method: Principal Component Analysis.

If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the seven items are suitable and appropriate for using in constructing the single index occupational hazards prevention.

Organizational Safety Supports (OSS)

Table 8 presents a 5-point Likert scale system for the five items that are likely to assess organizational safety supports (OSS). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 3.4 and 4.0, which means that all the items are relevant for constructing an index entitled organizational safety supports. Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 9), which means that they appropriate for principal component analysis.

Table 8.Descriptive Statistics for organizational safety support (OSS)

	Mean	Std. Deviation	N
Adequate and timely medical treatment provided in my organization where required	3.7429	.97300	385
Sufficient time is granted for a worker to be recover in the event of an accident	3.7584	.99809	385
Adequate compensation is paid in case of injury.	3.4571	1.03524	385
Occupational safety regulations are followed in my organization.	3.9351	.88884	385
Due care is shown in my organization regarding the privacy of workers' medical records.	3.8156	.89546	385

Table 9.Tests of Normality for organizational safety supports (OSS)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Adequate and timely medical treatment provided in my organization where required	.261	385	.000	.866	385	.000
Sufficient time is granted for a worker to be recover in the event of an accident	.240	385	.000	.860	385	.000
Adequate compensation is paid in case of injury.	.200	385	.000	.887	385	.000
Occupational safety regulations are followed in my organization.	.246	385	.000	.849	385	.000
Due care is shown in my organization regarding the privacy of workers' medical records.	.236	385	.000	.853	385	.000

a. Lilliefors Significance Correction

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ISSN: 2581-3587

Table 10 presents the linear correlations of the five items that are likely to assess organizational safety supports, all the bivariate correlations having a very weak to weak relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct organizational safety supports index without related redundancy.

Table 10.Correlation Matrix for organizational safety supports (OSS)

		OSS8	OSS9	OSS10	OSS11	OSS12
Correlation	OSS8	1.000	.461	.510	.453	.340
	OSS9	.461	1.000	.528	.426	.489
	OSS10	.510	.528	1.000	.539	.510
	OSS11	.453	.426	.539	1.000	.459
	OSS12	.340	.489	.510	.459	1.000
Sig. (1-tailed)	OSS8		.000	.000	.000	.000
	OSS9	.000		.000	.000	.000
	OSS10	.000	.000		.000	.000
	OSS11	.000	.000	.000		.000
	OSS12	.000	.000	.000	.000	

a. Determinant = .209

Table 11 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.833, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 11.KMO and Bartlett's Test for organizational safety supports (OSS)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	597.602
	df	10
	Sig.	<0.0001

The Total Variance Explained is presented Table 12. The findings revealed that only one component had an eigenvalue exceeding 1 (explaining 57.826% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 2). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

Table 12.Total Variance Explained for organizational safety supports (OSS)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.891	57.826	57.826	2.891	57.826	57.826
2	.662	13.240	71.067			
3	.576	11.517	82.584			
4	.448	8.959	91.543			
5	.423	8.457	100.000			

Extraction Method: Principal Component Analysis.

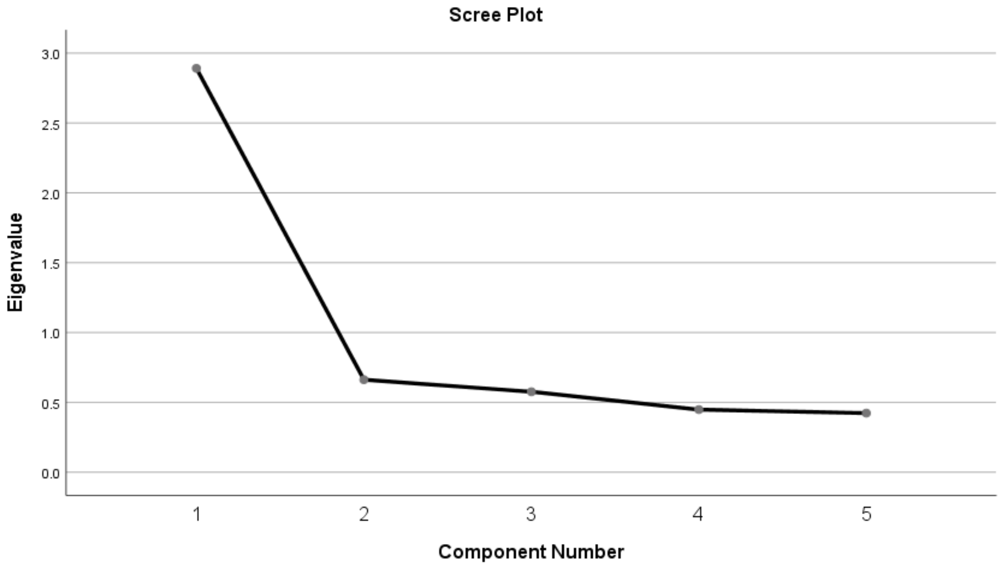

Figure 2.Scree plot for organizational safety supports (OSS)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 13. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for no variable below 0.50. Higher communalities are desirable (i.e., 5 variables-See Table 13). If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the items are suitable and appropriate for using in constructing the single index organizational safety supports (OSS).

Table 13.Communalities for organizational safety supports (OSS)

	Initial	Extraction
Adequate and timely medical treatment provided in my organization where required	1.000	.520
Sufficient time is granted for a worker to be recover in the event of an accident	1.000	.586
Adequate compensation is paid in case of injury.	1.000	.675
Occupational safety regulations are followed in my organization.	1.000	.573
Due care is shown in my organization regarding the privacy of workers' medical records.	1.000	.537

Extraction Method: Principal Component Analysis.

Safety and Health Rules (SAHR)

Table 14 presents a 5-point Likert scale system for the five items that are likely to assess Safety and Health Rules (SAHR). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 3.4 and 4.0, which means that all the items are relevant for constructing an index entitled Safety and Health Rules (SAHR). Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 15), which means that they appropriate for principal component analysis.

Table 14.Descriptive Statistics for Safety and Health Rules (SAHR)

	Mean	Std. Deviation	Analysis N
SAHR13	3.7308	1.16364	390
SAHR14	3.9179	.95311	390
SAHR15	3.6538	1.10650	390
SAHR16	3.8333	.97549	390
SAHR17	3.5205	1.10542	390

Table 15.Tests of Normality for Safety and Health Rules (SAHR)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SAHR13	.245	390	.000	.861	390	.000
SAHR14	.270	390	.000	.838	390	.000
SAHR15	.233	390	.000	.880	390	.000
SAHR16	.273	390	.000	.850	390	.000
SAHR17	.240	390	.000	.886	390	.000

Table 16 presents the linear correlations of the five items that are likely to assess Safety and Health Rules (SAHR), all the bivariate correlations having a very weak to weak relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each

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ISSN: 2581-3587

item measures a different concept indicating that the items are good construct Safety and Health Rules (SAHR) index without related redundancy.

Table 16.Correlation Matrix for Safety and Health Rules (SAHR)

		SAHR13	SAHR14	SAHR15	SAHR16	SAHR17
Correlation	SAHR13	1.000	.539	.141	.255	.231
	SAHR14	.539	1.000	.361	.508	.363
	SAHR15	.141	.361	1.000	.411	.391
	SAHR16	.255	.508	.411	1.000	.364
	SAHR17	.231	.363	.391	.364	1.000
Sig. (1-tailed)	SAHR13		.000	.003	.000	.000
	SAHR14	.000		.000	.000	.000
	SAHR15	.003	.000		.000	.000
	SAHR16	.000	.000	.000		.000
	SAHR17	.000	.000	.000	.000	

a. Determinant = .322

Table 17 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.721, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 17.KMO and Bartlett's Test for Safety and Health Rules (SAHR)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.721**
Bartlett's Test of Sphericity	Approx. Chi-Square	437.690
	df	10
	Sig.	<0.0001

KMO and Bartlett's Test for Safety and Health Rules (SAHR)

The Total Variance Explained is presented Table 18. The findings revealed that only one component had an eigenvalue exceeding 1 (explaining 48.955% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 3). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

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Table 18.Total Variance Explained for Safety and Health Rules (SAHR)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.448	48.955	48.955	2.448	48.955	48.955
2	.967	19.346	68.301			
3	.652	13.050	81.351			
4	.560	11.198	92.549			
5	.373	7.451	100.000			

Extraction Method: Principal Component Analysis.

