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PERCEPTION OF DISCOMFORT CAUSED BY WORK ENVIRONMENT FACTORS AMONG BANK CLERKS

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ABSTRACT

Banks provide a wide range of financial services to both businesses and individuals. In India, there are 34 nationalized banks with a total workforce of about 7 lakh people. The banking industry has progressed tremendously since the 1990s due to technological advancements. It has evolved into a crucial commercial resource, opening up new markets, services, and delivery channels. Bank employees are exposed to long screen time, unsuitable temperature, and high noise levels, all of which are risk factors for workers developing environmental discomfort. Banks prioritize their employees' health, safety, and comfort, just as they do by providing quick service. Not only would this improve workplace ergonomics, but it will also stimulate employee morale. An exploratory study was conducted among 160 bank clerical staff (25-40 years) to determine the impact of environmental conditions (illumination, noise, and temperature) on bankers' daily discomfort. Using a self-constructed questionnaire, the questionnaire was validated by a pilot study. Lux meter, sound level meter, and Temperature application (Lux meter, Sound meter, Temperature checker) were used to measure the factors. The effects of illumination, noise, and temperature on self-perceived discomfort were quantified. Each bank visited had a unique set of environmental parameters. The main cause of ergonomic risk and discomfort among bank clerks was a lack of awareness and avoidance of individual health.

Keywords: Bank clerks, Illumination, Noise, Temperature, Discomfort.

1. Introduction

Ergonomics is relatively modern science that deals with adjusting the work environment, job activities, or work-related arrangements, as well as the people who operate the tool equipment at that workstation. This study aims to shed light on bank clerical employees and to evaluate environmental factors contributing to their discomfort and productivity. Banking jobs are extremely exhausting because of long work hours, an ineffective reward system, a lack of workplace autonomy, and role conflict. Managing stress at the workplace becoming increasingly important these days, particularly in the financial sector.

Banks are financial institutions that accept public deposits and generate demand deposits in addition to making loans. Modern banks carry out banking operations on a larger scale while adhering to regulatory requirements. The government has a significant influence over the banking system. This necessitates bank management that provides excellent customer service and creates a win-win situation for customers, banks, and the government. The banking sector is extremely important in today's economic world. They serve as a financial intermediary between individuals.

Banks are at the heart of the economy, lending money to both businesses and individuals. Workplace ergonomics standards improve employee productivity, safety, and health. The work environment contains elements that influence an employee's daily productivity which has impacts on employee happiness, workplace relationships, collaboration, efficiency, and health. Few surveys and studies confirm occupational discomfort but do not address ergonomic risk factors, particularly in Mumbai and its suburbs. The work environment includes elements that influence an employee's daily productivity. These factors have an impact on employee happiness, workplace relationships, collaboration, efficiency, and health. Thus, more than 60% of bank employees have been directly or indirectly involved by a variety of factors such as personal characteristics, working conditions and workstations, stress, and repetitive motions. The study concluded that predominant determinants of environmental factors (illumination, sound, and temperature) contributed significantly to the discomfort experienced by bank clerks.

This study focuses on how crucial it is to have a good working environment since it has a direct or indirect impact on employees' productivity and health. As a result, having standard environmental factors can benefit employees' well-being.

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2. Objectives

The specific objectives of the study are to; (i) gain knowledge of the demographic profile of bank clerical staff; (ii) evaluate the environmental factors (illumination levels, thermal comfort & noise levels) that contribute to the employee's discomfort, and (iii) suggest control methods to alleviate the discomfort experienced.

3. Methodology

An exploratory study was conducted among 160 banks' clerical staff (25-40 years), from 16 banks in Mumbai and its suburbs. These were purposefully chosen, and 20 clerical staff (of various designations) were randomly selected from various branches of these banks to assess the discomfort caused by environmental conditions among bank clerical workers. With the bankers' formed consent, a random selection approach was adopted. A self-constructed and validated questionnaire and a proforma for recording illumination and sound levels were used to collect data.

