

# A Study of Application of Ergonomics at Workplace on Employee Satisfaction in Bearing Industry

Kamakshi Naga<sup>1</sup>, Dr. Nupur C Sharma<sup>2</sup>

<sup>1</sup>Research Scholar, JECRC University, Jaipur. [nagakamakshi123@gmail.com](mailto:nagakamakshi123@gmail.com)

<sup>2</sup>Professor, JECRC University, Jaipur. [nupur.sharma@jecrcu.edu.in](mailto:nupur.sharma@jecrcu.edu.in)

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## ABSTRACT

Ergonomics is nothing but the surroundings in which we work that includes furniture, drinking water, etc. The paper contains about ergonomics at workplace, benefits of ergonomics at workplace, Importance of workplace employees, Ergonomic models for employee satisfaction at workplace, employee satisfaction & Indian bearing industry. The research is carried amongst 290 employees of bearing industry.

**Keywords:** ergonomics, employee satisfaction.

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## INTRODUCTION

**Ergonomics**, also known as human factors, delves into the scientific realm of studying how humans interact with various components within a system. This multifaceted discipline encompasses a profession dedicated to utilizing theories, principles, data, and methodologies to craft designs that enhance both human well-being and the overall efficiency of systems. The term "ergonomics" traces its roots to the Greek words "ergon," meaning work, and "nomos," meaning laws, thereby encapsulating the essence of understanding the fundamental laws governing human work activities. In essence, it's the pursuit of optimizing work environments and processes for improved performance and human comfort.

### Ergonomics at Workplace

Workplace ergonomics is the study of workplace designing by keeping in mind employees capabilities & limitations. It removes risk factor musculoskeletal & allow good human performance & productivity.

- **Workstation setup:** It ensures that workstations are well designed & adjustable to accommodate different body postures & size. Important elements to consider include chair ergonomics, desk height, monitor positioning, proper lightning conditions and keyboard & mouse placement.
- **Seating:** It should give chair ergonomics that offers support for back, allows adjustment of chair & gives proper posture. Chair should able to adjust seat height, armrest & lumbar support.
- **Standing workstations:** it provides adjustable height desks that allow employees to alternate between sitting & standing position throughout the day.
- **Proper lightning:** It ensures that work area have adequate lightning that prevents strain in eyes & discomfort.
- **Reduce repetitive task:** It minimize repetitive task rotation that leads to musculoskeletal disorders. It provide tools that assist repetitive task that reduce employee strain.
- **Awareness & Training:** It educate employees with proper ergonomics practices & provide training to set up their workstation, take regular breaks & maintain good posture. Encourage them to tell any discomfort or issues they may experience.
- **Movement & breaks:** It encourages breaks that are regular & movement throughout the day. It encourages employees to stretch, go for short walk and engage in light exercise that prevent prolonged stable posture.
- **Work Organization:** it considers to distribute work load that prevents excessive physical & mental strain. It ensures that job responsibilities that are responsible which allow adequate rest & recovery.

## Benefits of ergonomics at workplace

**Health Benefits:** Ergonomics has a ripple effect on employees' health, starting with cardiovascular well-being and extending to other aspects of their physical health. By minimizing strain and exertion through ergonomic practices, we mitigate the risk of work-related injuries, promoting a healthier heart and overall well-being among employees.