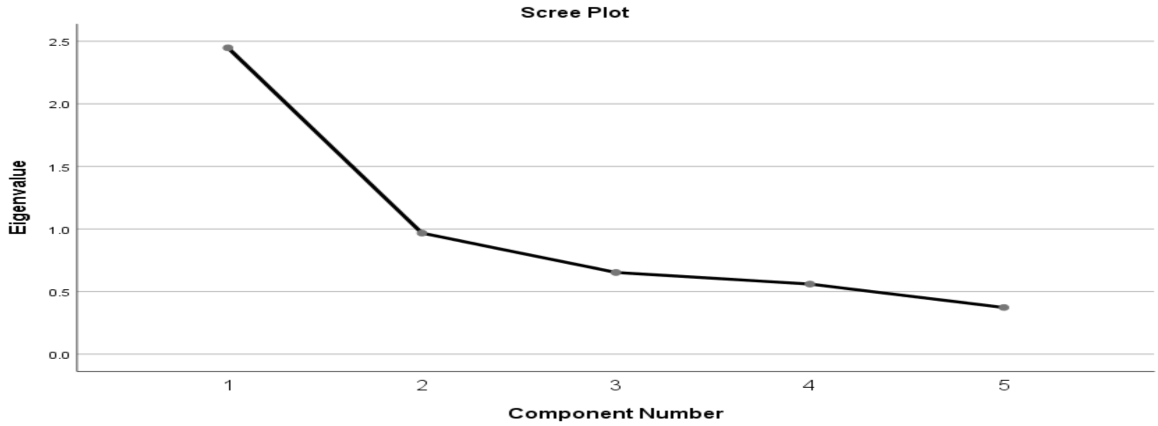

Figure 3.Scree plot for Safety and Health Rules (SAHR)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 19. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for three variables below 0.50. Higher communalities are desirable (i.e., 2 variables-See Table 19). If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the items are suitable and appropriate for using in constructing the single index Safety and Health Rules (SAHR).

Table 19.Communalities for Safety and Health Rules (SAHR)

	Initial	Extraction
SAHR13	1.000	.364
SAHR14	1.000	.663
SAHR15	1.000	.426
SAHR16	1.000	.554
SAHR17	1.000	.441

Extraction Method: Principal Component Analysis.

Safety Procedure and Risk Management (SPRM)

Table 20 presents a 5-point Likert scale system for the five items that are likely to assess Safety Procedure and Risk Management (SPRM). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 3.3 and 4.0, which means that all the items are relevant for constructing an index entitled Safety Procedure and Risk Management (SPRM). Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 21), which means that they appropriate for principal component analysis.

Table 20.Descriptive Statistics for Safety Procedure and Risk Management (SPRM)

	Mean	**Std. Deviation**	**Analysis N**
SPRM18	3.5688	1.05873	385
SPRM19	3.6883	1.00078	385
SPRM20	3.7195	1.04296	385
SPRM21	3.7766	.97999	385
SPRM22	3.4442	1.10991	385
SPRM23	3.3377	1.17050	385

Table 21.Tests of Normality for Safety Procedure and Risk Management (SPRM)

Kolmogorov-Smirnov[a]			**Shapiro-Wilk**
Statistic	**df**	**Sig.**	**Statistic**
.240	385	.000	.888
.261	385	.000	.877
.255	385	.000	.867
.271	385	.000	.859
.224	385	.000	.898
.218	385	.000	.902

a. Lilliefors Significance Correction

Table 22 presents the linear correlations of the five items that are likely to assess Safety Procedure and Risk Management (SPRM), all the bivariate correlations having a very weak to moderate relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct Safety Procedure and Risk Management (SPRM) index without related redundancy.

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Table 22.Correlation Matrix for Safety Procedure and Risk Management (SPRM)

Correlation Matrix[a]							
		SPRM18	**SPRM19**	**SPRM20**	**SPARM21**	**SPARM22**	**SPARM23**
Correlation	SPRM18	1.000	.536	.461	.459	.531	.517
	SPRM19	.536	1.000	.662	.622	.467	.484
	SPRM20	.461	.662	1.000	.698	.434	.438
	SPARM21	.459	.622	.698	1.000	.503	.543
	SPARM22	.531	.467	.434	.503	1.000	.774
	SPARM23	.517	.484	.438	.543	.774	1.000
Sig. (1-tailed)	SPRM18		.000	.000	.000	.000	.000
	SPRM19	.000		.000	.000	.000	.000
	SPRM20	.000	.000		.000	.000	.000
	SPARM21	.000	.000	.000		.000	.000
	SPARM22	.000	.000	.000	.000		.000
	SPARM23	.000	.000	.000	.000	.000	

a. Determinant = .040

Table 23 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.829, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 23.KMO and Bartlett's Test for Safety Procedure and Risk Management (SPRM)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.829
Bartlett's Test of Sphericity	Approx. Chi-Square	1222.885
	df	15
	Sig.	<0.0001

The Total Variance Explained is presented Table 24. The findings revealed that only one component had an eigen value exceeding 1 (explaining 61.886% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 4). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

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Table 24.Total Variance Explained for Safety Procedure and Risk Management (SPRM)

Total Variance Explained						
Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	3.713	61.886	61.886	3.713	61.886	61.886
2	.865	14.413	76.299			
3	.558	9.297	85.596			
4	.356	5.929	91.525			
5	.289	4.814	96.339			
6	.220	3.661	100.000			

Extraction Method: Principal Component Analysis.

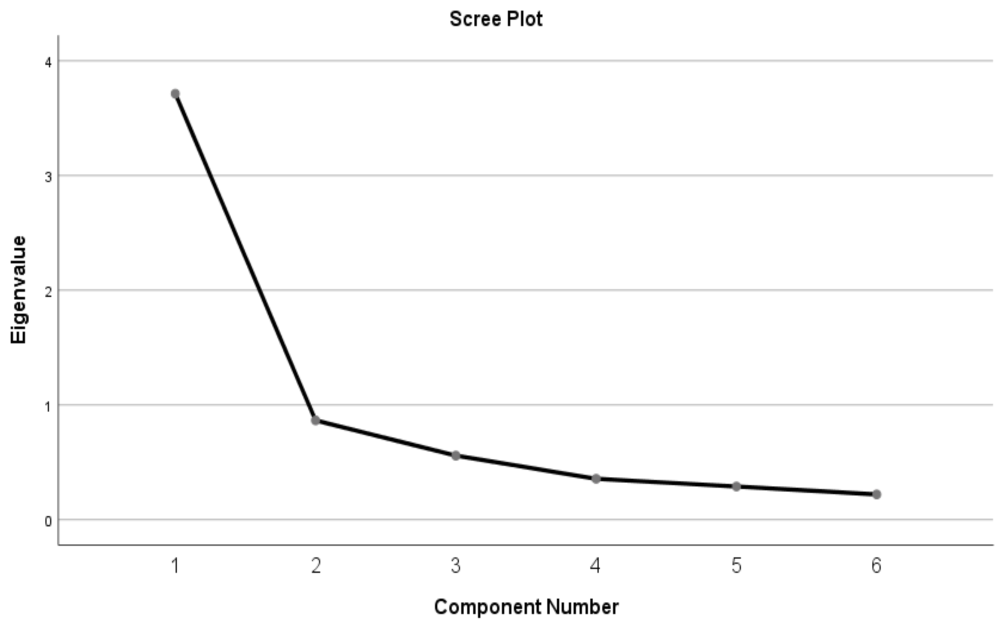

Figure 4.Scree plot for Safety Procedure and Risk Management (SPRM)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 25. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for no variables below 0.50. Higher communalities are desirable. If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the items are suitable and appropriate for using in constructing the single index Safety Procedure and Risk Management (SPRM).

Table 25.Communalities for Safety Procedure and Risk Management (SPRM)

	Initial	Extraction
SPRM18	1.000	.540
SPRM19	1.000	.641
SPRM20	1.000	.615
SPARM21	1.000	.664
SPARM22	1.000	.618
SPARM23	1.000	.635

Extraction Method: Principal Component Analysis

Employee Wellness Programme (EWP)

Table 26 presents a 5-point Likert scale system for the five items that are likely to assess Employee Wellness Programme (EWP). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 3.2 and 4.0, which means that all the items are relevant for constructing an index entitled Employee Wellness Programme (EWP). Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 27), which means that they appropriate for principal component analysis.

Table 26.Descriptive Statistics for Employee Wellness Programme (EWP)

	Mean	Std. Deviation	N
EWP24	3.7519	1.14061	387
EWP25	3.4419	1.20603	387
EWP26	3.3204	1.13616	387
EWP27	3.5090	1.18137	387

Table 27.Tests of Normality for Employee Wellness Programme (EWP)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EWP24	.240	387	.000	.858	387	.000
EWP25	.221	387	.000	.892	387	.000
EWP26	.198	387	.000	.899	387	.000
EWP27	.196	387	.000	.889	387	.000

a. Lilliefors Significance Correction

Table 28 presents the linear correlations of the five items that are likely to assess Employee Wellness Programme (EWP), all the bivariate correlations having a very weak to strong relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct Employee Wellness Programme (EWP) index without related redundancy, with the exception of EWP26 and EWP25. Hence further analysis is needed to assess whether those two subscales should be excluded from the indexation.

