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**FEBRUARY 2021**

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**WORKPLACE ERGONOMIC LIABILITIES AND INCREASE  
MORAL, REVENUE AND IMPROVING EFFICIENCY  
THROUGH MUSCULOSKELETAL AWARENESS**

## **Abstract**

This study is associated with the understanding of workplace ergonomics involved with the musculoskeletal disorders (MSD) and their importance of awareness. Significance of MSD awareness analysis is carrying out according to the consideration of organizational revenue and employee moral development as well as productivity improvement.

**Aim:** This study is associated with the aim and objective to define the organizational factors incorporated with musculoskeletal disorders and their impacts on productivity and revenue of the organization.

**Literature Review:** This section is involved with the secondary data analysis from relevant journal articles providing information regarding MSD awareness and their importance.

**Methodology:** This research methodology is involved with Positivism philosophy, deductive approach, and descriptive study design. Data collection and analysis based upon secondary data analysis associated with the relevant search strategy.

**Discussion:** Workplace environment is a major part of the employee work-life as well as the company's major asset. The heavy workforce or overtime creates hindrance in the employee efficiency of work. Long hour duties sitting in a particular position, or standing position or lifting a heavyweight creates musculoskeletal disorders on the employee as result the workforce decreases, their quality of work reduces which directly effects on the company growth and revenue. Ergonomic environment when introduce to the workstation helps to increase the workforce of employees, increases the quality and morality of the employee which directly helps the organization to grow in their annual performance.

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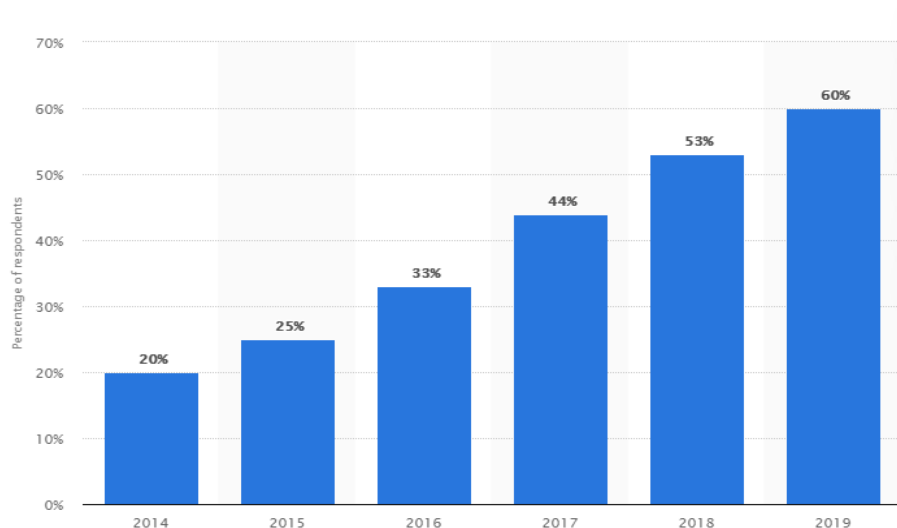
## Chapter 1: Introduction

### 1.1 Background

Musculoskeletal disorder (MSD) is a health hazard associated with workplace hazards. In this case, workplace ergonomics is an important aspect of workload management to improve the health condition that supports the work environment by controlling health implications. Workplace ergonomic liabilities are associated with the maintenance of muscle tensions at the time of extreme workload to keep the worker free from health hazard that helps to improve the working condition according to the increasing workforce.

### 1.2 Rationale

This study of working ergonomic liability at the workplace is an important area of developing industrial productivity as well as annual revenue by managing risk factors associated with the health condition of a worker.



**Figure 1: Percentage of U.S. employees provided with a standing desk as workplace ergonomics from 2014 to 2019**

(Source: Elflein, 2019)

Increasing awareness of MSD risk management at the workplace is supported by providing a standing desk in the U.S. at an increasing percentage of 60% in 2019 from 20% in 2014 (Elflein, 2019). MSD awareness is required to enhance the workflow by managing employment health hazard that ultimately supports the revenue and productivity of an organization.

### 1.3 Aim and objectives

#### Aim

This discussion aims to support the increasing awareness of MSD risk management at the workplace to support the revenue and increasing productivity of an organization.