- **Increased productivity:** Ergonomic workstation combine different ideas that organize employees' ability to complete their task. An organized workstation allows its employees to have focus on their task & not to be distracted by lack of organization. If the employees are focused they give more productivity.
- **Improves mental Clarity:** It reduces physical discomfort & improves posture that can improve employees' mental clarity & allows to work more successfully. Ergonomics helps to reduce stress & improves concentration. It helps to decrease pain, increase blood flow & strengthen muscles. It can improve mental insight.
- **Decreased Pains:** It focuses on creating the design for workplace equipment & tools that reduces strain of employees, improves overall safety & minimize fatigue. It can help to improve posture & reduce risk of back pain, by giving ergonomically designed chairs, desk & adjustable workstations.
- **Removes Hazards:** It fosters a highly productive work environment while systematically addressing and minimizing daily hazards that pose risks to employees' safety and well-being. It contributes to identify & eliminate hazard in workplace. It creates better environment by reducing distractions, provide adjustable furniture, provides suitable ventilation & lighting, it eliminates potential workplace hazards.
- **Absenteeism Reduction:** By fostering a safer and more comfortable work environment, we can effectively tackle absenteeism. Through measures such as preventing workplace injuries and alleviating stress and fatigue among employees, we not only reduce the likelihood of missed workdays but also enhance overall productivity and well-being.
- **Improvement in employee satisfaction:** Embracing an ergonomic culture leads to a more positive work environment and increased employee satisfaction. By prioritizing ergonomic practices, we effectively alleviate both mental and physical stress, fostering a happier and more content workforce.
- **Insurance cost reduction:** Incorporating safety measures and promoting a healthy workplace culture can significantly decrease insurance expenses. By mitigating the risk of work-related injuries and illnesses, we minimize the number of workers' compensation claims, leading to substantial savings on insurance premiums for the organization.

## Importance of workplace employees

- **Employee health & safety:** It plays a crucial role in preventing work related injuries & health issues. It ensures that workstations, desks, chairs & tools are designed properly & adjusted to suit individual employees, practices of ergonomic help to reduce the risk of musculoskeletal disorders, eye strain, repetitive strain injuries & other common workplace ailments. This results into improved employee health, lower healthcare costs & absenteeism for both employers & employees.
- **Increased productivity:** When employees are working in ergonomically optimized environment, they are comfortable, energized & focused. Ergonomic work-station, such as standing desks, adjustable chairs & proper lighting, can help reduce physical discomfort & fatigue that enable employees to maintain better posture, move freely. By minimizing discomfort & distractions, workplace ergonomics can enhance productivity & task performance.
- **Enhanced employee satisfaction & engagement:** Work environment is created that prioritize ergonomics that demonstrates employers care about employees' wellbeing. When employee health & comfort are valued, they are satisfied, engaged & motivated in their work. Ergonomic can contribute to positive company culture, fostering employee loyalty& reducing turnover rates.
- **Cost savings:** It can result into long term cost saving by reducing the risk of workplace injuries & employees compensation claim, employers can minimize their expenses related to rehabilitation, medical treatments & lost productivity.

## Ergonomic models for employee satisfaction at workplace

- **Anthropometric Design:** the variability & physical dimensions of employee when making workspaces should be considered. Ergonomic tools like monitor stands, keyboard trays & footrests that supports proper posture & reduces strains should be there.

- **Task analysis:** For identification of potential ergonomic issues there should be thorough work task analysis & workflow. Look for awkward posture, repetitive motions or larger period of inactivity. Strategies should be implemented to mitigate these issues.
- **Workstation Layout:** Arrangements for workstation should be optimized that promotes comfortable & efficient work. Place monitors at eye level, & arrangement should be made for tools which can prevent bending & twisting.
- **Lighting Design:** To prevent eye strain & enhance visibility, proper lighting levels should be there at workplace.
- **Noise control:** Noise levels should be managed at workplace that can minimize distraction & promotes focus. Like we can use sound absorbing materials, noise cancellation headphones & so on.
- **Breaks & movement:** Regular breaks should be encouraged & movement throughout the day. Health issues & discomfort may be there due to prolonged sitting. So stretching exercise, provide standing workstations or walking breaks should be promoted, that can enhance circulation.
- **Training & education:** Employees should be educated about proper ergonomics & trained about ergonomic practices.
- **Ergonomic committees:** Establish task force including representatives from each department. This can evaluate ergonomics at workplace, look for areas of improvement & implement ergonomic initiative.

### **Employee satisfaction**

It is a term that tells that employees are happy & fulfilling their needs at work. Satisfied employees must do their work & make the contribution that is needed by employer. Employee satisfaction is a predictor of performance.

Employee satisfaction is key metric, which determines overall health of organization.

