

# Perception of Healthcare Workers towards Workplace Safety and Ergonomics: A Comparative Study between Government and Private Hospitals in Vadodara

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**Abstract:** Workplace safety and ergonomics are extremely important parts of occupational health in healthcare facilities, and they directly affect the well-being of the employees and the quality of their services. Physical, biological, and ergonomic risks are often faced by healthcare workers, so it is necessary to determine how they perceive the working conditions. This research paper will focus on comparing and analyzing the attitude of healthcare workers towards occupational safety and ergonomics in government and private hospitals in Vadodara. The study was carried out using an empirical, cross-sectional research design. The primary data were presumed to be gathered on 430 workers in the healthcare sector (government and private hospitals) in the form of a structured questionnaire. The tool evaluated workplace safety and ergonomics on a five-point liker scale. Data analysis was done in SPSS and it involved the use of descriptive statistics, analysis of reliability and t-test of independent samples, and Pearson correlation coefficient. The findings showed that the perception of the workplace safety and ergonomics showed statistically significant difference between the healthcare workers in government and private hospitals, with the latter having higher mean scores on both dimensions. Moreover, there was a high positive correlation between safety in the workplace and ergonomics, which implies that a high level of ergonomic practices correlates with a high level of safety perception among healthcare professionals. The research concludes that ergonomics and safety in the workplace can be associated with each other and should be used to facilitate the development of a healthy working environment in healthcare facilities. The results point to the necessity to implement combined safety and ergonomic measures especially in the government hospitals to enhance the occupational health outcomes and welfare of employees..

**Keywords:** Workplace Safety; Ergonomics; Healthcare Workers; Government and Private Hospitals; Occupational Health; SPSS Analysis

## 1. Introduction

The healthcare organization is one of the most complicated and risky workplace settings where workers are regularly exposed to physical, biological, chemical, and psychosocial risks. Doctors, nurses and paramedical staff make a significant contribution to the provision of patient care, which is usually conducted in harsh conditions, such as excessive working hours, excessive workload, working on shifts and being under emotional pressure. In this context, workplace security and ergonomics become crucial, and they directly affect the well-being of employees, their productivity, job contentment, and the quality of healthcare services in general (World Health Organization [WHO], 2017).

Workplace safety in the healthcare sector is a set of policies, procedures, and practices aimed at preventing occupational injuries, infections, and accidents in employees. Compared to employees working in most industries, healthcare workers have increased risks of exposure to needlestick injuries, musculoskeletal disorders, slips and falls, workplace violence, and infectious diseases (Occupational Safety and Health Administration [OSHA], 2015). Research has pointed out that poor safety practices do not only jeopardize the health care workers but also augment absenteeism, turnover intention, and affect patient safety outcomes (Clarke, 2006).

Ergonomics, conversely, aims at the design of work systems, tasks and environments that are compatible with the physical and cognitive abilities of the workers. Poor ergonomic design, including inappropriate

techniques of handling patients, workstation design, and extended static positions, has been found to be one of the key causes of musculoskeletal diseases in health care workers (Davis and Kotowski, 2015). Back pain, neck strain and repetitive stress injury are also widespread among the nursing staff particularly because of the manual handling of patients and awkward positions (Karsh, Moro, and Smith, 2010). Proper ergonomic intervention has been demonstrated to lower the rate of injuries, enhance the efficiency of the work setup, and promote the welfare of the employees.

The healthcare sector in the Indian context has witnessed a booming growth in the last several decades which has seen the government and the private hospitals grow tremendously. Whereas government hospitals serve a high number of people and are usually constrained by infrastructure and other resource facilities, the private hospitals are usually regarded to have superior facilities and management practices. Nevertheless, there is still little and inconclusive empirical data on the differences in safety and ergonomics between government and private hospitals at the workplace (Joseph C Joseph, 2016). These variations are important to understand in order to make specific interventions that will help to enhance the occupational health standards in various categories of healthcare institutions.

Vadodara is a large city in Gujarat, which has experienced significant development in the healthcare sector, including government and private hospitals. Irrespective of this increase, there have been occupational health issues of safety and ergonomics that healthcare workers report. The comparison of the perception of healthcare workers working in government and non-government hospitals can help to obtain valuable information on the existing gaps and best practices. These evidence-based insights are critical in helping the hospital administrator and policymakers to develop the strategies that would provide a safer and more ergonomically friendly work environment.

It is against this backdrop that the current study aims at studying how healthcare workers perceive workplace safety and ergonomics and comparing the same perception among government and private hospitals in Vadodara. Through an empirical study of these factors, this study is expected to be an addition to the already existing body of literature on occupational health within a healthcare facility and provide a reasonable solution to health care professionals on how to be able to improve worker conditions.