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Table 28.Correlation Matrix for Employee Wellness Programme (EWP)

		EWP24	EWP25	EWP26	EWP27
Correlation	EWP24	1.000	.609	.597	.550
	EWP25	.609	1.000	.743	.576
	EWP26	.597	.743	1.000	.691
	EWP27	.550	.576	.691	1.000
Sig. (1-tailed)	EWP24		.000	.000	.000
	EWP25	.000		.000	.000
	EWP26	.000	.000		.000
	EWP27	.000	.000	.000	

a. Determinant = .128

Table 29 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.799, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 29.KMO and Bartlett's Test for Employee Wellness Programme (EWP)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.799
Bartlett's Test of Sphericity	Approx. Chi-Square	788.729
	df	6
	Sig.	.000

The Total Variance Explained is presented Table 30. The findings revealed that only one component had an eigenvalue exceeding 1 (explaining 72.192% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 6). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

Table 30.Total Variance Explained for Employee Wellness Programme (EWP)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.888	72.192	72.192	2.888	72.192	72.192
2	.470	11.755	83.947			
3	.414	10.361	94.309			
4	.228	5.691	100.000			

Extraction Method: Principal Component Analysis.

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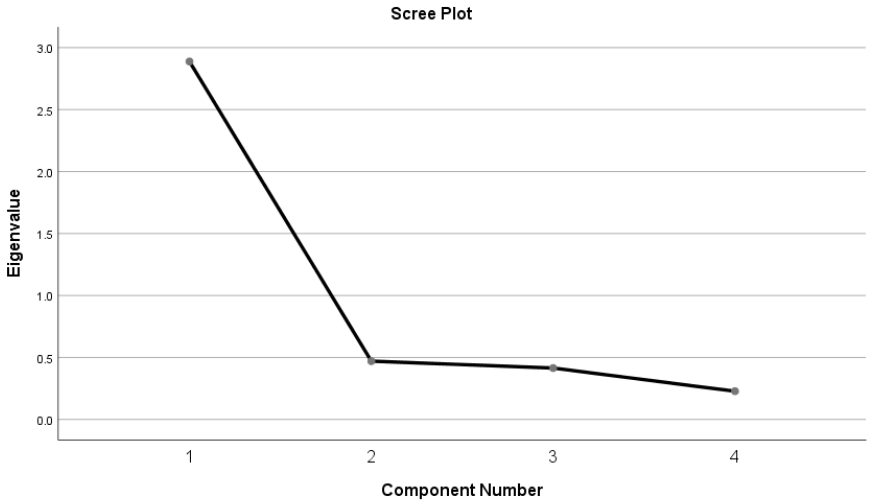

Figure 5.Scree plot for Employee Wellness Programme (EWP)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 31. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for no variables below 0.50. Higher communalities are desirable. If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the items are suitable and appropriate for using in constructing the single index Employee Wellness Programme (EWP). This means that none should be excluded from the indexation or construction of employee wellness programme.

Table 31.Communalities for Employee Wellness Programme (EWP)

	Initial	Extraction
EWP24	1.000	.647
EWP25	1.000	.750
EWP26	1.000	.807
EWP27	1.000	.684

Extraction Method: Principal Component Analysis.

Job Performance (JP1)

Table 32 presents a 5-point Likert scale system for the five items that are likely to assess Job Performance (JP1). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 4.0 and 4.3, which means that all the items are relevant for constructing an index entitled Job Performance (JP1). Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 33), which means that they appropriate for principal component analysis.

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Table 32.Descriptive Statistics for Job Performance (JP1)

	Mean	Std. Deviation	N
JP1_28	4.1228	.85651	391
JP1_29	4.1995	.89506	391
JP1_31	4.0997	.99113	391
JP1_32	4.2302	.83403	391
JP1_33	4.1893	.88578	391
Re_JP1_30	4.0179	1.27186	391

Table 33.Tests of Normality for Job Performance (JP1)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
JP1_28	.264	391	.000	.803	391	.000
JP1_29	.279	391	.000	.749	391	.000
JP1_30	.279	391	.000	.752	391	.000
JP1_31	.271	391	.000	.783	391	.000
JP1_32	.252	391	.000	.784	391	.000
JP1_33	.244	391	.000	.783	391	.000

a. Lilliefors Significance Correction

Table 34 presents the linear correlations of the five items that are likely to assess Job Performance (JP1), all the bivariate correlations having a very weak to moderate relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct Job Performance (JP1) index without related redundancy, with the exception of JP1 28 and JP1 29, and JP1 29 and JP1 32. Hence further analysis is needed to assess whether those subscales should be excluded from the index-construction.

Table 34.Correlation Matrix for Job Performance (JP1)

		JP1_28	JP1_29	JP1_31	JP1_32	JP1_33	Re_JP1_30
Correlation	JP1_28	1.000	.644	.402	.574	.510	.087
	JP1_29	.644	1.000	.420	.622	.521	.116
	JP1_31	.402	.420	1.000	.521	.446	.096
	JP1_32	.574	.622	.521	1.000	.569	.107
	JP1_33	.510	.521	.446	.569	1.000	.045
	Re_JP1_30	.087	.116	.096	.107	.045	1.000
Sig. (1-tailed)	JP1_28		.000	.000	.000	.000	.042
	JP1_29	.000		.000	.000	.000	.011
	JP1_31	.000	.000		.000	.000	.029
	JP1_32	.000	.000	.000		.000	.017
	JP1_33	.000	.000	.000	.000		.189
	Re_JP1_30	.042	.011	.029	.017	.189	

a. Determinant = .135

Table 35 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.847, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 35.KMO and Bartlett's Test for Job Performance (JP1)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.847
Bartlett's Test of Sphericity	Approx. Chi-Square	774.918
	df	15
	Sig.	<0.0001

The Total Variance Explained is presented Table 36. The findings revealed that only one component had an eigenvalue exceeding 1 (explaining 52.044% of the variance). The Scree plot revealed a clear break after one component, after which the graph flattens (Figure 6). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

Table 36.Total Variance Explained for Job Performance (JP1)

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	3.123	52.044	52.044	3.123	52.044	52.044
2	.986	16.438	68.482			
3	.659	10.987	79.469			
4	.501	8.348	87.817			
5	.392	6.532	94.349			
6	.339	5.651	100.000			

Extraction Method: Principal Component Analysis.

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ISSN: 2581-3587

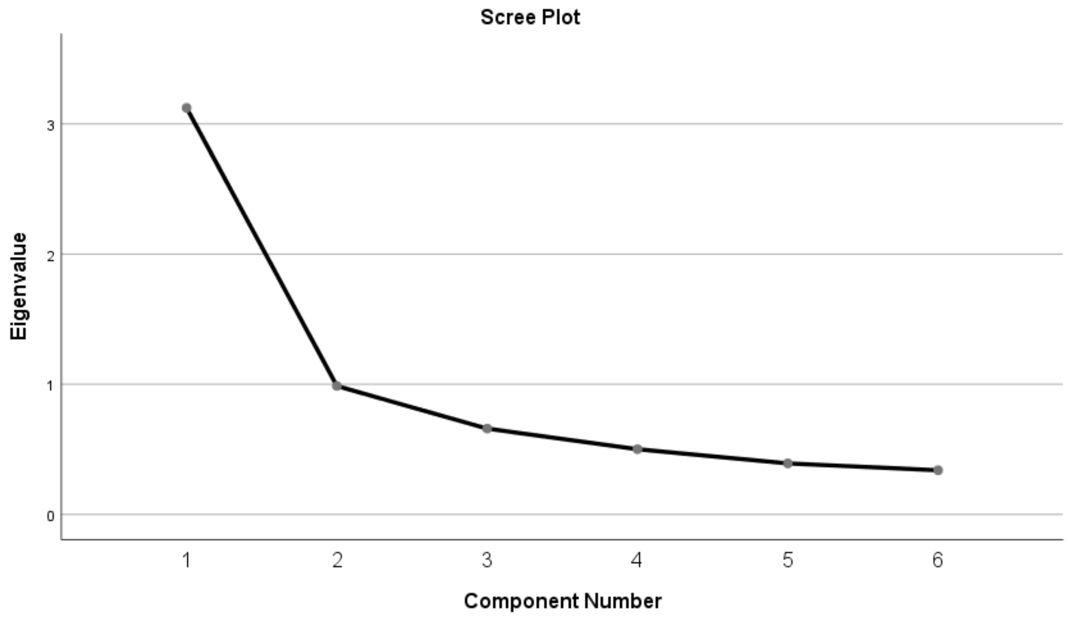

Figure 6.Scree plot for Job Performance (JP1)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 37. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for no variables below 0.50. Higher communalities are desirable. If the communality for two variables being less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence the items are suitable and appropriate for using in constructing the single index Job Performance (JP1). This means that none should be excluded from the indexation or construction of Job Performance.

Table 37.Communalities for Job Performance (JP1)

	Initial	Extraction
JP1_28	1.000	.640
JP1_29	1.000	.678
JP1_31	1.000	.476
JP1_32	1.000	.709
JP1_33	1.000	.591
Re_JP1_30	1.000	.028

Extraction Method: Principal Component Analysis.