It is the level of contentment that team members have for their organization & role. When employees are satisfied they enjoy their work, they are likely to stay in the company at which they are working & likely to get their work done. The strategies that organization can employ to increase employee satisfaction:

- **Compensation & benefits:** Fair pay, along with attractive benefits can make employees motivated.
- **Positive work culture:** It promotes supportive work environment, where employees feel appreciated, respected & are recognized for their contributions.
- **Work life balance is increased:** flexible work arrangements such as flexible schedules, paid time off & telecommuting options, it enables employees to have healthy work & personal life balance.
- **Provide opportunities for growth & development:** It offers training programs, career advancements & mentoring that help employees to enhance their skills & progress.
- **Open communication is encouraged:** Employees need to share the feedback, ideas & voice concern. Actively listen to feedback given by employees & address their concern & needs.
- **Recognize & reward achievements:** Implement a system that recognizes & rewards achievements & outstanding performance, it fosters a sense of accomplishment & job satisfaction.
- **Support wellbeing of employee:** It promotes initiatives which prioritize wellbeing of employees, such as mental health support, wellness programs & work life balance initiatives.

### **Indian bearing industry**

The Market size of Indian bearings was US\$1772.6 Million and is assessed to be US\$3374.4 Million toward the finish of 2027. The market supposedly grows at a CAGR (compound annual growth rate) of 10.9% during the period 2022-2027.

The drive of the public authority of India which incorporates "Make in India" and "Aatmnirbhar Bharat", means to restore the assembling area in at any point always expanding request of bearings. Indian bearing Market into four sections like kind of item, materials, application and size.

The automotive climate is chipping away at an incorporated methodology that is perfect climate and low fossil fuel byproducts. To diminish the utilization of fuel automakers are making more proficient motors and drive trains with outflow control gear that is presenting cleaner vehicles.

## REVIEW OF LITERATURE

- **Christy, Duraisamy, 2020.** Research has identified that relationship between well-being & is a connection with cognitive ergonomics, it is a concept that is integrative in nature of human experiences which involves training & ergonomics. The paper includes empirical survey. The paper also reviews ergonomics & psychological well-being of employees.
- **Ravindran, 2019.** Representatives execution depends on different monetary and nonfinancial variables out of which, work environment accommodation and offices are significant especially for assembling related representatives. This exploration article endeavors to concentrate on the effect of ergonomics on the presentation of representatives. The exploration was led among 80 representatives chose utilizing accommodation examining strategy.
- **Kim, et al, 2018.** In this research, a novel feedback interface with aim to improve human ergonomics while doing heavy industrial task. In this research, we present an original wearable criticism communicate with the mean to work on human ergonomics in the execution of weighty or dreary modern errands. The proposed interface consolidates a diminished intricacy and continuous model for the assessment of human joints' heap varieties, in light of the assessed translational uprooting of the focal point of tension within the sight of outside powers and loads. Remote vibrotactile shows are then evolved to illuminate people about unreasonable over-burdening of body joints by applying proper material upgrades, and to direct them towards more ergonomic and appropriate actual stacking conditions. We approved our system by a client study during which the subjects while playing out a weighty article lifting task, reconfigured the body posture to limit the over-burdening endeavors. This was accomplished by following the vibrotactile criticism direction, given by the wearable material gadgets. The exploratory outcomes incorporate a measurable investigation of ten subjects that show the capability of the proposed strategy in helping human laborers.
- **Saxena, 2017.** Ergonomics expanded its part in our development as the 'Industrial Revolution' progress with considerations of how to intensify the creation of workers by concentrating on the work that is being finished. Because of these explanations, which at the time was called 'Scientific Managements' enhancements were made by evaluating position which were being performed and the sort of material and devices used to finish it, as well as a certain 'fit' which could be made that would additionally further develop specialist efficiency and advancement. This study focuses on insightful the board need of representative Ergonomics in the Associations of the Udupi Locale. It incorporates how key work environment components, for example, workstations, computers, seats, lighting, commotion level, room temperature could be custom-made to fit and further develop worker wellbeing, security and exhibitions. This study centers on the base satisfactory working circumstances and gear to perform various positions actually in the associations.
- **Tompa, et al, 2010.** The research is a systematic review of workplace ergonomic with evaluating economic. Efforts from literature has focused on cost effective evidence. A qualitative synthesis approach was utilized instead of a quantitative methodology due to the variety of study plans and factual examinations found across studies. Merits of ergonomic intervention was found.
- **Carayon, Smith, 2000,** the paper analyze business trends & sociotechnical of organization & ergonomics based on Balance theory: Restructuring & reorganizing of companies, diversity of workforce, information & communication technology, forms of new work organization. Expansion of balance theory from design of work to organization, was discussed. The change issue is examined.
- **Wilson, 2000,** This paper presents ergonomics as a distinct discipline, characterized by its comprehensive understanding of human behavior and performance within complex socio-technical systems. It emphasizes the application of this understanding to design interactions in real-world contexts. This definition finds justification across various domains including economic, technical, legal, organizational, social, political, and professional environments where ergonomists operate. Drawing from its historical evolution and contemporary advancements, ergonomics emerges as a modern science, synthesizing insights from both fieldwork and laboratory studies, and encompassing elements of both an art and a craft. The need for this refined definition is underscored by analyzing the intricacies of contemporary socio-technical systems, which are best addressed through the holistic approach of ergonomics. Lastly, the paper identifies several challenges facing ergonomics in its pursuit of enhancing human performance and well-being.
- **Getty, 1999.** The paper suggests that ergonomics has contribution to business in continuous improvement effort. The focus is on employee business ventures & customer of the services. A customer satisfaction model suggests