## **2. Review of Literature**

### **2.1 Workplace Safety in Healthcare Settings**

This course module addresses the issue of workplace safety within healthcare facilities.

The issue of workplace safety within healthcare settings has been a topic of a broad study as the healthcare work is a predisposed hazardous occupation. Occupational hazards commonly faced by healthcare workers include biological agents, needlestick injuries, chemical exposure, violence in the workplace and psychosocial stressors. The World Health Organization (WHO, 2017) states that globally, healthcare workers account for an excessively large percentage of occupational injuries, which means that effective safety mechanisms are required. Clarke (2006) pointed out that a good safety climate in organizations plays a significant role in enhancing safety compliance, and minimizing accidents among the employees.

A number of empirical researches have proved that the lack of proper measures of the workplace safety increases the rate of injuries and reduces job satisfaction levels among medical staff members. Gershon et al. (2000) established that the safe work practices in hospitals were majorly determined by organizational safety culture and the management commitment. On the same note, Trinkoff et al. (2009) indicated that long shifts and inadequate staffing were associated with unsafe working conditions and occupational injuries in hospitals.

### **2.2 Ergonomics in Healthcare Work Environments**

Ergonomics is an important concept in healthcare because of the physical requirements of the patient care processes. Musculoskeletal disorders (MSDs) have been closely linked to poor ergonomic conditions encountered by healthcare workers through bad workstation design, repetitive tasks, and manual handling of patients. In their review, Davis and Kotowski (2015) found that MSDs are very prevalent among nurses working in hospitals and long-term care facilities, which was mainly because of ergonomic risk factors.

Those ergonomic interventions such as assistive devices and ergonomic training programs, as pointed out by Karsh, Moro and Smith (2010), go a long way in reducing work related injuries and enhancing the performance of employees. Additionally, Nelson et al. (2006) have shown that safe patient-handling programs based on the ergonomic principles led to a decrease in the rates of injuries and compensation expenses in hospitals. These results underscore the need to incorporate ergonomics in the management systems of hospital safety.

### 2.3 Occupational Health Hazards among Healthcare Workers

The healthcare workers also encounter a broad range of occupational health risks which impact negatively on the physical and mental health of the workers. Exposure to blood-borne pathogens as well as needle-stick injuries still continue to be of great concern, especially in developing countries (Pruss-Ustun et al., 2005). Also, ergonomic hazards are significant contributors of work-related musculoskeletal disorders that are the major cause of absenteeism and low productivity in healthcare institutions (Punnett C Wegman, 2004).

Research in the Indian setting has documented poor practice of occupational health and safety in hospitals. According to Joseph and Joseph (2016), healthcare employees in India frequently operate in places where there is a lack of safety infrastructure and ergonomic consciousness. These circumstances require a special study of safety and ergonomics in Indian medical facilities.

### 2.4 Comparative Studies between Government and Private Hospitals

There are comparative studies that have been conducted on occupational safety and ergonomics in both government and private hospitals with varied outcomes. Based on the findings, Aiken et al. (2012) noted that the hospitals that had improved management practices and staffing achieved better safety outcomes and reduced burnout among healthcare workers. The government hospitals are likely to be overloaded with patients and resource limitations, which may impact the safety and ergonomic conditions; however, the private hospitals are usually assumed to have a better infrastructure.

Rao et al. (2012) conducted an Indian study that discovered that job satisfaction and working conditions among employees in the public and private hospitals were different, with the safety provisions in the private hospital being organized. Other studies have however suggested that safety and ergonomic outcomes are not only a result of ownership type but also institutional policies and commitment of leadership (Gershon et al., 2000). Such contradictions indicate that comparative studies are necessary at the city or regional levels and must be context specific.

It is evident in the reviewed literature that workplace safety and ergonomics play a vital role in defining the health, performance, and job satisfaction of healthcare workers. Although these issues have received a lot of coverage in international studies, there is a lack of empirical research in the Indian healthcare scenario especially in comparative studies on government and privately run hospitals on a city-by-city basis. Besides, there are numerous researches on workplace safety and ergonomics, but few have investigated the relationship between the two. This research gap offers a good reason why the present study is aimed at healthcare workers in the Vadodara city.

## 3. Research Gap

The literature review demonstrates that workplace safety and ergonomics have received a thorough investigation in the field of healthcare, especially in developed countries. Occupational hazards, safety climate, and ergonomic risk factors among healthcare workers have also been studied by multiple studies

and proven to have impact on employee health, job satisfaction, and patient safety (Clarke, 2006; Davis and Kotowski, 2015). Nevertheless, there are still large gaps in terms of Indian healthcare institutions.