The questionnaire consisted of four sections: Part A (General Information), which collected information on the demographic profile of the bankers; Part B (Work-Related Profile), to obtain information on the job title and general work profile information; Part C (Standardised checklist for recording the environmental factors, such as illumination, sound, and temperature); Part D (factors contributing to the discomfort among bankers). A structured face-to-face interview (20 – 25 mins each) was conducted with the help of the questionnaire. Observations of the working posture helped analyze the good fit between the clerk and their workstation. The data collected through the interview method and survey method was systematically coded into an MS Excel spreadsheet. The data collected were analyzed using simple statistics like percentages, pivot tables, and charts/graphs.

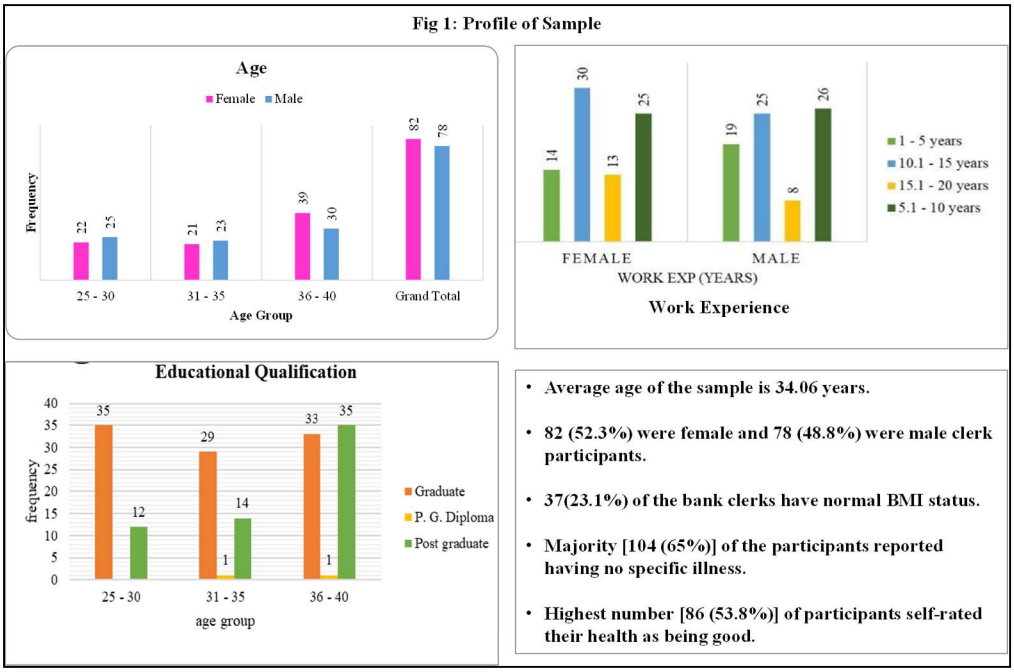
The Covid 19 crisis proved to be a challenging time for the frontline workers with the unwavering fear of being infected by the virus but the constant feeling of dedication towards their responsibility for serving society in their financial needs. It was difficult for the researchers to collect data from the participants by following all the necessary protocols and precautions.

4. Results and Discussion

Demographic Profile: Demographic information allows a better understanding of the relevant background characteristics of the participants, such as their age, race, ethnicity, income, work situation, marital status, etc.

Fig 1 presents the demographic profile of the study participants. The average age of the sample is 34.06 years, with 69 (43%) participants belonging to 36 – 40 years whereas 47 (29.8%) belong to the age group 25 – 30 years and 44(27.5%) to 31 – 35 years. The sample included 82 (51%) female clerks and 78 (49%) male bank clerks.

Fig 1: Profile of Sample



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97 (60.6%) were graduates, 61 (38.1%) were post-graduate studies and 2 (1.25%) completed their P.G. Diploma studies. Of the clerical staff included in the study, 33(20.6%) had 1-5 years of work experience, 55(34.3%) had 10.1-15 years of experience, 21(13.1%) and 51(31.8%) had 15.1 – 20 years and 5.1-10 years of experience respectively. reports the self-rated health of the participants. Highest number [86(53.8%)] of participants self-rated their health as being good, whereas 44(27.4%) rated themselves as having average health. 6(3.8%) rated themselves as having poor health. 46(56.1%) of female participants rated their health as being good and 40(51.3%) of males rated themselves as having good health.

