



## **ISSUES AND CHALLENGES OF ERGONOMIC RISKS TO OCCUPATIONAL SAFETY AND HEALTH ASPECTS DURING THE COVID-19 PANDEMIC**

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**Abstract:** Occupational Safety and Health (OSH) practices are important in improving safety capabilities in the workplace. One of the things that need to be emphasized in the aspect of OSH is the ergonomic risk that leads to the risk of injury and health to workers during the COVID-19 pandemic. COVID-19 is a global issue that affects the whole world and has an impact on ergonomic risks. Accordingly, this study was conducted to identify ergonomic risk issues and challenges to the quality of OSH during the COVID-19 pandemic. This study also discusses the impact of ergonomic risks on workers and the industry from the aspect of OSH. This discussion can explain in detail the ergonomic risks to the industry and be a guide for industry practitioners to prevent ergonomic risks in the workplace. The results of the study were able to identify ergonomic risk factors during COVID-19 and their impact on employees or employers from the point of view of the quality of safety in the workplace. The findings of this study have implications for industry practitioners to prevent ergonomic risks in the workplace and can serve as a guide for policymakers to prevent ergonomic risks. Strengthening the ergonomic risk issue is a catalyst for efforts to develop OSH practices at the global level in creating a safe and quality industry.

**Keywords:** Risk ergonomic, Occupational Safety and Health, COVID-19

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### **INTRODUCTION**

The SARS-CoV-2 coronavirus is to blame for the severe viral epidemic known as the 2019 coronavirus illness (COVID-19). The COVID-19 outbreak has reached 213 countries, with 1,524,162 confirmed positive cases and 92,941 deaths (Shah et al., 2020). The World Health Organization (WHO) explained that SARS-CoV-2 is a new coronavirus that has affected the respiratory tract, is the cause of COVID-19 (WHO, 2022a). As of 13 December 2020, it had affected 218 nations and territories, with more than 72.07 million confirmed positive cases and 1.61 million fatalities. The WHO designated it a worldwide pandemic on 11 March 2020 (WHO, 2022b).

Malaysia, a multiethnic country with 32.75 million people, has had three waves of SARS-CoV-2 transmission that have become worse over time (Department of Statistics

Malaysia, 2021). The government has used a mix of non-pharmaceutical interventions (NPIs) and, more recently, the distribution of vaccinations to curb the spread of the virus. The first imported COVID-19 cases were discovered in Malaysia in late January 2020 (Jayasundara et al., 2021). Malaysia has been classified as a high-risk country (level 4) by the Centers for Disease Control and Prevention as of December 15, 2020, when there were more than 84,846 COVID-19-positive cases and 419 fatalities there (Ali et al., 2021).

COVID-19 is a significant obstacle to occupational health. Risks of infection are significant for workers in numerous professions (Burdorf, Porru & Rugulies, 2020). Jobs that require frequent contact with the public and close physical closeness to others are many. Due to the high volume of daily interactions, employees at stores, pubs, restaurants, fast food chains, and delivery services are more likely to have contact with infected individuals. Physical therapists, barbers, and manicurists all do their business near the public. However, many businesses also provide employees the flexibility of working from home, greatly lowering the danger of contracting the virus (Godeau et al., 2021).

According to Guzman et al., (2022) and Liu et al., (2020) the health implications of COVID-19, stress, and isolation will become apparent when more countries explore "exit strategies" from the isolation measures. But we now face a threat from the second wave of potential health repercussions. A worldwide economic slowdown is anticipated, according to economists. As a result, we would expect a change in the myriad of health problems connected to subpar economic growth and its effects on employment. Godderis and Luyten (2020) explained in this predicted second half, Occupational Safety and Health (OSH) may be critical. By advising employers on how to offer secure employment prospects and creative, enticing work arrangements, they may help lessen the detrimental impacts of a recession on people's health.

Depending on the risk of exposure, protective measures can be taken to prevent employees from being exposed to and contracting SARS-CoV-2, the virus that causes Coronavirus Disease 2019 (COVID-19). The danger varies depending on the sort of job being done, the possibility of lengthy or another human contact, and the degree of contamination in the workplace. Employers should implement infection prevention and control methods after thoroughly evaluating the risks in the workplace. To avoid worker exposure, they should use the right combinations of engineering and administrative controls, safe work practices, and Personal Protective Equipment (PPE). Employers must also provide workers with training on aspects of infection prevention and control, such as PPE, according to several OSHA regulations that pertain to preventing occupational exposure to SARS-CoV-2 (OSHA, 2022a).

## **ERGONOMIC RISKS**

As a strategy to guarantee a good environment at the workplace and enhance employees' health, discussions on Occupational Safety and Health (OSH) concerns have historically taken place worldwide. Workplace ergonomics concerns receive less attention when it comes to OSH (Selamat et al., 2021). The lack of awareness of this aspect of ergonomics leads to employee performance issues as well as employee safety and health issues. Ergonomic issues are linked to human resources as the main factor that has strengths and limits. The suitability of the task, equipment, workspace, processes, and atmosphere are taken into consideration for each

employee (Carayon et al., 2021). Meanwhile, Tarakci et al., (2020) explained by analyzing the physical, environmental, and psychological risk factors, the interdisciplinary field of ergonomics seeks to understand and enhance the compatibility of people with technology and the environment.