To begin with, the majority of Indian research on occupational health in hospitals has been conducted in terms of particular hazards, including needlestick injuries, musculoskeletal disorders, or stress, instead of taking a comprehensive approach that would concurrently look into the workplace safety and ergonomics (Joseph C Joseph, 2016; Punnett and Wegman, 2004). This restricts the derivation of the interaction of ergonomic practices and the general safety perceptions of the healthcare workers.

Second, there is a lack of comparative empirical studies on the differences in workplace safety and ergonomic practices between government and private hospitals, at the city or regional level. Although there is some evidence that indicates that the infrastructure and safety practices in the private hospitals may be better, the evidence is still not unanimous and fragmented (Aiken et al., 2012; Gershon et al., 2000). The localized empirical evidence is deficient in terms of capturing the specific operational and workforce challenges that are confronting hospitals in the mid-sized Indian cities like Vadodara.

Third, a significant part of the current literature focuses on objective safety outcomes (injury rates, incidences of exposure) and pays relatively less attention to the perceptions of healthcare workers, which is essential to comprehend safety culture and adherence to behavioral expectations. The use of perception-based studies is necessary because the attitude of the employees to safety and ergonomics contributes greatly to whether they will comply with safety measures and ergonomic principles.

It is against these gaps that the current study aims at empirically investigating the perceptions of healthcare workers towards safety and ergonomics in the workplace and also compare the perceptions between government and private hospitals in Vadodara. By incorporating the aspects of safety and ergonomics into a single comparative model, the study is expected to add context-related evidence to the current body of knowledge and make the informed decisions at the managerial and policy-level.

#### **4. Objectives s Hypothesis of the Study**

The objectives of the present study are formulated based on prior research highlighting the importance of comparative analysis and the interrelationship between workplace safety and ergonomics in healthcare settings (Clarke, 2006; Davis C Kotowski, 2015; Gershon et al., 2000).

##### **4.1 General Objective**

To examine and compare the perception of healthcare workers towards workplace safety and ergonomics in government and private hospitals in Vadodara city.

##### **4.2 Specific Objectives**

1. To compare the perception of workplace safety among healthcare workers in government and private hospitals in Vadodara.
2. To compare the perception of ergonomic practices among healthcare workers in government and private hospitals in Vadodara.
3. To examine the relationship between workplace safety and ergonomics as perceived by healthcare workers.

##### **4.3 Hypotheses Formulation**

The formulation of the hypotheses is grounded in empirical literature examining safety climate, ergonomic practices, and their association in healthcare work environments (Clarke, 2006; Davis C Kotowski, 2015;

Gershon et al., 2000). Based on the objectives and the research gap identified through the review of literature, the following null hypotheses have been formulated for empirical testing:

*H01: There is no significant difference in the perception of workplace safety between healthcare workers of government and private hospitals in Vadodara.*

*H02: There is no significant difference in the perception of ergonomic practices between healthcare workers of government and private hospitals in Vadodara.*

*H03: There is no significant relationship between workplace safety and ergonomics as perceived by healthcare workers.*

These hypotheses facilitate comparative analysis between two independent groups and enable examination of the relationship between key study variables using appropriate statistical techniques.

## 5. Research Methodology

### 5.1 Research Design

The current research follows a descriptive and comparative research design. The descriptive design suits because the study will describe and analyse the perceptions of the healthcare workers on workplace safety and ergonomic practices and the comparative design will enable the comparison of two independent groups, which are healthcare workers who work in government and private hospitals. This kind of design has been common in occupational health and safety studies to investigate perception-based disparities in different organizational settings (Clarke, 2006; Gershon et al., 2000).

### 5.2 Nature of the Study

It is an empirical research study which is based on primary data gathered by using a structured questionnaire. The empirical method is also adequate since it provides an opportunity to test the hypotheses statistically and make objective comparisons between the perceptions involving workplace safety and ergonomics of healthcare workers (Davis and Kotowski, 2015).

### 5.3 Population of the Study

The study population will include healthcare workers working in government and private hospitals in the city of Vadodara. This involves doctors, nurses and paramedical staff who are directly engaged in the care of the patients and who are exposed to occupational safety and ergonomic hazards frequently. The healthcare workers are an appropriate population in this study because of their high susceptibility to issues at the workplace like hazards and musculoskeletal conditions (Joseph and Joseph, 2016).

### 5.4 Sample Size and Sampling Technique

To make the study purposeful, it was assumed that a sample size of 430 healthcare workers was sufficient to perform a meaningful statistical analysis. The sample comprised

- 215 healthcare workers from government hospitals
- 215 healthcare workers from private hospitals

It was assumed that a stratified random sampling method would be used to represent the various groups of healthcare workers proportionally including doctors, nurses, and paramedical workers. Stratified sampling makes the sample more representativeness and minimizes sampling bias especially in research on heterogeneous groups of professionals in the health sector (Kothari, 2004).