that customer & employee oriented initiatives of quality that occurs across industries. The factors of human ergonomics is a message to current business trends is seen in business.

- **King, et al, 1997.** This research examines the effects of 3 different type's ergonomic training method upon employee behavior, knowledge & attitude. Employees within processing lines were random into 4 group, one group serving as a control group. Post and pre measures were implemented. Result shows significant effect on ergonomics knowledge. Significant differences were not there amongst all 4 groups.
- **Fernandez, 1995.** The research defines ergonomics & discusses about workplace principal, manual material handling, seat design & cumulative trauma disorders. These issues are appreciated with the objective of manager facilities in reduction of work related injuries, improves quality & productivity of employees life.
- **Corlett, McAtamney, 1988.** The research paper introduces ergonomics, applications of it at workplace & the involvement of physiotherapist. Ergonomics is the matching of products, environment, tasks & work organization to people's capacities & abilities. Ergonomic knowledge at workplace can be applied to improve well-being & productivity of employees. Physiotherapists possess a good practical & theoretical base on which they develop ergonomic & occupational health skills, in musculoskeletal areas.

### Research gap

While going through the research papers it was found that no research is done in ergonomics at bearing industry. And there are only few relevant papers to the research topic

### Objectives

- To examine the current ergonomic practices in the bearing industry.
- To identify ergonomic challenges faced by employees in the bearing industry.
- To explore the relationship between ergonomic factors and employee satisfaction.

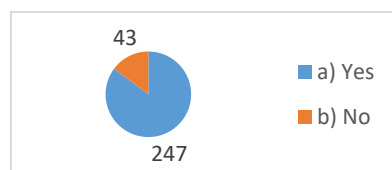
### Hypothesis

- Null Hypothesis (H<sub>0</sub>): There is no significant difference between ergonomic facility available employee satisfactions with respect to managerial level.

Alternative Hypothesis (H<sub>1</sub>): There is significant difference between ergonomic facility available employee satisfactions with respect to managerial level.

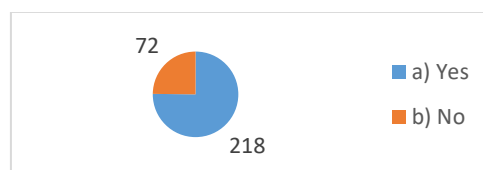
### Descriptive analysis

#### 1) Are you aware about workplace ergonomics followed at your company?



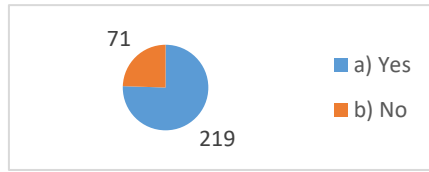
**Inference:** Workplace ergonomics means study of people in their working environment. Out of 290 respondents, 85.17% respondents are aware about workplace ergonomics followed at their company. Only 14.83% respondents are unaware about workplace ergonomics followed at their company.