Work Environment Factors (Illumination and Noise levels): The work environment is a that includes social, physical, and psychological factors that affect the employee's ability to perform the job. These factors do impact feelings of well-being, happiness at the workplace, workplace relationships, and collaboration. Ability to cooperate efficiently with co-workers etc. Employees usually spend a minimum of 45 -4 8 hours per week at their workplace. Numerous studies have reported that the workplace environment has a major impact on everything from happiness, and mood to productivity and focus.

- **Illumination:** Workplace illumination has an impact on employee performance, error rate, and health. It is necessary to create an appropriate environment to ensure worker comfort and efficiency. The recommended level as suggested by OSHA and other regulatory bodies average illumination level collected from eight banks visited was around 450 lux whereas 500lux is recommended. Thus, 450 lux is within the recommended illumination level for desk work/banks.

Fig 2, visual acuity is important. 94 (58.8 %) said they could see their work and work area clearly, while 66 (41.3 %) said they couldn't see their work area. Lighting fixtures at all 16 banks were in good working order, to 85 (53.1 %), and there was no flickering or stroboscopic effect. It is often not enough to simply install high-quality lighting fixtures; a regular maintenance and cleaning regimen is also essential. Because dirt on light fixtures reduces the amount of light given off, replacing bulbs and other lighting fixtures regularly, as well as cleaning the light fixtures, must be a scheduled program. When asked if the light fixtures were cleaned regularly, only 75 (46.8 %) of participants said yes, while 85 (53.12 %) replied negatively.

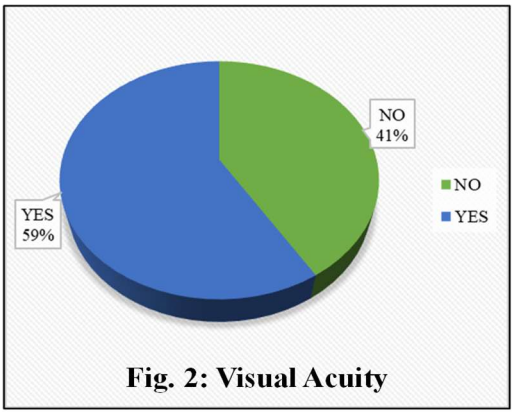

Fig. 2: Visual Acuity

Under illumination as well as over illumination has both advantages and disadvantages while % reported sufficient lighting, % reported excessive or over-illumination at their workplace. Over illumination is the presence of lighting intensity that is significantly larger than that required for a specific activity. Too much light can also cause safety and health issues such as "glare" headaches and stress. Both can result in mistakes at work, poor quality, and low productivity.

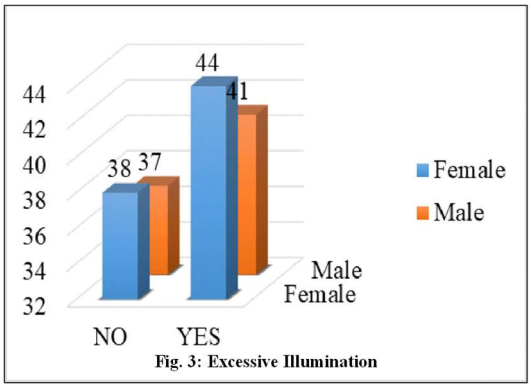

Fig. 3: Excessive Illumination

Insufficient lighting causes eye strain, fatigue, and headaches. Excessive lighting in the workplace, on the other hand, causes safety and health issues. According to fig 3, clerical staff was asked about excessive lighting levels at their workplace. Excessive lighting was identified as a problem in 85 (53.1 %) of the participants' workplaces.

Glare is defined as a loss of visual performance or discomfort caused by the light intensity in the visual field that is greater than the intensity of light to which the eyes are adapted. Simply put, glare occurs when an excessive amount of light enters your eye and interferes with its ability to manage it. Glare is classified into discomfort glare and disability glare. When there is glare, your eyes are forced to constantly attempt to distinguish the glare from the visual tasks. As a result, headaches, eyestrain, and fatigue occur. Glare is caused by excessive light in the visual field. Glare can impair vision many times, harming human performance and health.