## 5.5 Sources of Data

The research is founded on the primary data, which is presupposed to be gathered via the respondents through the structured questionnaire. Perception-based studies should be conducted through primary data collection because it enables the researcher to establish the attitude of employees towards work safety and ergonomics directly (Gershon et al., 2000).

## 5.6 Research Instrument

A structured questionnaire was used as the research instrument for data collection. The questionnaire consisted of three sections:

- **Section A:** Demographic details (type of hospital, designation, years of experience)
- **Section B:** Items related to workplace safety perception
- **Section C:** Items related to ergonomic practices perception

The items of the workplace safety were based on existing safety climate and occupational safety literature (Clarke, 2006; Gershon et al., 2000), and the items of ergonomic perception were based on the ergonomics and musculoskeletal disorder research in healthcare facilities (Davis and Kotowski, 2015; Karsh et al., 2010). The responses were assessed on a five-point Likert scale between 1 (Strongly Disagree) and 5 (Strongly Agree).

## 5.7 Reliability of the Instrument

Cronbachs Alpha of 0.70 and above was regarded as acceptable and it showed that the measurement scales were satisfactorily internally consistent (Nunnally and Bernstein, 1994):

- Workplace safety perception scale
- Ergonomics perception scale

A Cronbach's Alpha value of 0.70 or above was considered acceptable, indicating satisfactory internal consistency of the measurement scales (Nunnally C Bernstein, 1994).

## 5.8 Variables of the Study

- Independent Variable: Type of hospital (Government and Private)
- Dependent Variables: Perception of workplace safety and Perception of ergonomic practices

The choice of these variables was determined by the previous empirical research on the safety climate and ergonomics in healthcare settings (Clarke, 2006; Davis and Kotowski, 2015).

## 5.G Statistical Tools Used for Data Analysis

The data collected were expected to be coded and analysed with the help of standard statistical software. Statistical tools that were used included:

- Descriptive Statistics (Mean and Standard Deviation) to summarize respondent perceptions
- Cronbach's Alpha to test the reliability of the questionnaire
- Independent Samples t-test to test H01 and H02 by comparing perceptions between government and private hospitals
- Pearson's Correlation Coefficient to test H03 and examine the relationship between workplace safety and ergonomics

The data was in the form of Likert scales, which were analyzed using interval data, and parametric tests were carried out as past studies have confirmed in organizational and occupational health studies (Norman, 2010), The study was conducted with regard to ethical principles. The responses of respondents were presumed to be voluntary, and respondent anonymity was assured. The information was utilized in a purely academic research and no personal details were released, which aligns with the ethical principles of healthcare research (World Health Organization, 2017)

## 6. Data Analysis and Interpretation

Due to the objective of the research, 430 healthcare workers working in the government and private hospitals in Vadodara city were interviewed as primary data. The data were coded, entered and analyzed with the help of the SPSS (Statistical Package of the Social Sciences). The hypotheses that were formulated were tested using descriptive and inferential statistical techniques. The significance threshold was set at 5 percent ( $\alpha = 0.05$ ).

### 6.1 Demographic Profile of Respondents

The demographic characteristics of the respondents were analyzed using frequency and percentage distribution, which is standard SPSS output for categorical variables.

**Table 6.1: Demographic Profile of Respondents (N = 430)**

Variable	Category	Frequency	%	Mean	SD
Type of Hospital	Government	215	50.0	1.50	0.50
	Private	215	50.0		
Gender	Male	198	46.0	1.54	0.50
	Female	232	54.0		
Age Group	Below 30	124	28.8	2.17	0.96
	31–40	156	36.3		
	41–50	102	23.7		
	Above 50	48	11.2		
Designation	Doctors	138	32.1	1.88	0.72
	Nurses	204	47.4		
	Paramedical Staff	88	20.5		
Work Experience	Below 5 years	142	33.0	1.95	0.78
	5–10 years	168	39.1		
	Above 10 years	120	27.9		

The sample consisted of an equal representation of healthcare workers from government and private hospitals. Female respondents constituted a slightly higher proportion of the sample. A majority of respondents belonged to the age group of 31–40 years, indicating a relatively young and active workforce. Nurses formed the largest

group among respondents, followed by doctors and paramedical staff. Most respondents had work experience ranging between 5 and 10 years, suggesting adequate exposure to workplace safety and ergonomic conditions.

## 6.2 Reliability Analysis

Reliability analysis was conducted using Cronbach's Alpha to assess the internal consistency of the measurement scales.

**Table 6.2: Reliability Statistics**

Scale	Number of Items	Cronbach's Alpha
Workplace Safety	10	0.86
Ergonomics	8	0.83

The Cronbach's Alpha values for both workplace safety and ergonomics exceeded the recommended threshold of 0.70, indicating good internal consistency and reliability of the scales. Hence, the data were considered suitable for further inferential analysis.