#### 2) Are your shoulders relaxed when working on laptop/ machinery?



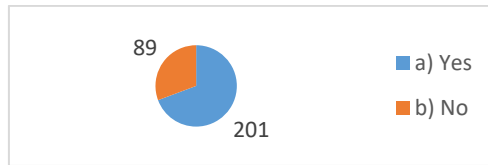
**Inference:** Shoulders are relaxed when working on laptop/ machinery means employees are not feeling any pain or discomfort while working. Out of 290 respondents, 75.17% respondents shoulders are relaxed while working and only 24.83% respondents shoulders are not relaxed while working.

**3) Are you comfortably able to work for the long term on a laptop placed on your desk?**



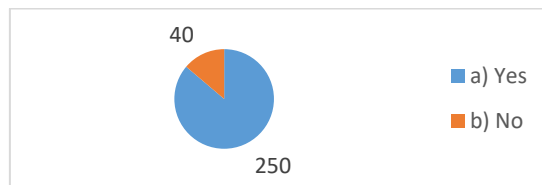
**Inference:** Working on laptop for longer time sometime causes back pain, shoulder pain and so on, but if the laptop is comfortably placed there is no discomfort. Out of 290 respondents 75.51% respondents comfortably able to work for longer laptop placed on their desk, only 24.49% respondents are not able to comfortably work on laptop for longer term placed on their desk.

**4) Is your elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable?**



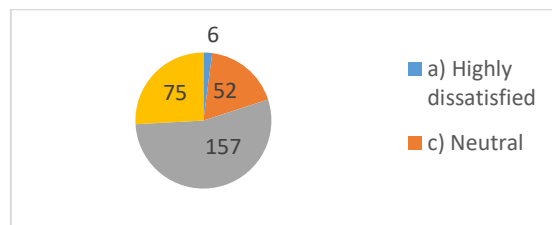
**Inference:** Elbow placed at 90 degree angle with upper arm that is proportionate to employees desk while using laptop which is adjustable, which means when arms are placed at 90 degree angle that is proper placement of arms which do not cause any discomfort to the employees. Out of 290 respondents, 69.31% respondents agree that their elbow is placed at 90 degree angle proportionate to your desk while using laptop is adjustable. While only 30.69% respondents disagree that their elbow is placed at 90 degree angle proportionate to your desk while using laptop is adjustable.

**5) Is your laptop kept at 25 inches away from your eyes?**



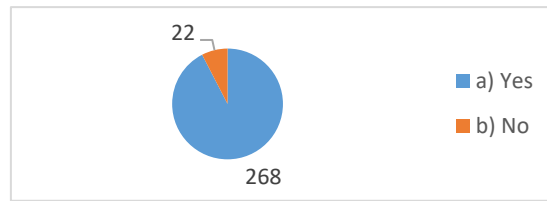
**Inference:** When laptop is kept at minimum distance of 25 inches away from eyes there is no strain on eyes. Out of 290 respondents, 86.20% respondents says that their laptop is placed at minimum 25 inches away from eyes, while 13.80% respondents says that laptop is not placed at minimum 25 inches away from eyes.

**6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk?**



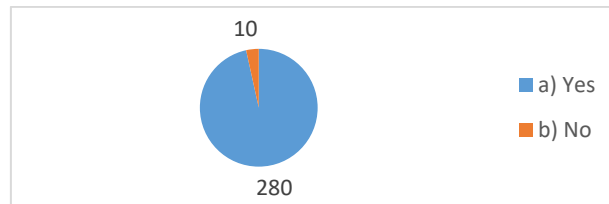
**Inference:** The place provide to keep laptop, notebook, and bag depends on the desk size, if the desk is big enough to keep all the things make employee satisfied as they don't have to bend or move to take the things. Out of 290 respondents, 80% respondents are highly satisfied or satisfied with the place provide to keep laptop, notebook on desk, and bag. 17.93% respondents are neutral neither satisfied nor dissatisfied with the place provide to keep laptop, notebook on desk, and 2.06% respondents are highly dissatisfied with the place provide to keep laptop, notebook on desk.