Job Productivity (JP2)

Table 38 presents a 5-point Likert scale system for the 20 items that are likely to assess Job Productivity (JP2). Descriptive statistics (i.e., mean and standard deviation) for the five items ranged between 2.5 and 4.2, which means that all the items are relevant for constructing an index entitled Job Productivity (JP2). Normality test were conducted on all the variables and it was revealed that all them were normally distributed (see Table 39), which means that they appropriate for principal component analysis.

Table 38.Descriptive Statistics for Job Productivity (JP2)

	Mean	Std. Deviation	N
JP2_34	4.1158	.84233	380
JP2_35	3.9263	1.01433	380
JP2_36	3.7421	1.04355	380
JP2_37	2.7553	1.35343	380
JP2_38	4.0395	1.01494	380
JP2_39	4.1184	1.02176	380
JP2_40	4.1079	.89055	380
JP2_41	3.6763	1.04413	380
JP2_42	3.9553	.91056	380
JP2_43	3.8579	1.03287	380
JP2_44	4.0184	.98387	380
JP2_45	4.0500	.91318	380
JP2_46	3.0632	1.30200	380
JP2_47	2.9974	1.24026	380
JP2_48	3.4526	1.30974	380
JP2_49	4.1000	.89295	380
JP2_50	3.5579	1.25162	380
JP2_51	4.0789	.84970	380
JP2_52	4.0158	.94980	380
JP2_53	2.6184	1.52868	380

Table 39.Tests of Normality for Job Productivity (JP2)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
JP2_34	.240	380	.000	.825	380	.000
JP2_35	.276	380	.000	.828	380	.000
JP2_36	.263	380	.000	.861	380	.000
JP2_37	.179	380	.000	.885	380	.000
JP2_38	.245	380	.000	.807	380	.000
JP2_39	.264	380	.000	.775	380	.000
JP2_40	.273	380	.000	.796	380	.000
JP2_41	.245	380	.000	.874	380	.000
JP2_42	.314	380	.000	.803	380	.000

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JP2_43	.297	380	.000	.821	380	.000
JP2_44	.250	380	.000	.819	380	.000
JP2_45	.257	380	.000	.826	380	.000
JP2_46	.193	380	.000	.902	380	.000
JP2_47	.191	380	.000	.905	380	.000
JP2_48	.233	380	.000	.872	380	.000
JP2_49	.266	380	.000	.808	380	.000
JP2_50	.204	380	.000	.874	380	.000
JP2_51	.263	380	.000	.818	380	.000
JP2_52	.262	380	.000	.816	380	.000
JP2_53	.208	380	.000	.835	380	.000

a. Lilliefors Significance Correction

Table 40 presents the linear correlations of the five items that are likely to assess Job Productivity (JP2), all the bivariate correlations having a very weak to moderate relationship. Based on the values for the bivariate statistical correlations, it can be concluded that each item measures a different concept indicating that the items are good construct Job Productivity (JP2) index without related redundancy, with the exception of JP2 34 and JP2 35. Hence further analysis is needed to assess whether those subscales should be excluded from the index-construction.

Table 40.Correlation Matrix for Job Productivity (JP2) (end of the paper)

Table 41 presents values for Kaiser-Myer-Oklin test. The Kaiser-Myer-Oklin value was 0.827, exceeding the recommended value of 0.6 (Kaise, 1958, 1960, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1950, 1954) reached statistical significance (< 0.0001), supporting the factorability of the correlation matrix. It follows, therefore, that the data are suitable for principal component analysis (PCA) as it can be deduced that the reject the null hypothesis that there is insufficient correlation between the variables for PCA.

Table 41.KMO and Bartlett's Test for Job Productivity (JP2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.827
Bartlett's Test of Sphericity	Approx. Chi-Square	2795.766
	df	190
	Sig.	<0.0001

The Total Variance Explained is presented Table 42. The findings revealed that 6 components had an eigenvalue exceeding 1 (explaining 65.964% of the variance). The Scree plot revealed a clear break after the sixth component, after which the graph flattens (Figure 7). This means the items fall below this break can be discarded or approached with caution in the analysis. Components table shows the loading of each factor on the component, suggesting that only one component should be extracted.

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Table 42.Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.687	28.433	28.433	5.687	28.433	28.433	4.681
2	2.111	10.553	38.986	2.111	10.553	38.986	3.498
3	1.715	8.574	47.559	1.715	8.574	47.559	3.432
4	1.451	7.254	54.814	1.451	7.254	54.814	2.107
5	1.184	5.919	60.733	1.184	5.919	60.733	2.359
6	1.046	5.231	65.964	1.046	5.231	65.964	1.598
7	.880	4.402	70.367				
8	.709	3.546	73.913				
9	.667	3.335	77.248				
10	.654	3.269	80.518				
11	.552	2.762	83.279				
12	.512	2.558	85.837				
13	.502	2.508	88.345				
14	.427	2.135	90.480				
15	.419	2.094	92.574				
16	.374	1.870	94.444				
17	.346	1.732	96.176				
18	.281	1.407	97.583				
19	.264	1.319	98.903				
20	.219	1.097	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

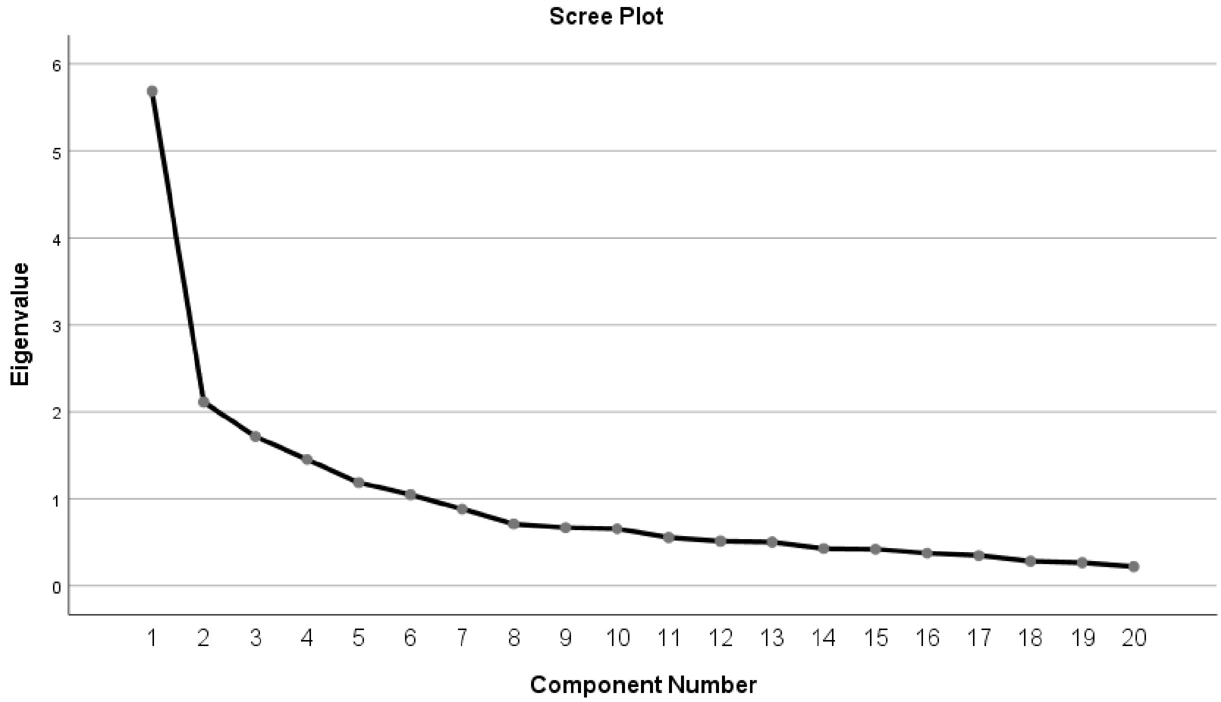

Figure 7.Scree plot for Job Productivity (JP2)

Communalities show the number of items accounted for in the component captured by each variable, which are captured in Table 43. That is, how many of the variance in each of the original variables is explained by the extracted factors. The Table of Communalities for this analysis shows communalities for no variables below 0.50. Higher communalities are desirable. If the communality for a variable is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original variable, and the explanatory power of that variable might be better represented by the individual variable. Hence all the items are suitable and appropriate for using in constructing the single index Job Productivity (JP2). This means that none should be excluded from the indexation or construction of Job Productivity.

A conclusion that can be had by way of factor analysis is that all the items are suitable and appropriate for the construction of relevant scale (occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), job productivity (JP2), and job performance (JP1)). Therefore, the aforementioned constructs will be used to for further statistical analysis as they can provide insights into indexed scale.