The science of ergonomics focuses on making occupations fit employees rather than attempting to make workers accommodate jobs. This concentrates on creating workstations, equipment, and jobs that are pleasant, efficient, and safe. Because work injuries are not inevitable and a well-designed job should not injure you, ergonomics aims to reduce tiredness and injuries while boosting comfort, productivity, job satisfaction, and safety (OSHA, 2022b). According to Habibi and Soury (2015), ergonomics is crucial since your musculoskeletal system is affected when your body being feeling pressure from a job-related uncomfortable posture, severe temperature, or repeated movement. A musculoskeletal issue may first manifest in your body as symptoms like weariness, discomfort, and pain.

According to Selamat et al., (2021), implementing ergonomics in an organization will result in: (1) higher productivity; (2) better health and safety of employees; (3) fewer worker compensation claims; (4) compliance with government regulations (OSHA standards); (5) job satisfaction; (6) improved work quality; (7) lower worker turnover; (8) fewer lost workdays; (8) raised employee morale; and (10) lower absenteeism rates. Additionally, several studies indicate that participatory ergonomics methods are being used more often to enhance workplaces, including risk management procedures, in both industrially developed and developing nations (Selamat et al., 2020; Kogi et al., 2015).

## **ISSUES AND CHALLENGES OF ERGONOMIC RISKS**

The COVID-19 pandemic has caused many changes at work for millions of workers. Notable among them is that the threat of infectious viral diseases has affected the feeling of safety and health and subsequently changed individual behavior (Ruhle & Schmoll, 2021; Ahorsu et al., 2020). According to Buomprisco et al., (2021), the main dangers to the health of workers are the absence of ergonomic work equipment and dedicated work areas, the risk of overwork, and the psychosocial implications of working from home. Performing work tasks can affect both physical and psychosocial health but some authors also describe potential health benefits.

Occupational Safety and Health (OSH) procedures are often used to prevent dangerous, unusual, and unpredictable situations (Jaklin et al., 2022). When dealing with ergonomic intervention, two main approaches are used. Firstly, the reactive approach, which considers workstation ergonomics (from a work design perspective) after some physical disruption has occurred or when musculoskeletal disorders (MSDs) have occurred. Ahmed et al., (2022), explained a variety of musculoskeletal illnesses since they are overuse injuries and because there are several risk factors at play that might lead to develop musculoskeletal disorders: Repetition: When a worker does the same movement again or continuously, it happens. The greater physical effort caused by the repetitions' rising significance causes more tissue damage and an increased risk of repetitive strain injuries (Ahmed et al., 2022).

1. A person can be subjected to two types of forces: (1) an external force that comes from outside the body. One is having to lift anything that is outside. (2) A body's musculature

experiences internal pressures that are imparted to it. To support the arms when using a desktop computer or smartphone, for example, neck and shoulder strength are necessary (Shokshk et al., 2020).

2. Awkward postures: Any posture that differs from the neutral posture is considered an awkward posture. Uncomfortable positions cause tiredness and weaken muscles because of infrequent movements (Shokshk et al., 2020).
3. Static postures: A posture in which something is held for a longer time (Ahmed et al., 2022). When held for a lengthy amount of time, static positions might reduce blood flow (the body is held in static or near static posture).
4. Contact stress: It is an external force that is applied to the body and causes physical stress. Contact stress occurs, for instance, when someone inserts their finger deeply into a piece of tough machinery (Ahmed et al., 2022).
5. Vibrations: They induce the body to move on its own. It happens when the body is subjected to external forces, which cause movement throughout the body or in certain areas (Buomprisco et al., 2021).
6. Extreme temperature: These temperatures are extremely hot or extremely cold. Extreme temperatures, such as the cold, can have an impact on tendons and impair muscles (Ahmed et al., 2022).
7. Psychosocial factors: These are pressures at work that have an impact on employees in organizations. Increased work expectations, a loss of control, a lack of perceived fairness, or a lack of quality are all causes of stress. Stress triggers adverse physiological reactions in the body that result in musculoskeletal diseases and physiological alterations in the tissues (Draghici et al., 2021).

Risk factors are typically associated with occupational tasks, behaviors, or circumstances that raise the possibility of musculoskeletal trauma, as well as ergonomics, which makes it harder to maintain this balance and raises the possibility of developing MSDs in some individuals. Furthermore, being exposed to risk factors acts as a precursor to more significant issues that could cause more severe muscle injury. Long-term exposure to risk factors will also reduce life's worth. On the other side, ergonomic risk factors (ERF) are instances where something was done intentionally or unintentionally that might increase the risk of ergonomics, which could be detrimental to a worker's health and wellbeing. Employees who are instructed to work from home during a COVID-19 pandemic crisis frequently encounter health issues, most of which are MSD-related. This isn't ergonomic; it's a result of uncomfortable working circumstances.

## **CONCLUSION**

This paper aims to review, synthesize, and develop a conceptual framework of ergonomic risks among industrial practitioners while working from home during the COVID-19 pandemic crisis. The development of this conceptual framework relies mostly on a literature review focusing on the issue of working from home during the COVID-19 pandemic crisis from the perspective of workforce health impacts. Based on the review, it can be concluded that, by identifying the activities involved when performing work tasks from home, then ergonomic risk

factors can also be identified. Thus, indirectly, the health effects on the body's muscles (MSD) can be easily detected. Furthermore, it can be suggested in the future that, there is an importance to analyze the relationship between the variables to develop a new model. Therefore, the results of this study (that is, the conceptual framework) will provide insight to the government and it can be the basis of valuable guidelines for developing new models to reduce health impacts on the workforce.

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