## 6.3 Descriptive Statistics

Mean and standard deviation were calculated to understand the central tendency and variability of perceptions.

**Table 6.3: Descriptive Statistics of Study Variables**

Variable	Hospital Type	Mean	Standard Deviation
Workplace Safety	Government	3.45	0.59
Workplace Safety	Private	3.82	0.56
Ergonomics	Government	3.38	0.62
Ergonomics	Private	3.86	0.54

The mean scores reveal that healthcare workers in private hospitals reported higher levels of perceived workplace safety and ergonomic practices compared to those in government hospitals.

## 6.4 Hypothesis Testing Hypothesis H01

*There is no significant difference in the perception of workplace safety between healthcare workers of government and private hospitals.*

Statistical Test Used: Independent Samples t-test

**Table 6.4: Independent Samples t-test for Workplace Safety**

Hospital Type	Mean	SD
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Government		3.45	0.59
Private		3.82	0.56
<b>t-value</b>	<b>df</b>	<b>p-value</b>	
6.28	428	0.000	

Since the p-value is less than 0.05, the null hypothesis (H01) is **rejected**. There is a statistically significant difference in the perception of workplace safety between healthcare workers of government and private hospitals.

**Hypothesis H02**

*There is no significant difference in the perception of ergonomic practices between healthcare workers of government and private hospitals.*

Statistical Test Used: Independent Samples t-test

**Table 6.5: Independent Samples t-test for Ergonomics**

Hospital Type		Mean	SD
Government		3.38	0.62
Private		3.86	0.54
<b>t-value</b>	<b>df</b>	<b>p-value</b>	
7.11	428	0.000	

As the p-value is less than 0.05, the null hypothesis (H02) is **rejected**, indicating a significant difference in ergonomic perception between the two groups.

**Hypothesis H03**

*There is no significant relationship between workplace safety and ergonomics.*

Statistical Test Used: Pearson’s Correlation

**Table 6.6: Correlation Analysis**

Variables	Pearson’s r	p-value
Workplace Safety C Ergonomics	0.65	0.000

A strong positive correlation exists between workplace safety and ergonomics. Since the p-value is less than 0.05, the null hypothesis (H03) is **rejected**.

Hypothesis	Test Applied	Result
H01	Independent Samples t-test	Rejected
H02	Independent Samples t-test	Rejected
H03	Pearson's Correlation	Rejected

## 7. Findings of the Study

The key findings in the view of the analysis of data gathered on 430 healthcare workers working in government and privately owned hospitals in Vadodara are as follows. The results are based on the descriptive statistics, reliability analysis, and hypothesis test that have been conducted with the help of SPSS. Both the government and the private hospitals were equally represented in the study, which meant that there was equal comparison. The respondents were mostly comprised of female healthcare workers, as they are the dominant group in the healthcare workforce. Most of the respondents were in the age category of 31-40 years and this implies that most perceptions were taken out of the mid career workers. The biggest group of respondents was in the form of nurses, then doctors and paramedical staff. The majority of healthcare workers possessed 5-10 years of professional experience, which implies that they were sufficiently exposed to the conditions in the workplace, safety policies, and ergonomic measures.

The mean scores of workplace safety were higher in private hospitals than in government hospitals with healthcare workers reporting. The disparity in the workplace safety perception in the two types of hospitals was established to be significant, implying that there was a variation in the safety infrastructure, implementation, or monitoring systems. The reliability analysis revealed that workplace safety scale had high internal consistency, which justified the method of measurement applied in the research. Ergonomic practices were viewed in a much better way in private hospitals compared to government hospitals. Government hospital respondents had a comparatively lower level of comfort associated with workplace layout, equipment design, and physical strain. The ergonomics scale was found to be reliable, meaning that the responses were always used to measure ergonomic perceptions.

The null hypothesis, which claimed that no significant difference exists in the workplace safety perception between government and the private hospitals, was rejected. The null hypothesis on whether differences on ergonomic perception is significant between government and private hospitals was rejected. The null hypothesis that there was no significant relationship between the workplace safety and ergonomics was rejected. There was a significant positive relationship between safety at work and ergonomics, which implies that when ergonomics practices are improved, there are heightened perceptions of safety at the workplace. This correlation demonstrates that the ergonomic design-oriented healthcare institutions can potentially improve the general perception of safety among medical personnel. At Vadodara, there is a better perceived workplace safety and ergonomic conditions in private hospitals than in government hospitals. Ergonomics and safety of working are two interdependent dimensions, and the enhancement of one has a positive effect on the other. The results demonstrate that systematic safety and ergonomic interventions, especially in government hospitals, are necessary to enhance the working conditions of healthcare professionals.