#### Objective

- To define the factors related to MSD risks at the workplace
- To understand the importance of MSD affecting revenue and productivity of an organization
- To understand the importance of MSD awareness to reduce health hazards at the workplace

#### **1.4 Research questions**

- What are the factors related to MSD related health issues in the workplace?
- What are the complications associated with workplace ergonomic liabilities at the workplace?
- How does workplace ergonomics affect the revenue and productivity of a company?
- How does MSD awareness improve an organization's performance?

### **Chapter 2: Literature review**

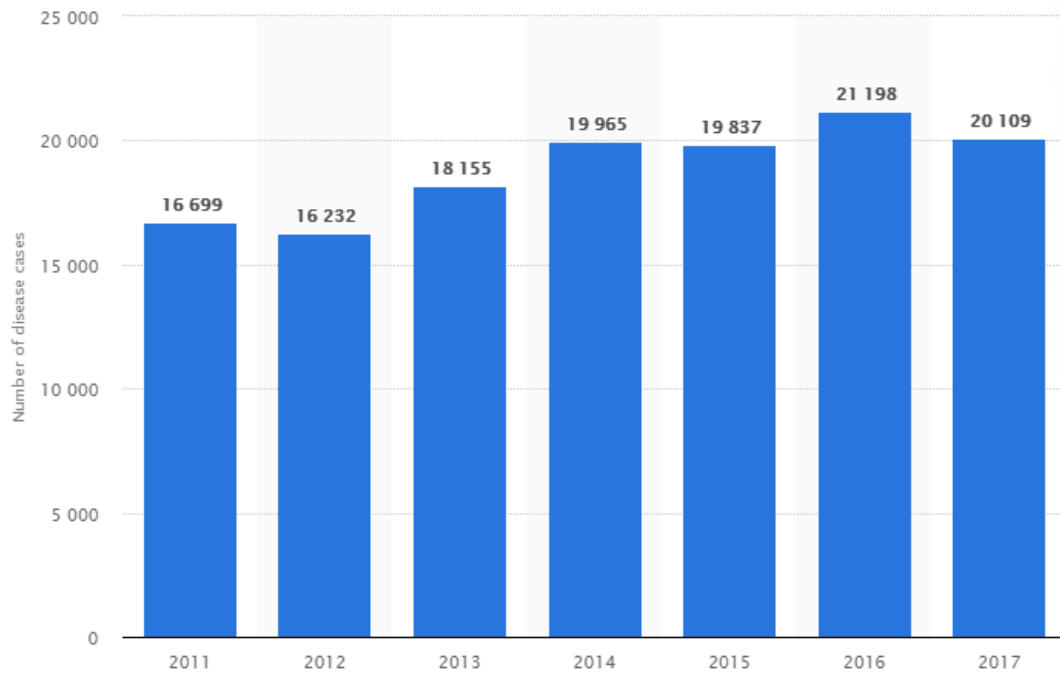
In this section of literature review is concerned with the analysis of relevant journal articles to reflect on the importance of workplace ergonomics to improve employee productivity, moral and revenue of an organization.

#### **2.1 Workplace ergonomics with age and gender**

Musculoskeletal strains are common risks involved with the workplace ergonomics define a serious health hazard. Abdullah *et al.* (2018) stated that musculoskeletal disorders and health risks vary in case of different genders and age groups. It has reported that the age group of 50 to 59 is more prevalent in case of increasing muscle tensions at the workplace. Moreover, Abdullah *et al.* (2018) also opined that muscle strain in the upper region has noticed more among female operators than that of the male at the production process. However, age groups and gender-related MSD risks are involved with the different operator stages are important to understand the requirement for workplace ergonomics.

#### **2.2 Work-related musculoskeletal disorder**

Besharati *et al.* (2020) opined that work-related stress and the working environment is responsible for resulting muscle pain and other musculoskeletal disorders. Liability assets of the organization are also responsible for the condition of health hazards such as musculoskeletal stress, neck pain, spinal cord related complications. Hoboubi *et al.* (2020) stated that mental stress resulted from the increasing workload in an industry is responsible for the condition of MSD. 75.8% of the workers reported to have MSD related issues due to the increasing factors of work-related mental pressure.