Table 43.Communalities for Job Productivity (JP2)

	Initial	Extraction
JP2_34	1.000	.692
JP2_35	1.000	.733
JP2_36	1.000	.617
JP2_37	1.000	.673
JP2_38	1.000	.339
JP2_39	1.000	.590
JP2_40	1.000	.568
JP2_41	1.000	.678
JP2_42	1.000	.800
JP2_43	1.000	.811
JP2_44	1.000	.589
JP2_45	1.000	.634
JP2_46	1.000	.849
JP2_47	1.000	.843
JP2_48	1.000	.605
JP2_49	1.000	.609
JP2_50	1.000	.670
JP2_51	1.000	.610
JP2_52	1.000	.540
JP2_53	1.000	.743

Extraction Method: Principal Component Analysis.

Research Question Number 1

To what extent do employees at the meat-producing company perceive that occupational health and safety standards are being adhered to, and support their job performance and productivity?

Table 44 presents descriptive statistics on selected constructs that will be used to answer the previously mentioned research question. Based on the mean value for each variable (occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), and employee wellness programme (EWP), it can be concluded that there is strong occupational health and safety standards at the particular organizations. In fact, employees believed that there is high degree of occupational hazards prevention mechanics at the studied company (4.0599±0.67298, 95%CI: 3.9931-4.1268).

Table 44.Reliability analysis of scales

Details	Mean±SD	CI: 95%
Occupational Hazards Prevention (OHP)	4.0599±0.67298	3.9931-4.1268
Organizational Safety Supports (OSS)	3.7343±0.73071	3.6618-3.8069
Safety and Health Rules (SAHR)	3.7284±0.73392	3.6555-3.8013
Safety Procedure and Risk Management (SPRM)	3.5950±0.83198	3.5124-3.6776
Employee Wellness Programme (EWP)	3.5019±0.98584	3.4040-3.5998

Research Question Number 2

Is there a relationship between occupation health and safety programmes and employees' productivity?

Table 45 presents bivariate statistical correlations for occupational health and safety programmes, and job performance as well as job productivity for a study organization. Based on the Pearson's bivariate correlations matrix, positive statistical correlations existed between each occupational health and safety variables and job performance as well as job productivity ($P < 0.05$). In fact, a moderate statistical relationship emerged between 1) occupational hazards prevention programme and job performance (r_{xy}=0.516, $P < 0.001$) and 2) occupational hazards prevention programme and job productivity (r_{xy}=0.485, $P < 0.001$). However, weak direct statistical correlations existed between occupational safety supports and 1) job performance (r_{xy}=0.329, $P < 0.001$) and 2) job productivity (r_{xy}=0.413, $P < 0.001$). On the other hand, a moderate positive correlation emerged between safety and health rules and job productivity (r_{xy}=0.512, $P < 0.001$). In addition, a direct statistical correlation existed between job performance and job productivity (r_{xy}=0.477, $P < 0.001$).

Many deductions can be made from the aforementioned findings as occupational health and safety measures have a direct influence on increasing 1) job performance and 2) job productivity as the studied company.

Table 45.Pearson's Product Moment Correlations of Occupational Health and Safety programmes as well as job productivity and performance

		OHP Index	OSS Index	SAHR Index	SPARM Index	EWP Index	JP1 Index	JP2 Index
OHP Index	Pearson Correlation	1	.593**	.569**	.604**	.545**	.516**	.485**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	395	393	393	392	392	395	395
OSS Index	Pearson Correlation	.593**	1	.606**	.515**	.424**	.329**	.413**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	393	393	393	392	392	393	393

SAHR Index	Pearson Correlation	.569**	.606**	1	.612**	.519**	.363**	.492**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	393	393	393	392	392	393	393
SPARM Index	Pearson Correlation	.604**	.515**	.612**	1	.615**	.375**	.512**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	392	392	392	392	392	392	392
EWP Index	Pearson Correlation	.545**	.424**	.519**	.615**	1	.251**	.489**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	392	392	392	392	392	392	392
JP1 Index	Pearson Correlation	.516**	.329**	.363**	.375**	.251**	1	.477**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	395	393	393	392	392	395	395
JP2 Index	Pearson Correlation	.485**	.413**	.492**	.512**	.489**	.477**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	395	393	393	392	392	395	395

**Correlation is significant at the 0.01 level (2-tailed).

Research Question Number 3

Do employees at the meat-producing company believe that they are satisfactorily performing their jobs and having the relevant support/systems to be productive?

In order to answer the aforementioned research question, descriptive statistics were done for job performance and job productivity (see Table 46). With the mean value for each variable being 3.7 and 4.1, it can be concluded that sampled respondents believed that their performance and productivity are very high.

Table 46.Descriptive statistics for job performance and productivity

Details	Mean±SD	CI: 95%
Job Performance (JP1)	4.1440±.64197	4.0802-4.2077
Job Productivity (JP2)	3.7133±.53268	3.6604-3.7661

For this section of the study, we will test the hypothesis that is expressed in equation [1]:

JP2= f(OHP, OSS, SAHR, SPRM, EWP, JP1)…………………………………….………………..[1]

where job productivity (JP2), occupational hazards prevention (OHP), organizational safety supports (OSS), safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), and job performance (JP1)

Ordinary Least Square (OLS) regression analysis was used to model the selected occupational health and safety programmes and their influence on job productivity among a group of sampled respondents. The five selected occupational health and safety programme variables and job performance can be linearly used to model job productivity (F[6.385]=46.772, P <0.0001), with four of the six variables accounting (employees' wellness, safety and health rules, and safety procedures and risk management) for 41.3 per cent of the variance in job productivity (adjusted R^2=0.413).

Table 47.OLS regression analysis of selected occupational health and safety programmes and their influence on job productivity (end of the paper)

Table 47 allows for examining the individual contribution of each significant factors influencing job productivity. Using stepwise regression, it was determined that safety procedure and risk management programmes contribute the most to job productivity (r=26.2%) followed by job performance (r=9.6%), employee wellness programme (r=4.5%), and lastly by safety and health rules (r=1.6%). Based on OLS regression (Table 46), it can be deduced that occupational hazards prevention and occupational safety supports programme do not significantly contribute to changes in job productivity for the studied respondents (P > 0.05).

Table 48.OLS regression model summary of selected occupational health and safety programmes and their influence on job productivity, n=391

Model	R	R Square	Adjusted R Square	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
Safety Procedure & Risk Management	.512[a]	.262	.260	0.262	138.274	1	390	.000	
Job performance	.598[b]	.358	.355	0.096	58.406	1	389	.000	
Employee Wellness Programme	.635[c]	.403	.399	0.045	29.464	1	388	.000	
Safety & Health rules	.648[d]	.419	.413	0.016	10.698	1	387	.001	1.671

International Journal of Humanities & Social Science: Insights & Transformations
Vol. 5, Issue 1 – 2020
ISSN: 2581-3587

Testing the Assumptions of Linear Regression

Normality

Figure 8 shows that six (6) independent variables are normally distributed in the linear model

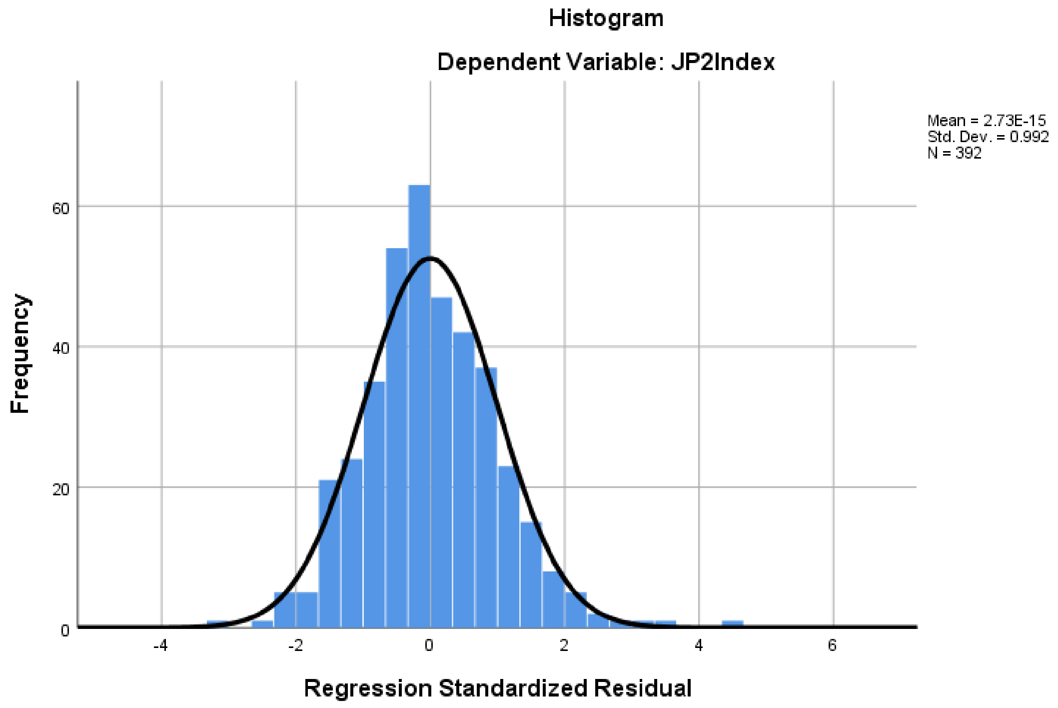

Figure 8.Frequency of regression standardized residual

Tests of Normality						
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
OHPIndex	.119	392	.000	.924	392	.000
OSSIndex	.099	392	.000	.960	392	.000
SAHRIndex	.126	392	.000	.965	392	.000
SPARMIndex	.092	392	.000	.975	392	.000
EWPIndex	.124	392	.000	.945	392	.000
JP1Index	.108	392	.000	.928	392	.000
JP2Index	.052	392	.014	.989	392	.004

a. Lilliefors Significance Correction

Linearity

Figure 9 shows that the dependent variable is a linear variable.