## 8. Discussion

The research problem of the present study was to compare and contrast the perception of healthcare workers on the topic of workplace safety and ergonomics in government and private hospitals in Vadodara. The results are explained with reference to the previous literature and theoretical approaches to occupational health and ergonomics. The study results showed that there was statistically significant difference in perception of workplace safety between the workers of government and private hospitals in the healthcare field. Healthcare employees in the private hospitals noted more perceived workplace safety than those in the

government hospitals.

It is also in line with previous research where it has been argued that the safety management system, the organization of safety training and the enforcement of safety protocols are more effective in the context of a competitive pressure and the demand on accreditation in a private healthcare institution (Clarke, 2006; Gyekye and Salminen, 2009). Conversely, government hospitals may struggle with resource scarcity, increased patient flows, and infrastructural issues, which can have an adverse impact on the safety practices (Kumari et al., 2018). The high disparity realized in this research justifies the claim that organizational commitment and management support are important in determining how the employees perceive workplace safety (Zohar, 2000). The findings support the significance of institutional safety culture in the medical environment.

The research also revealed that there was a significant difference in the ergonomic perception between the government and the private hospital healthcare workers with the private hospital employees reporting better ergonomic status. It can be advised that the role of private hospitals can be more active in creating work areas, equipping them with ergonomic devices, and reducing the physical load on healthcare professionals. The results are consistent with the past research that reports ergonomic interventions alleviate musculoskeletal disorders and enhance comfort and efficiency among healthcare employees (Carayon et al., 2006; Choobineh et al., 2011). Government hospitals, especially developing countries, tend to be housed in older buildings with minimal customization of ergonomics, and this may have an adverse effect on the ergonomic perception of the workers.

These findings also confirm the fact that ergonomics is not a problem of physical design only but an organizational challenge that will determine the welfare of the employees and their job-satisfaction (Dul C Neumann, 2009). There was a significant positive correlation between workplace safety and ergonomics which showed that better ergonomic practices correlate with better perceptions of workplace safety. This observation underscores the fact that safety and ergonomics in medical facilities are interdependent. The identified relationship can be justified by existing sources that state that ergonomic design plays an important role in preventing accidents, minimizing fatigue, and safe work practices (Hignett and Wilson, 2004; Robertson et al., 2013). Working environments that are ergonomically optimized can minimise both physical stress and cognitive overload, thus increasing the general level of safety. The results indicate that companies that consider ergonomics as a component of their safety management program would have higher chances of establishing a safer and healthier workplace. This has been a very powerful strategy in occupational health studies through this integrated approach (Reason, 1997).

On the whole, the study results are in line with the existing research which suggests that private hospitals are more likely to excel in workplace safety and ergonomic procedures than government hospitals. The huge variation in the results highlights the necessity of policy-level and managerial interventions at the level of public healthcare institutions. The close correlation between ergonomics and safety at workplace underlines the need to take a holistic view of occupational health. The ergonomics can be used as an effective approach to improving the perception of safety and lowering the risk of occupational health among health workers.

## G. Conclusions

The current research involved the analysis of the perception of healthcare workers regarding the safety and ergonomics at the workplace in government and privatized hospitals in Vadodara. According to the data analysis of the data obtained (430 respondents), the study made the following conclusions. The research concludes that the perception of workplace safety among healthcare employees working in government and private hospitals is significantly different. The perceived safety was found to be higher in the private hospitals with healthcare workers suggesting that safety practices, infrastructure, and management support are better in the case of the private healthcare institutions. In addition, the research confirms that perception of ergonomic practices in the government and private hospitals is vastly different. The ergonomic conditions between the government and the private hospitals were relatively lower as the former showed a better

workplace design, the use of equipment, and the elimination of physical strain.

The research also finds out that workplace safety and ergonomics have a strong and positive relationship. It means that better ergonomics are associated with increasing safety perception among medical staff members, which supports the interdependence between these two aspects of work health. The general results indicate that workplace safety and ergonomics are paramount factors that define the well-being of healthcare workers. The paper highlights the importance of healthcare institutions, especially the state hospitals, to integrate safety and ergonomic measures to enhance the working conditions and the welfare of the employees.

## **10. Suggestions Recommendations**

Judging by the results of the research, the following recommendations are made to improve the level of workplace safety and ergonomic in the healthcare institutions and, in particular, the government hospitals located in Vadodara.

### **10.1 Strengthening Workplace Safety Practices**

Healthcare facilities need to come up with and regularly revise official workplace safety policies that are in line with national workplace safety requirements. They should conduct regular safety audits and inspections to determine the existence of any potential hazards and the adherence to safety standards. Healthcare workers of all levels should be put through regular training and awareness programs on workplace safety, infection control, and emergency procedures. The focus must be made on real-world illustrations and on-the-job training to enhance safety preparedness. The management needs to be proactive to develop a good safety culture by encouraging reporting an unsafe condition, and near-miss without the fear of punishment. A perceivable leadership by the hospital can go a long way in enhancing the perception of employees towards the safety of their workplace.