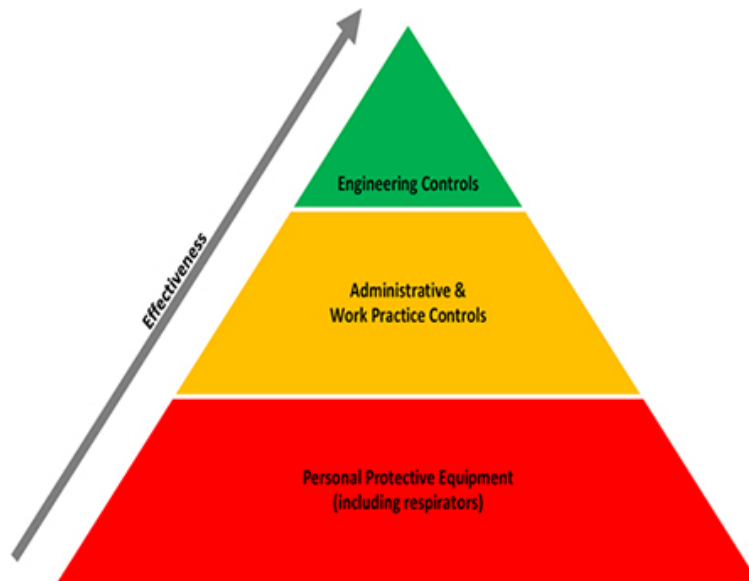
**Figure 2: Rate of Musculoskeletal disorder in an occupational area**

(Source: Stewart, 2020)

Industrial areas in Italy reported the increased rate of MSD in 2016 with the involvement of 21,198 people (Stewart, 2020). This graph represents the current trend of MSD related issues with increasing workload and importance of MSD awareness in the occupational area.

### **2.3 Workplace ergonomics associated with productivity**

As stated by Fasanya and Shofoluwe (2018), occupational ergonomics is the concerned matter related to an organization help to reduce the lower productivity rate of the employee. Occupational safety and health regulations defined in this journal with the importance of removing health hazards. Fasanya and Shofoluwe (2018) state factors related to worker's MSD situation decrease the overall productivity of an employee. This is an essential part of productivity affects the industrial production process. Moreover, Daneshmandi *et al.* (2017) highlighted the importance of risk management of MSD related issues among worker that directly affects the productivity of the employee. Daneshmandi *et al.* (2017) helps to improve the productivity rate by ergonomics at the workplace describe health regulations for workers. Improvement in the work condition as an aspect of workplace ergonomics is helpful in improving the health outcomes of the workers stated by Daneshmandi *et al.* (2017).



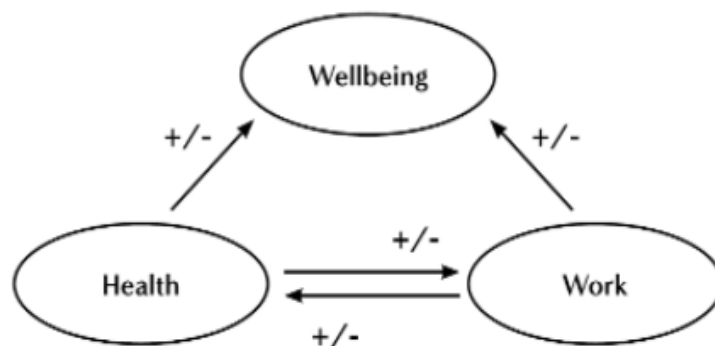
**Figure 3: Workplace ergonomics supporting the productivity of an employee**

(Source: osha.gov, 2021)

Ergonomics and musculoskeletal disorders under OSHA government of USA reported the implementation of safety and healthcare liability assets in case of occupational purpose helps to improve the productivity of an employee. Risk reduction for MSD under OSHA guidelines provides the affectivity of increasing production process (osha.gov, 2021).

#### **2.4 Workplace ergonomics improving moral and revenue**

Occupational ergonomics are associated with the implementation of actions supporting the work environment to reduce health hazards. Actions involved with workplace ergonomics are the purpose of increasing the moral of an employee by providing helpful liability assets. As stated by Stuckey and Brown (2018), the cultural settings of an occupational organization are responsible for increasing efficiency, the comfort of an employee and safety precaution. These workplace ergonomics supported to grow the mental health condition of an employee by reducing risks for MSD.