**7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes?**



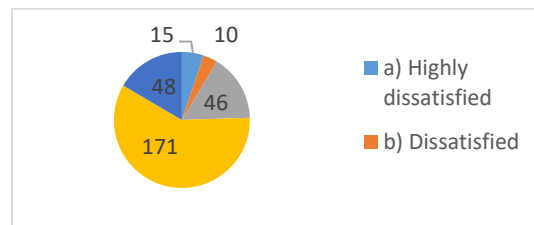
**Inference:** The proper arrangement of light. So there is no strain at respondent eyes means the employee do not feel dryness and pain in eyes. Out of 290 respondent, 268 respondent think that there is proper arrangement of light. So there is no strain at employees eyes and only 22 respondent think that there is no is proper arrangement of light. So there is no strain at respondent eyes.

**8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach?**



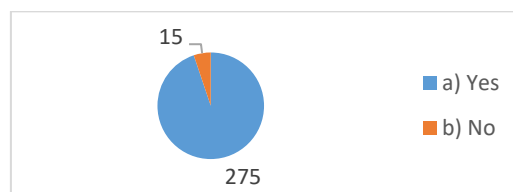
**Inference:** Most used items (like water bottle, notebook, stationary products, etc.) all available within easy reach means there is less body movement while using these products and the employee do not fell discomfort. Out of 290 respondent, 96.55% respondent most used items all available within easy reach. Only 3.45% respondent most used items are not available within easy reach.

**9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable?**



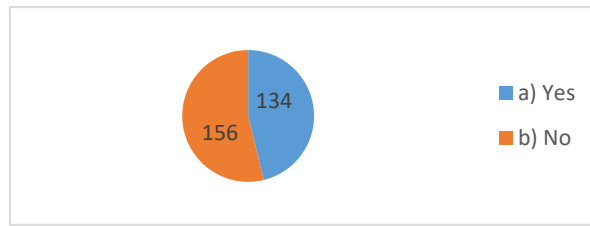
**Inference:** The chair provided at workplace is relaxing and comfortable, which gives comfort and relaxation to employees. Out of 290 respondent, 75.51% respondents are highly satisfied or satisfied with chair provided at workplace is relaxing and comfortable. 15.86% respondent are neutral neither satisfied nor dissatisfied with chair provided at workplace is relaxing and comfortable. 8.62% respondents are highly dissatisfied or dissatisfied with chair provided at workplace is relaxing and comfortable.

**10) Is the Table height suitable with sufficient space for legs?**



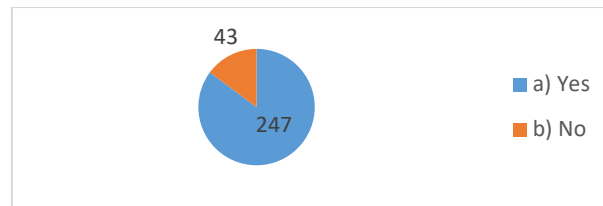
**Inference:** The table height suitable with sufficient space for legs means that the employees are comfortable with it. Out of 290 respondent, 94.82% respondent says that the table height suitable with sufficient space. 5.18% respondent says that the table height is not having sufficient space for legs.

**11) While using laptop for long term do you feel pain in your hands?**



**Inference:** While using laptop for long term employees feel pain in hands means it causes pain & discomfort to the employees. Out of 290 respondent, 53.79% respondent do not feel pain in hands while using laptop for long term. 46.21% respondents pain in hands while using lapto for long term.

**12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury?**



**Inference:** Out of 290 respondent, 85.17% respondent agrees that they are sitting properly which means respondent spine is properly placed which prevents spinal injury. 14.83% respondents disagrees that they are sitting properly which means employees spine is properly placed which prevents spinal injury.