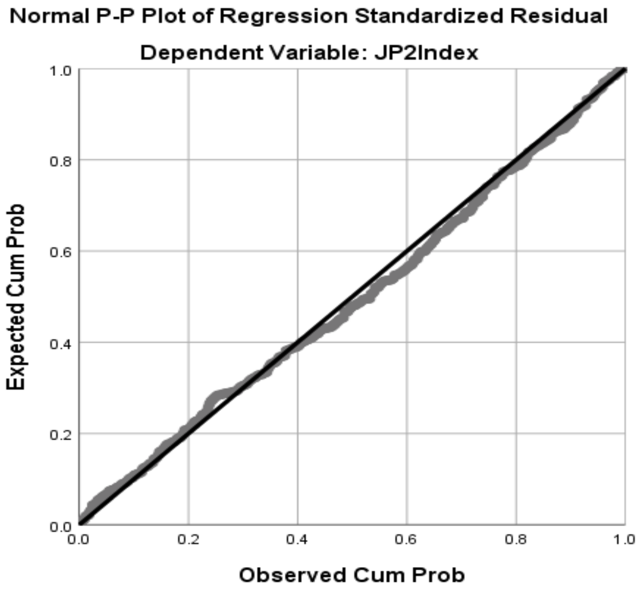

Figure 9.Linearity of the dependent variable

It can be deduced from Figure 10 that normality and linear were adhered to and that a linear model can be built for this work.

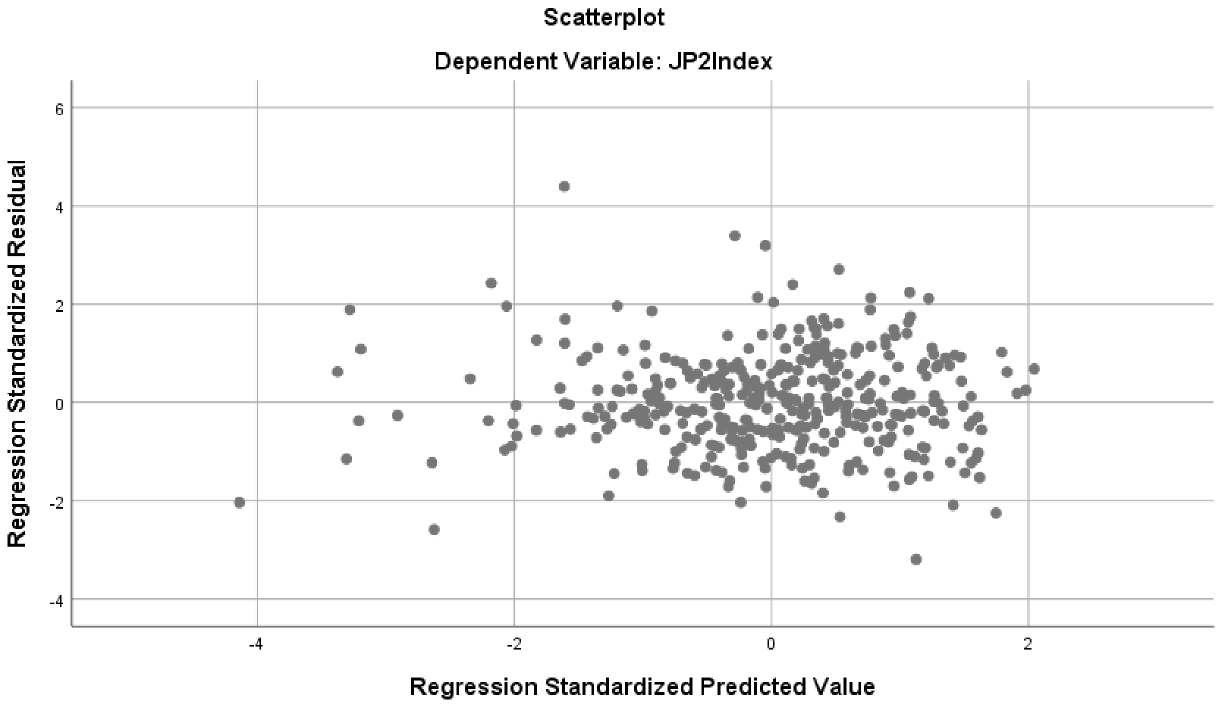

Figure 10.Normality and Linearity

In concluding, the job productivity model is expressed in equations [2] and [3], below:

JP2= β_0 + (SAHR) + (SPRM) + (EWP) + (JP1)……………………..……………………….[2]

JP2= 1.377 + 0.102 (SAHR) + 0.089 (SPRM) + 0.121(EWP) + 0.243 (JP1)…………..…..[3]

where job productivity (JP2), occupational hazards prevention (Safety and health rules (SAHR), safety procedure and risk management (SPRM), employee wellness programme (EWP), and job performance (JP1).

Discussion, Conclusion, and Recommendations

Research Question 1

To what extent do employees at the meat-producing company perceive that occupational health and safety standards are being adhered to, and support their job performance and productivity?

Many manufacturing businesses subscribe to International Labour Organizations standards simply because they protect the worker from physical and psychological harm while at work. The matter of physical and psychological harms is reality as the International Labour Organization (2013) estimates that approximately 2.2 million workers die every year as a result of work-related injury. Of the 2.2 million, 350 thousand of these deaths are due to accidents and the rest due to occupational illness and accidents. This denotes that occupational hazards are a part of the work relations, and as such people must be safeguarded from the possibilities from these harms. Findings from the current study revealed that occupational hazards are highly apart of the apparatus of studied company as well as safety and health measures in an effort to mitigate against the likelihood of occupational hazards. A critical finding that emerged from the present study is that there is high employee wellness programme, safety procedure and risk management guidelines that are institute to reduce and possible nullify occupational hazards.

The high degree of occupational and safety procedures and apparatuses that have been implemented in the studied company is a clear indication of the importance management placed on safety at the workplace. When Brown (1996) and Pagell et al. (2013) postulated that safety should be considered an operational priority in addition to cost, quality, flexibility, delivery and innovation, there is no doubt that this is the case at the studied company. The deduction of management’s priority in occupational safety can be had from the findings who workers believed that there is a high degree of occupational safety and health measures housed and implemented at the company.

Undoubtedly the importance placed on occupational health and safety at the studied company speak to the degree of protection available and use at this company. Safety measures can prevent accidents and ensure regular flow of work thereby improving employee morale and productivity (Naidoo & Willis, 2002), which is what obtained in this business. Although this study did not objectively assess job productivity or performance, the instrument used to evaluate both concepts is sufficient to determine productivity and performance. For this study, job performance was 4.1440±.64197, 95% CI: 4.0802-4.2077 out of 5.0 and 3.7133±. 53268, 95%CI: 3.6604-3.7661 out of 5.0 for job productivity. The work atmosphere is set by management to produce high productivity and performance of workers. Katsuro et. al (2010) opined that bad occupational health and safety practices in food factories decrease workers' performance leading to the decline of productivity, which explains the high productivity among workers in the studied organization. The matter is simple, workers in the studied company are producing at a high level based on the atmosphere, policies, and safety procedures instituted at the company. Furthermore, Katsuro et. al (2010) stated that a worker who suffers from an occupational illness is slower and weaker which resulted in targets not being met, which is equally true for workers who are in a safety and healthy work milieu (Nutbeam, 1990). Nutbeam, (1990) indicated that it requires far more than reducing the number of job-related accidents in order to effectively manage workplace safety and health, and this explains the volume of work that has been done by management at the studied company.

Research Question 2

Is there a relationship between occupation health and safety programmes and employees' productivity?

The issue of a relationship between occupational health and safety programme and productivity is answered in the current study as well as those in the literature. Cassio (2004) and Kerr (1954) believed that the growing loss and suffering caused by occupational ill-health and diseases from many employment sectors around the world explain why employers are required to eliminate hazardous source, implement measures to prevent worker exposure, provide protective gears among other strategies to avoid occupational hazard, and provide some context for relationship between a safety work environment and job productivity.