**Figure 4: Interrelation between workplace ergonomics and employee health**

(Source: Stuckey and Brown, 2018)

This figure demonstrates a relationship between workplace ergonomics influencing health and wellbeing of an employee responsible for increasing moral. Koibichuk (2019) opined that employee comfort through workplace ergonomics creates increasing revenue of a company. Degree of comfort ability through this ergonomic helps to increase productivity results in the increase in revenue. Moral increment by MSD risk management promoted by the setting of an organization is responsible for maintaining the health condition of workers ultimately resulted as increasing revenue and productivity. Moreover, Barbu *et al.* (2020) opined that ergonomic methodology implementation at the workplace influences employee motivation to support profitability and productivity.

### **Chapter 3: Methodology**

#### **3.1 Research Strategy**

In this research strategy, secondary data analysis based on the relevant journal articles demonstrating workplace ergonomics involved with MSD awareness and risk reduction associated with an employee. Research philosophy for this case is involved with positivism. In this case, positivism is responsible for supporting data related to musculoskeletal issues determined at workplace. Moreover, data collection from the secondary data analysis process associated with peer-reviewed journal articles proceeds with the deductive approach. This research approach is helpful to understand differential factors influencing revenue and productivity of an organization through organizational ergonomics. Descriptive design is involved with the research strategy to demonstrate the individual dimensions related to musculoskeletal disorders resulting from the workload.

#### **3.2 Data collection**

In this case, of MSD related awareness associated with workplace ergonomics is involved with the secondary data collection process. Primary quantitative data involved with the consideration of increasing productivity rate and revenue of an organization through workplace ergonomic liabilities are concerned with data collection. Data collection process is involved with the maintenance of relevance of results from journal articles.

#### **3.3 Research methods**

##### **Search Strategy**

Research method is associated with the data search strategy to proceed with relevant data from the journal articles and internet resources. Search strategy is based upon the keywords such as 'Musculoskeletal Disorders', 'Ergonomics in the workplace', 'productivity increment through occupational ergonomics', 'healthcare and safety through ergonomic' and 'organizational



liability assets'. Google Scholar and Google search used to find the relevant data in case of the data collection process. Relevance of the data maintenance is according to the consideration of authentic journal articles. Government sites such as 'OSHA.gov' are used to collect appropriate data defining organizational ergonomic and the factors.

### **Qualitative data analysis**

Data collected from authentic websites and journal articles are involved with the understanding of factors related to MSD awareness in case of organizational ergonomics. In this case, qualitative data analysis carried through the appropriate search strategy to determine data related to the concerned topic. Data collected from the articles are determined and summarized to detect the factors related to MSD.

### **3.4 Ethical consideration**

In this research method, ethical consideration is involved with the removal of deception and exaggeration related to aim and objectives. Moreover, it is associated with the application of primary data in an unbiased way to avoid inappropriate information delivery through the research. The research process is concerned with the maintenance of objectivity and the aim of the analysis.

### **Chapter 4: Data Analysis**

In this section of data analysis, results obtained from secondary sources arranged to check with existing literature and findings. Mahboobi *et al.* 2020 stated in their article that "Quick Exposure Check (QEC) and Rapid Entire body assessment (REBA)" applied to register the musculoskeletal disorder in the workers. They consider factors as variables and observe the risk factors calculated via "Data Envelopment Analysis and ANOVA method." Their study and analysis via REBA and QEC showed that education, experience, and weight are factors that could help to reduce the ergonomic risk. Analysis by the ANOVA method showed that education with the weight of .875 shows a positive effect on work experience. His-Chen Liu *et al* 2020 showed in their study that Musculoskeletal disorders (MSD) were the most common hindrance in their workplace. About 57.9% of males and 63.0% of females suffer from MSD in their workplace. In males, MSDs are included of shoulders 39.1%, neck, lower back, and in females, most common MSD is shoulders about 46.5%. These findings give a clear idea that major risk of MSD in the shoulder and lower back pain due to sitting postures and lack of an ergonomically developed environment. In females, MSD also included physiological factors that provide hindrance in their working environment. The study also suggests that in manual and construction workers MSD risk high compared to the office workers. This finding suggests there is an uneasy environment in the workplace due to the lack of the ergonomically

framework, several aspects are discussed how the implementation of ergonomics help to improve the employee workforce.