### FINDINGS

#### ANOVA was applied on the raw scores

| ANOVA  |                |                |     |             |       |      |     |
|--|----------------|----------------|-----|-------------|-------|------|-----|
| Current managerial level   |                | Sum of Squares | df  | Mean Square | F     | Sig. |     |
| w1) Are you aware about workplace ergonomics followed at your company  | Between Groups | 1.749          | 2   | .875        | 6.334 | .002 | Sig |
|  | Within Groups  | 39.630         | 287 | .138        |       |      |     |
|  | Total          | 41.379         | 289 |             |       |      |     |
| w2) Are your shoulders relaxed when working on laptop/machinery  | Between Groups | 2.713          | 2   | 1.356       | 7.572 | .001 | Sig |
|  | Within Groups  | 51.411         | 287 | .179        |       |      |     |
|  | Total          | 54.124         | 289 |             |       |      |     |
| w3) Are you comfortably able to work for the long term on a laptop placed on your desk   | Between Groups | .461           | 2   | .230        | 1.244 | .290 |     |
|  | Within Groups  | 53.157         | 287 | .185        |       |      |     |
|  | Total          | 53.617         | 289 |             |       |      |     |
| w4) Is your elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable | Between Groups | 2.829          | 2   | 1.414       | 6.896 | .001 | Sig |
|  | Within Groups  | 58.858         | 287 | .205        |       |      |     |
|  | Total          | 61.686         | 289 |             |       |      |     |
| w5) Is your laptop kept at minimum 25 inches away from your eyes   | Between Groups | .472           | 2   | .236        | 1.991 | .138 |     |
|  | Within Groups  |                |     |             |       |      |     |



|   |                |         |     |       |       |      |     |
|---|----------------|---------|-----|-------|-------|------|-----|
|   | Within Groups  | 34.011  | 287 | .119  |       |      |     |
|   | Total          | 34.483  | 289 |       |       |      |     |
| w6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk       | Between Groups | 3.972   | 2   | 1.986 | 3.221 | .041 | Sig |
|   | Within Groups  | 176.942 | 287 | .617  |       |      |     |
|   | Total          | 180.914 | 289 |       |       |      |     |
| w7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes                     | Between Groups | .224    | 2   | .112  | 1.597 | .204 |     |
|   | Within Groups  | 20.107  | 287 | .070  |       |      |     |
|   | Total          | 20.331  | 289 |       |       |      |     |
| w8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach | Between Groups | .114    | 2   | .057  | 1.713 | .182 |     |
|   | Within Groups  | 9.541   | 287 | .033  |       |      |     |
|   | Total          | 9.655   | 289 |       |       |      |     |
| w9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable                       | Between Groups | 2.969   | 2   | 1.484 | 1.688 | .187 |     |
|   | Within Groups  | 252.345 | 287 | .879  |       |      |     |
|   | Total          | 255.314 | 289 |       |       |      |     |
| w10) Is the Table height suitable with sufficient space for legs  | Between Groups | .122    | 2   | .061  | 1.237 | .292 |     |
|   | Within Groups  | 14.103  | 287 | .049  |       |      |     |
|   | Total          | 14.224  | 289 |       |       |      |     |
| w11) While using laptop for long term do you feel pain in your hands  | Between Groups | .361    | 2   | .180  | 0.722 | .487 |     |
|   | Within Groups  | 71.722  | 287 | .250  |       |      |     |
|   | Total          | 72.083  | 289 |       |       |      |     |
| w12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury     | Between Groups | 1.228   | 2   | .614  | 4.980 | .007 | Sig |
|   | Within Groups  | 35.396  | 287 | .123  |       |      |     |
|   | Total          | 36.624  | 289 |       |       |      |     |

\* Significant at .05 level, 'F' value at .05 (7,289)= 2.05

\* Significant at .05 level, 'F' value at .05 (7,289)=2.05

It was evident from table that variability exists between w1) Are you aware about workplace ergonomics followed at your company of Current managerial level i.e. (Top level, Middle level and Operational level ) during employee satisfaction in Indian bearing industry.

Above table shows that a significant difference was found in the w1) Are you aware about workplace ergonomics followed at your company of the groups as, obtained F-ratio value (6.334) was higher than the tabulated value (2.05) required for F-ratio to be significant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w2) Are your shoulders relaxed when working on laptop/machinery of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a significant difference was found in the w2) Are your shoulders relaxed when working on laptop/machinery of the groups as, obtained F-ratio value (7.572) was higher than the tabulated value (2.05) required for F-ratio to be significant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w3) Are you comfortably able to work for the long term on a laptop placed on your desk of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w3) Are you comfortably able to work for the long term on a laptop placed on your desk of the groups as, obtained F-ratio value (1.244) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w3) Are you comfortably able to work for the long term on a laptop placed on your desk and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