Naidoo & Willis (2002) were of the view that safety measures can prevent accidents and ensure regular flow of work thereby improving employee morale and productivity. From another perspective, McCunney (2001) indicated that the primary benefit to be derived from occupational health and safety on productivity is reduced absenteeism. It can be deduced from McCunney's perspective that a safety work milieu is directly associated with work attendance as by extension productivity. The association between employees' health and job performance was examined by Sommers-Krause (2007) who found 1) an inverse statistical inverse relationship between stress and job performance, and 2) that employees who experienced more stress were less likely to perform at a high level compared to those who were less stressed.

The present study went further in the examination of job productivity and occupational health and safety by disaggregating the various subcomponent of occupational health and safety as an examination of job performance and productivity as well as provide the strengths of these relationships. For this research, Pearson's bivariate correlations matrix a positive statistical correlation between each occupational health and safety variables and job performance as well as job productivity ($P < 0.05$). In fact, a moderate statistical relationship emerged between 1) occupational hazards prevention programme and job performance (r_{xy}=0.516, $P < 0.001$) and 2) occupational hazards prevention programme and job productivity (r_{xy}=0.485, $P < 0.001$). However, weak direct statistical correlations existed between occupational safety supports and 1) job performance (r_{xy}=0.329, $P < 0.001$) and 2) job productivity (r_{xy}=0.413, $P < 0.001$). On the other hand, a moderate positive correlation emerged between safety and health rules and job productivity (r_{xy}=0.512, $P < 0.001$). In addition, a direct statistical correlation existed between job performance and job productivity (r_{xy}=0.477, $P < 0.001$). In summary those findings concur with the literature (Lamm et al., 2006; Abad et al., 2013; Gahan, Sievewright and Evan, 2014; Nabi et al., 2017).

Lamm et al (2006) postulated that there is increasing and compelling evidence that providing a healthy and safe working environment had the potential to increase labour productivity which resulted in the increase in business profits. This study goes further than indicating a potential of increased productivity from healthy and safe work environment to empirical evidence to support a definite position on the matter. In fact, from low-to-moderate statistical relationship existed between selected sub-components of occupational health and safety and productivity as well was performance. In fact, Sommers-Krause (2007) found a direct statistical correlation employees' wellness and job performance, which concurred by this study. In fact, this study goes further by indicating the extent of the contribution of employees' wellness on productivity. The present findings revealed that four of the six variables (employees' wellness, safety and health rules, and safety procedures and risk management) accounted for 41.3 per cent of the variance in job productivity (adjusted R^2=0.413), employees' wellness contributing 4.5%, safety procedure and risk management (26.0%), job performance (9.6%), and safety and health rules (1.6%). Undoubtedly a safety and healthy work environment significantly contribute to a highly productive labour force.

Research question three

Do employees at the meat-producing company believe that they are satisfactorily performing their jobs and having the relevant support/systems to be productive?

In order to answer the previously mentioned research question, issues such as a self-evaluation of job performance and productivity, and occupational health and safety factors of productivity. Within the context that workers indicated a high degree of productivity (4.1440±.64197, out of 5) and performance (3.7133±.53268, out of 5), it can be deduced that those findings that they are satisfactorily performing their tasks/assignments. And that the high degree of satisfaction is explained by the health and safety support offered by the company (41.3 per cent of the variance in job productivity (adjusted R^2=0.413) are explained by occupational health and safety factors). A deduction that can be made from the aforementioned finding is that almost half of the explanation for changes in productivity is accounted for by occupational health and safety factors.

So, when Armstrong, (2006) indicated that managers, supervisors and employees need to be trained in occupational health and safety policies and procedures, the rationale is simply they contribution to job productivity (43%). If 43% of the changes in job productivity is accounted for by occupational health and safety factors, these factors hold a pivotal role in the success or failure of a company. Clearly managers, supervisors, and workers, are cognizant of the value of occupational health and safety at the studied company's going concern. This is captured in high valuations for occupational hazards prevention (4.0599±0.67298, out of 5), and organizational safety supports (3.7343±0.73071, out of 5.0). However, both variables when placed into a single model of job performance along with other occupational health and safety features, they were not found to be determinants. Those findings contradict the literature (Kerr, 1954; Cassio, 2004; Health and Safety Executives, 2008) and currently there is no argument to explain this situation.

Conclusion

Occupational health and safety procedures hold a crucial role in the success of a company. These issues are not merely meeting international standards instituted by the International Labour Organizations; but they are social and economic good for an organization. The argument that health and safety is wealth cannot be discounted here. In fact, healthy and safe employees are good for business and offers an explanation of the success and failure of some institutions.

Recommendations

Many issues evolved from this study and there are still some questions left unanswered, which is there recommendations come in. The researchers are recommending further studies in 1) the area of occupational hazards prevention and organizational safety supports, and 2) whether the factors identified in this study are the same across other sectors in Jamaica.

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International Journal of Humanities & Social Science: Insights & Transformations
Vol. 5, Issue 1 – 2020
ISSN: 2581-3587

Appendix A: Questionnaire

University of the Commonwealth Caribbean

Occupation Health & Safety, and Productivity Survey (OHSPS)

Instruction

The OHSPS is comprised of 53 close ended items. We solicit your assistance in completing the items as this will provide the University with critical information to be used for your betterment. You may place a tick or any other marker to indicate your response to an item. There is no correct answer and so you may feel free to indicate your response to each item. Your name is not required, which means there is no need to place a personal identifier). Respondents are kept anonymous and responses are held with the highest level of confidentiality.

SECTION I: Occupation Health & Safety, and Productivity Survey (OHSPS)

where **SD** is Strongly Disagree; **D** is Disagree; **N** is Neutral; **A** is Agree; and, **SA** is Strongly Agree.

Particulars	**SD**	**D**	**N**	**A**	**SA**
Occupational hazards prevention (OHP)					
1. Workers assigned to hazardous tasks use safety glasses, helmets, boots, gloves, masks, jumpsuits and shoes in my organization.					
2. Only those with the necessary equipment and training and who are specifically assigned workers have access to hazardous places in my organization					
3. Workers assigned to hazardous tasks are regularly monitored via internal audits to see whether they follow instructions and procedures set for workers' health and safety in my organization.					
4. Deficiencies and mistakes revealed during internal audits for safety and health are monitored and removed.					
5. There is appropriate lay-out and lighting in the organization where I work.					
6. Waste is disposed of in appropriate and effective ways in the organization where I work.					
7. There are health and safety devices in my workplace.					
Organizational Safety Supports (OSS)					
8. Adequate and timely medical treatment is provided in my organization where required.					
9. Sufficient time is granted for a worker to recover in the event of					

an accident.					
10. Adequate compensation is paid in case of injury.					
11. Occupational safety regulations are followed in my organization.					
12. Due care is shown in my organization regarding the privacy of workers' medical records.					
Safety and health rules (SAHR)					
13. Workers are given adequate break time during working hours in my organization.					
14. Safety rules are always practical in my organization.					
15. Health examination is made in my organization prior to employment.					
16. Conditions threatening health and safety are removed as much as it is possible in my organization.					
17. My organization takes into consideration the situation of groups that require special needs example elderly or disabled.					
Safety procedures and risk management (SPRM)					
18. Workers are informed about changes in division of labor in my organization.					
19. Probable risks and results are defined in my organization.					
20. Written work procedures are compliant with practice in my organization.					
21. Workers can easily recognize the relevant procedure of each task in my organization.					
22. There is adequate number of employees in my organization to do the necessary work.					
23. Workload is reasonably distributed in my organization.					
Employee wellness Programs (EWP)					
24. Wellness programs improve employees' health and reduce illnesses.					
25. The company has a wellness program.					
26. The program has increased workers productivity.					
27. Wellness programs reduce absenteeism and decrease accidents in my organization.					
Job Performance (JP1)					
28. I always complete my tasks involved in my job description in my workplace.					
29. I fulfill my responsibilities as required by my job.					
30. I am not successful in fulfilling my basic tasks.					
31. I don't neglect the tasks as required by my job.					
32. I fulfill the formal tasks as required by my job.					