## **Chapter 5: Discussion**

An ergonomically framework helps to improve the work efficiency of the employees while reduces the risk factors. The study suggested that musculoskeletal disorders in the workers are most common these days due to irregular posture issues and sitting environment among all kinds of workers. The higher risk was associated with shoulders areas and lower back areas. Implementation of an ergonomic environment in the workplace helps to reduce the risk and hindrance of workers. Three categories are discussed where ergonomics in the work area impactful

### **5.1 Impact on morale**

Workplace environment creates a huge effect in the worker's mind set. Employee observes the company's viewpoint on their well-being and safety. If the employee feels cared for their work efficiency is increased, their frustration level about the job decreased. At the end of the day, it lowers the rate of absence, creates more morality and improvement in job. Ergonomically fit workplace often reduces the psychological workload, availability of all kinds of commodities help to boost their overall output. They are also an encouragement to take responsibility of different tasks compare to their provided task. Healthy and safety is the major concern in the employee's work mind, when the company ensures employee safety, provides strong safety framework, it creates positive feedback on employee motivation. Using of proper guidelines and creating the workplace according to the workers need help to improve employee motivation and reduces the turnover of employee contracts and increases productivity and the quality of performance (Pulipati, 2018).

### **5.2 Impact on revenue**

Implementation of ergonomics in the workplace reduce the employees workplace injuries provides a healthier work environment that helps to reduce turnover of the company and they are able to do huge work which directly increases the revenue of the company. It reduces the business cost, workers complain. Creating a better place for employees can help the company to grow while having fewer employees by boosting their workforce. Ergonomics implementation helps to connect the employee more to their job, increases their attentiveness. Workplace where suitable ergonomic are not implemented often not created a better annual work performance (Gamayudh. and Sultan, 2020). The employees of such organization are often suffering from MSD, which create hindrance in their task. They are sometimes physically and psychologically unable to complete their task. For example if one company at a time hires

a hundred employees, due to unhealthy work environment half of the employees turn over their contract, where other halves are not well-being in their overall output. Implementation of different commodities increases their workforce, lower absent ratio increase the employee workout put that helps the company annual growth (Sinno *et al.* 2020).

### **5.3 Impact on efficiency on work**

Ergonomics help to improve the working output and increases the overall productivity of the employee. An unhealthy working environment increases the risk of musculoskeletal disorders among the employee. They are less attentive in their daily target, which reduces the bar of productivity of the individual employee. It reduces the risk of risk factors of MSD, which helps the employee to do their job in a more efficient manner; they feel valued as they get overall satisfaction at their workplace (Sander, 2020). Pain and thought of hindrance due to the uneasy work environment reduced; it directly results in increment in their overall output in the given task. Designing the workplace according to employee work stature creates mental satisfaction n, that help to increase productivity, lesser strain in muscular parts creates more attentiveness in the given task. It improves the quality of the work. Training of new ergonomic workstation helps to employees to feel comfortable that helps to do their job in a proper organized manner. Employee performance solely depends on their efficiency to their job, providing a better ergonomically commodities increases the working efficiency to their job (Deouskar, 2017)

## **Chapter 6: Recommendation and Conclusion**

### **6.1 Recommendation**

**Furniture design:** In this case, of organizational ergonomics, it is required to focus on the furniture design of the company to maintain the comfort-zone of an employee. Design of chair, desk and other assets needs to improve that support reducing the risk of MSD.

**Good posture training:** Providing training for posture practice is involved with reducing, musculoskeletal stress is important to reduce the health hazard at the workplace.

**Promote relaxation:** Relaxation process through the exercise in the workplace is required in this case to reduce muscle tension.

**Comfortable equipment:** Promoting comfortable assets in the working area is helpful to reduce stress related to MSD issues.

### **6.2 Conclusion**

It can conclude that the objective of this research entitled MSD risk in the workplace has undergone a detailed analysis of existing sources. Workplace design while maintaining the ergonomic framework helps to reduce the risk factors, improves the communication between work and the workers. This method removes the barriers of the employee workforce and makes

the job easier and faster to complete. Providing a comfort zone to employees helps to reduce fatigue, frustration, complaints which directly help to increase the workforce. The task, which requires high force involvement, lowers the growth of work. This can reduce via using a counterbalance system, adjustable commodities, ergonomic tools; it helps to reduce muscle engagement, which helps to lower the risk of MSD. A big part of employee turnover caused by not suitable workplace environment. This study helps to observe the risk factors, which increase the MSD in the employees. As MSD is affecting the productivity of employee performance and reducing the performance of the overall output of work, it is important to understand the issues. Safety precaution in the workplace and awareness help the employee to understand the risk factors, which make them ready for upcoming hindrance, and helps to overcome the situation.

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