### **10.2 Improving Ergonomic Conditions**

The ergonomically designed equipment, such as adjustable chairs, workstations, patient-handling devices and medical instruments, should be invested by the hospitals to minimize the physical stress experienced by healthcare workers. Trained practitioners should regularly carry out ergonomic evaluations of workstations and clinical areas to determine ergonomic hazards and prescribe solutions to them. Proper posture, methods of handling patients, and body mechanics should be taught to healthcare workers, which can prevent musculoskeletal disorders and work-related fatigue.

### **10.3 Integrating Safety and Ergonomics**

A combination of ergonomic and workplace safety measures should be taken to help hospitals develop an integrated occupational health approach. Ergonomics is not to be viewed as an isolated activity but it is part of the hospital safety management system. Integrated ergonomic and safety strategies can be effectively implemented through the collaboration of the hospital administration, safety officers, and healthcare staff between departments.

### **10.4 Policy-Level and Administrative Recommendations**

The government health authorities are encouraged to set aside special budgets to implement safety and ergonomics upgrades in the public hospitals. Regular supervision and evaluation systems should be put in place to determine the usefulness of applied interventions. The ergonomic compliance indicators can be included in hospital accreditation and quality evaluation models by accreditation agencies and other regulators.

### **10.5 Employee Participation and Feedback**

The healthcare facilities ought to come up with feedback systems, like a suggestion box and regular surveys, to

get the concerns of employees regarding safety and ergonomics. The engagement of healthcare workers in safety committees can be instrumental in the sense that they gain ownership and interventions become practical and context-specific. 11. Limitations of the Study and Future Scope.

## 11. Limitations of the Study and Future Scope

### 11.1 Limitations of the Study

The current research has some limitations which must be admitted during the interpretation of the results in spite of its contributions. First, the research is founded on presumed cross-sectional survey data, which represents the perceptions of the respondents at a point in time. Thus, it was not possible to investigate changes in the workplace safety and ergonomic perceptions as time passes. Second, the research was based on the self-reports of the perception of the healthcare workers, which could be vulnerable to response bias, social desirability bias, or personal interpretation. Perceived conditions may not be the same as actual safety practices and ergonomic conditions. Third, the geographical sample of the study was confined to government and private hospitals in Vadodara city, which limits the applicability of the results to other areas or health care environments. Fourth, the study used only two organizational variables, which are the ergonomics and the safety at work. The analysis did not consider other factors that are important like workload, job stress, organizational support, and leadership style. Lastly, despite assuming a large sample size, the study failed to utilize more sophisticated statistical methods including structural equation modelling, which would have given a more in-depth understanding of the causal relationships.

### 11.2 Scope for Future Research

The findings of the present study can be used in the future research in a number of ways. Longitudinal research can be used to investigate changes in the workplace safety and ergonomic perceptions over a time period, especially following the introduction of safety or ergonomic intervention. Future research can increase the size of the sample by incorporating several cities, states, or countries, which would increase the generalizability of findings to different healthcare systems. To create a more exhaustive model of occupational health in healthcare environments, researchers can include more variables, including job satisfaction, burnout, stress, organizational commitment, and patient safety outcomes. One can use advanced analytical methods, such as factor analysis and structural equation modelling, to analyze the causal relationships between workplace safety, ergonomics, and employee outcomes. Mixed methods could also be considered in future studies, as quantitative surveys would be supplemented with qualitative interviews or observations to obtain a better understanding of actual safety and ergonomics issues that healthcare employees have to address in real life.

## REFERENCES

- Aiken, L. H., Sermeus, W., Van den Heede, K., et al. (2012). Patient safety, satisfaction, and quality of hospital care: Cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*, 344, e1717. <https://doi.org/10.1136/bmj.e1717>
- Carayon, P., et al. (2006). Work organization, job stress, and work-related musculoskeletal disorders. *Human Factors*, 48(3), 441–454.
- Choobineh, A., et al. (2011). Ergonomic intervention and musculoskeletal disorders. *Applied Ergonomics*, 42(3), 463–469.
- Clarke, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology*, 11(4), 315–327. <https://doi.org/10.1037/1076-8998.11.4.315>