33. I understand clearly how occupational health and safety standards impact my job performance.					
Job Productivity (JP2)					
34. I have clear goals and objectives for my job.					
35. My supervisor/manager discusses what is expected of me.					
36. My work objectives are reasonable.					
37. My work objectives are outside the scope of my job function.					
38. I am open to do work that is outside of my job function as an opportunity for growth					
39. As an employee, I feel encouraged to keep striving for excellence.					
40. I usually complete my assigned tasks on time.					
41. My supervisor/manager gives me constant feedback on projects/assignment.					
42. I know if my work positively impacts my team members					
43. I know if my work negatively impacts my team members					
44. I am present at work at the designated time, agreed to in my contract.					
45. I dedicate all my time within the workday to execute my work activities					
46. I do a monthly report on my performance at work					
47. I am required by my supervisor/manager to report on my performance monthly					
48. I usually take one (1) hour for lunch per day.					
49. I work with urgency in completing work assignments.					
50. High performance is adequately rewarded or recognized at my organization.					
51. My performance on the job is constantly improving.					
52. Occupational health and safety standards support my job performance and productivity.					
53. Occupational health and safety standards impede my productivity					

International Journal of Humanities & Social Science: Insights & Transformations
Vol. 5, Issue 1 – 2020
ISSN: 2581-3587

Table 40.Correlation Matrix for Job Productivity (JP2)

Correlation Matrix[a]																					
		JP2_34	JP2_35	JP2_36	JP2_37	JP2_38	JP2_39	JP2_40	JP2_41	JP2_42	JP2_43	JP2_44	JP2_45	JP2_46	JP2_47	JP2_48	JP2_49	JP2_50	JP2_51	JP2_52	JP2_53
Correlation	JP2_34	1	0.615	0.559	0.043	0.374	0.459	0.486	0.448	0.272	0.095	0.258	0.325	0.08	0.013	0.127	0.356	0.289	0.4	0.331	-0.019
	JP2_35	0.615	1	0.575	0.037	0.321	0.523	0.368	0.625	0.225	0.078	0.107	0.209	0.117	0.13	0.166	0.288	0.315	0.236	0.352	-0.085
	JP2_36	0.559	0.575	1	0.011	0.299	0.437	0.385	0.441	0.318	0.164	0.223	0.266	0.195	0.177	0.061	0.22	0.264	0.264	0.337	-0.017
	JP2_37	0.043	0.037	0.011	1	0.036	-0.006	-0.002	0.03	0.113	0.058	0.087	0.025	0.253	0.245	0.024	0.025	0.132	0.047	0.091	0.396
	JP2_38	0.374	0.321	0.299	0.036	1	0.367	0.325	0.266	0.313	0.184	0.293	0.18	0.09	0.044	0.157	0.261	0.136	0.253	0.259	-0.002
	JP2_39	0.459	0.523	0.437	-0.006	0.367	1	0.459	0.499	0.355	0.133	0.252	0.211	0.08	0.023	0.037	0.27	0.276	0.217	0.338	-0.099
	JP2_40	0.486	0.368	0.385	-0.002	0.325	0.459	1	0.316	0.364	0.203	0.431	0.386	0.124	0	0.157	0.391	0.218	0.303	0.301	-0.008
	JP2_41	0.448	0.625	0.441	0.03	0.266	0.499	0.316	1	0.298	0.204	0.116	0.258	0.234	0.256	0.283	0.318	0.46	0.32	0.426	-0.068
	JP2_42	0.272	0.225	0.318	0.113	0.313	0.355	0.364	0.298	1	0.638	0.292	0.218	0.154	0.079	0.112	0.307	0.112	0.202	0.178	0.071

	JP2_43	0.095	0.078	0.164	0.058	0.184	0.133	0.203	0.204	0.638	1	0.254	0.153	0.181	0.099	0.022	0.199	0.037	0.112	0.07	0.096
	JP2_44	0.258	0.107	0.223	0.087	0.293	0.252	0.431	0.116	0.292	0.254	1	0.372	0.207	0.11	0.174	0.355	0.079	0.257	0.223	0.071
	JP2_45	0.325	0.209	0.266	0.025	0.18	0.211	0.386	0.258	0.218	0.153	0.372	1	0.23	0.14	0.202	0.44	0.206	0.444	0.206	-0.026
	JP2_46	0.08	0.117	0.195	0.253	0.09	0.08	0.124	0.234	0.154	0.181	0.207	0.23	1	0.744	0.167	0.11	0.328	0.131	0.236	0.131
	JP2_47	0.013	0.13	0.177	0.245	0.044	0.023	0	0.256	0.079	0.099	0.11	0.14	0.744	1	0.196	0.06	0.326	0.148	0.255	0.104
	JP2_48	0.127	0.166	0.061	0.024	0.157	0.037	0.157	0.283	0.112	0.022	0.174	0.202	0.167	0.196	1	0.291	0.39	0.25	0.372	0.069
	JP2_49	0.356	0.288	0.22	0.025	0.261	0.27	0.391	0.318	0.307	0.199	0.355	0.44	0.11	0.06	0.291	1	0.316	0.525	0.281	0.009
	JP2_50	0.289	0.315	0.264	0.132	0.136	0.276	0.218	0.46	0.112	0.037	0.079	0.206	0.328	0.326	0.39	0.316	1	0.425	0.514	0.047
	JP2_51	0.4	0.236	0.264	0.047	0.253	0.217	0.303	0.32	0.202	0.112	0.257	0.444	0.131	0.148	0.25	0.525	0.425	1	0.352	0.17
	JP2_52	0.331	0.352	0.337	0.091	0.259	0.338	0.301	0.426	0.178	0.07	0.223	0.206	0.236	0.255	0.372	0.281	0.514	0.352	1	0.021
	JP2_53	-0.019	-0.085	-0.017	0.396	-0.002	-0.099	-0.008	-0.068	0.071	0.096	0.071	-0.026	0.131	0.104	0.069	0.009	0.047	0.17	0.021	1
Sig. (1-tailed)	JP2_34		0	0	0.199	0	0	0	0	0	0.032	0	0	0.06	0.401	0.007	0	0	0	0	0.357
	JP2_35	0		0	0.237	0	0	0	0	0	0.064	0.018	0	0.011	0.006	0.001	0	0	0	0	0.05
	JP2_36	0	0		0.414	0	0	0	0	0	0.001	0	0	0	0	0.12	0	0	0	0	0.369

	JP2_37	0.199	0.237	0.414		0.243	0.456	0.484	0.282	0.014	0.129	0.046	0.314	0	0	0.321	0.316	0.005	0.182	0.038	0
	JP2_38	0	0	0	0.243		0	0	0	0	0	0	0	0.04	0.196	0.001	0	0.004	0	0	0.483
	JP2_39	0	0	0	0.456	0		0	0	0	0.005	0	0	0.061	0.326	0.238	0	0	0	0	0.026
	JP2_40	0	0	0	0.484	0	0		0	0	0	0	0	0.008	0.498	0.001	0	0	0	0	0.435
	JP2_41	0	0	0	0.282	0	0	0		0	0	0.012	0	0	0	0	0	0	0	0	0.094
	JP2_42	0	0	0	0.014	0	0	0	0		0	0	0	0.001	0.061	0.014	0	0.014	0	0	0.083
	JP2_43	0.032	0.064	0.001	0.129	0	0.005	0	0	0		0	0.001	0	0.027	0.332	0	0.236	0.014	0.088	0.031
	JP2_44	0	0.018	0	0.046	0	0	0	0.012	0	0		0	0	0.016	0	0	0.061	0	0	0.083
	JP2_45	0	0	0	0.314	0	0	0	0	0	0.001	0		0	0.003	0	0	0	0	0	0.307
	JP2_46	0.06	0.011	0	0	0.04	0.061	0.008	0	0.001	0	0	0		0	0.001	0.016	0	0.005	0	0.005
	JP2_47	0.401	0.006	0	0	0.196	0.326	0.498	0	0.061	0.027	0.016	0.003	0		0	0.122	0	0.002	0	0.022
	JP2_48	0.007	0.001	0.12	0.321	0.001	0.238	0.001	0	0.014	0.332	0	0	0.001	0		0	0	0	0	0.089
	JP2_49	0	0	0	0.316	0	0	0	0	0	0	0	0	0.016	0.122	0		0	0	0	0.433
	JP2_50	0	0	0	0.005	0.004	0	0	0	0.014	0.236	0.061	0	0	0	0	0		0	0	0.182
	JP2_51	0	0	0	0.182	0	0	0	0	0	0.014	0	0	0.005	0.002	0	0	0		0	0

	JP2_52	0	0	0	0.038	0	0	0	0	0	0.088	0	0	0	0	0	0	0	0		0.345
	JP2_53	0.357	0.05	0.369	0	0.483	0.026	0.435	0.094	0.083	0.031	0.083	0.307	0.005	0.022	0.089	0.433	0.182	0	0.345	

a. Determinant = .001

Table 47.OLS regression analysis of selected occupational health and safety programmes and their influence on job productivity, n=391

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics			
	B	Std. Error	Beta			Lower	Upper	Zero-order	Part	Tolerance	VIF
Constant	1.377	0.156		8.849	<0.0001	1.071	1.683				
JP1 Index	0.243	0.038	0.293	6.394	<0.0001	0.168	0.318	0.480	0.248	0.717	1.395
EWP Index	0.121	0.028	0.225	4.315	<0.0001	0.066	0.177	0.489	0.167	0.554	1.804
SPARM Index	0.089	0.037	0.139	2.416	0.016	0.017	0.161	0.512	0.094	0.456	2.191
SAHR Index	0.102	0.041	0.141	2.522	0.012	0.023	0.182	0.492	0.098	0.481	2.077
OSS Index	0.039	0.039	0.053	1.001	0.317	-0.037	0.114	0.413	0.039	0.537	1.863
OHP Index	0.015	0.047	0.019	.315	0.753	0-.077	0.107	0.487	0.012	0.428	2.338