It was evident from table  $-4.24$ , that variability exists between w4) Is your elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a significant difference was found in the w4) Is your elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable of the groups as, obtained F-ratio value (6.896) was higher than the tabulated value (2.05) required for F-ratio to be significant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w4) Is your elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between leave policy and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w5) Is your laptop kept at minimum 25 inches away from your eyes of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w5) Is your laptop kept at minimum 25 inches away from your eyes of the groups as, obtained F-ratio value (1.991) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w5) Is your laptop kept at minimum 25 inches away from your eyes and employee satisfaction in Indian bearing industry) Alternate hypothesis is accepted. (There is statistically significant relationship between w5) Is your laptop kept at minimum 25 inches away from your eyes and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a significant difference was found in the w6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk of the groups as, obtained F-ratio value (3.221) was higher than the tabulated value (2.05) required for F-ratio to be significant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w6) How much satisfied are you with the place provided to you to keep your laptop, notebook and bag on the desk and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes of the groups as, obtained F-ratio value (1.597) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes

and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w7) Is there proper arrangement of light (artificial/natural). So there is no strain at your eyes and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach of the groups as, obtained F-ratio value (1.713) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w8) Are your most used items (Like water bottle, notebook, stationary products, etc.) all available within easy reach and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable of the groups as, obtained F-ratio value (1.688) was higher than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable and employee satisfaction in Indian bearing industry).

Alternate hypothesis is accepted. (There is statistically significant relationship between w9) How much satisfied are you with the Chair provided at workplace is relaxing and comfortable and employee satisfaction in Indian bearing industry).

It was evident from table, that variability exists between w10) Is the Table height suitable with sufficient space for legs of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w10) Is the Table height suitable with sufficient space for legs of the groups as, obtained F-ratio value (1.237) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w10) Is the Table height suitable with sufficient space for legs and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w10) Is the Table height suitable with sufficient space for legs and employee satisfaction in Indian bearing industry)

It was evident from table , that variability exists between w11) While using laptop for long term do you feel pain in your hands of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a insignificant difference was found in the w11) While using laptop for long term do you feel pain in your hands of the groups as, obtained F-ratio value (0.722) was less than the tabulated value (2.05) required for F-ratio to be insignificant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w11) While using laptop for long term do you feel pain in your hands and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w11) While using laptop for long term do you feel pain in your hands and employee satisfaction in Indian bearing industry)

It was evident from table, that variability exists between w12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury of Current managerial level i.e. (Top level, Middle level and Operational level )during employee satisfaction in Indian bearing industry.

Above table shows that a significant difference was found in the w12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury of the groups as, obtained F-ratio value (4.980) was higher than the tabulated value (2.05) required for F-ratio to be significant at .05 level with (2,289) degree of freedom.

Null hypothesis is rejected (There is no statistically significant relationship between w12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury and employee satisfaction in Indian bearing industry)

Alternate hypothesis is accepted. (There is statistically significant relationship between w12) Do you think you are sitting properly which means your spine is properly placed which prevents spinal injury and employee satisfaction in Indian bearing industry).

So the final interpretation is as follow:

Null hypothesis is rejected. There is no significant difference between ergonomic facility available employee satisfactions with respect to managerial level.

Alternate hypothesis is accepted. There is significant difference between ergonomic facility available employee satisfactions with respect to managerial level.

## CONCLUSION

Most respondents are aware of workplace ergonomics. Shoulders of the most respondents are relaxed while working. Most respondents are comfortable to work on laptop for longer time period. Most respondents elbow placed at 90 degree angle with upper arm that is proportionate to your desk while using laptop which is adjustable. The laptop is kept at perfect distance from the eyes. There is enough place to keep laptop and bag on desk. There is proper arrangement of light to prevent strain of eyes. The chair provided at workplace is relaxing and comfortable. The desk is at proper height to give enough leg space to the respondents. Working for longer time on laptop causes pain in respondents. And the spine is properly place on chair while working. It can also be seen that there is significant difference between ergonomic facility available employee satisfactions with respect to managerial level.

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