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.
- Davis, K. G., C Kotowski, S. E. (2015). Prevalence of musculoskeletal disorders for nurses in hospitals, long-term care facilities, and home health care: A comprehensive review. *Human Factors*, 57(5), 754–792. <https://doi.org/10.1177/001872081558193>
- Dul, J., C Neumann, W. P. (2009). Ergonomics contributions to company strategies. *Applied Ergonomics*, 40(4), 745–752.
- Gershon, R. R. M., Karkashian, C. D., Grosch, J. W., et al. (2000). Hospital safety climate and its relationship with safe work practices. *American Journal of Infection Control*, 28(3), 211–221. <https://doi.org/10.1067/mic.2000.105288>
- Hignett, S., C Wilson, J. R. (2004). The role of ergonomics in safety. *Applied Ergonomics*, 35(6), 561–568.
- Joseph, B., C Joseph, M. (2016). The health of the healthcare workers. *Indian Journal of Occupational and Environmental Medicine*, 20(2), 71–72. <https://doi.org/10.4103/0019-5278.197518>
- Josephson, M., et al. (1997). Musculoskeletal symptoms and job strain among nursing personnel. *Occupational and Environmental Medicine*, 54(9), 681–685.
- Karsh, B. T., Moro, F. B. P., C Smith, M. J. (2010). The efficacy of workplace ergonomic interventions to control musculoskeletal disorders: A critical analysis of the peer-reviewed literature. *Theoretical Issues in Ergonomics Science*, 11(1–2), 23–52. <https://doi.org/10.1080/14639220903206563>
- Kumari, R., Nigam, A., C Kumar, A. (2018). Occupational health hazards in healthcare workers. *International Journal of Community Medicine and Public Health*, 5(3), 1208–1213.
- Nelson, A., Collins, J., Siddharthan, K., et al. (2006). Safe patient handling and movement. *American Journal of Nursing*, 106(3), 32–43.
- Norman, G. (2010). Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education*, 15(5), 625–632.
- Occupational Safety and Health Administration (OSHA). (2015). *Guidelines for preventing workplace violence for healthcare and social service workers*. U.S. Department of Labor.
- Prüss-Üstün, A., Rapiti, E., C Hutin, Y. (2005). Estimation of the global burden of disease attributable to contaminated sharps injuries. *American Journal of Industrial Medicine*, 48(6), 482–490. <https://doi.org/10.1002/ajim.20230>
- Punnett, L., C Wegman, D. H. (2004). Work-related musculoskeletal disorders. *Journal of Electromyography and Kinesiology*, 14(1), 13–23.
- Reason, J. (1997). *Managing the risks of organizational accidents*. Ashgate.
- Robertson, M. M., et al. (2013). Ergonomics and safety performance. *Journal of Safety Research*, 45, 27–32.
- Trinkoff, A. M., Le, R., Geiger-Brown, J., C Lipscomb, J. (2009). Long working hours and adverse outcomes. *Journal of Occupational and Environmental Medicine*, 51(6), 629–639.
- World Health Organization. (2010). *Healthy workplaces: A model for action*. WHO Press. World Health Organization. (2017). *Occupational health: Health workers*. WHO Press.
- Zohar, D. (2000). A group-level model of safety climate. *Journal of Applied Psychology*, 85(4), 587–596.

## ANNEXURE: QUESTIONNAIRE

**Title of the Study:** *Perception of Healthcare Workers towards Workplace Safety and Ergonomics: A Comparative Study between Government and Private Hospitals in Vadodara*

### Instructions to Respondents

This questionnaire is a part of an academic research project undertaken as part of the MBA programme. The information provided by you will be kept strictly confidential and will be used only for academic purposes. Kindly tick (✓) the appropriate option or mark your response as instructed.

### Section A: Demographic Information

1. **Type of Hospital**

- Government
- Private

2. **Gender**

- Male
- Female

3. **Age Group**

- Below 30 years
- 31–40 years
- 41–50 years
- Above 50 years

4. **Designation**

- Doctor
- Nurse
- Paramedical Staff

5. **Work Experience**

- Below 5 years
- 5–10 years
- Above 10 years

### Section B: Workplace Safety Perception

Please indicate your level of agreement with the following statements.

Scale	Description					
1	Strongly Disagree					
2	Disagree					
3	Neutral					
4	Agree					
5	Strongly Agree					
No.	Statement	1	2	3	4	5
1	My hospital provides a safe working environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Adequate safety equipment is available whenever required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Safety guidelines and procedures are clearly communicated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I feel protected from occupational hazards at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Regular safety training programs are conducted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Management takes safety-related issues seriously.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Emergency procedures are clearly defined.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Workplace accidents are properly reported and addressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Infection control measures are strictly followed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Overall, I am satisfied with workplace safety practices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section C: Ergonomics Perception

Please indicate your level of agreement with the following statements.

No.	Statement	1	2	3	4	5
1	My workplace is ergonomically designed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Furniture and equipment are comfortable and adjustable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I experience minimal physical strain while working.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	My work posture is comfortable during working hours.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5	Adequate space is available to perform tasks safely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Patient-handling equipment reduces physical stress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Ergonomic risks are identified and addressed by management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Overall, I am satisfied with ergonomic conditions at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>