Employees were asked if they had a glare on their monitors; the graph shows that 43 (26.8 %) of male employees do, while 35 (21.8 %) do not. The glare on the monitor bothers 39 (24.3 %) of the females but not the remaining 43 (26.8 %).

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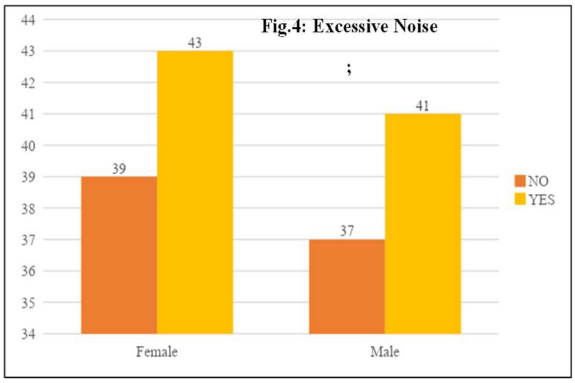
- **Noise at Workplace:** Noise refers to unwanted sounds or those that may harm workplace safety, productivity, and employee hearing. Noise at work can cause permanent and disabling hearing damage. Noise exposure can cause damage over time, but it can also be caused by sudden, extremely loud noises. The damage is disabling in that it can prevent people from understanding speech, keeping up with conversations, or using the phone. Hearing loss isn't the only issue. Tinnitus (ringing, whistling, buzzing, or humming in the ears) is a distressing condition that can cause sleep disruption.



Noise at work can disrupt communications and make warnings difficult to hear. It can also cause a person to become less aware of his or her surroundings. These factors can pose safety risks, putting people in danger of injury or death. Sound intensity of 85dBA or less is generally regarded as safe. Any sound at or above 85 dBA is more likely to cause long-term hearing damage. Researchers discovered that people who are exposed to noise levels of 85 decibels or higher for extended periods are at a much higher risk of hearing loss.

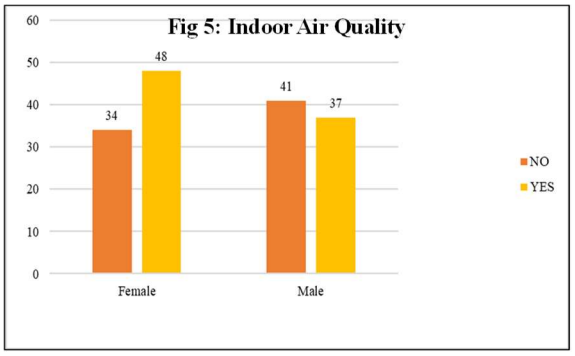
Excessive noise was reported by 84 (52.5 %) of those surveyed at their workplace. Of the 84 people who complained about the noise levels, 43 (26.8 %) were female clerical workers and 41 (25.6%) were male clerical workers. The noise levels were reported to be within the tolerance limits of 76 (47.5 %).

- **Thermal Comfort:** 'Thermal comfort' is feeling neither too cold nor too warm while wearing a typical quantity of clothing. Thermal comfort is critical for one's well-being as well as productivity. Ambient air is atmospheric air in its natural state, free of airborne pollutants and thus proves to be unhealthy. As the study was carried out in Mumbai and its suburbs and thus, Mumbai's weather can be best described as moderately hot with high levels of humidity so AC is usually preferred over air coolers.

As is aptly stated, 'every coin has two sides' likewise air conditioners substantiate to be a cooling factor in this Mumbai heat but it also has some drawbacks to mention a few Increased exposures to air conditioning can cause your skin to lose moisture, making it sensitive and dry. It can also induce mucous membrane irritation and inflammation. The symptoms of several respiratory disorders have been demonstrated to be exacerbated by a sudden shift in temperature. Dust, germs, and pollen can build up in the air filters if the air conditioner is not cleaned regularly. Asthma attacks and respiratory tract infections will be greatly increased as a result. Although, air conditioners if used on a comfortable level can help keep the environment cool and pleasant and also out of humidity which can only result in employees' increased productivity.

85 (53.1 %) of bank employees (44 females and 41 males) reported that the temperature in the workplace was comfortable, while 38 females and 37 males reported that the temperature in the workplace was not comfortable. When asked if their neck, shoulders, or upper back are exposed to cold temperatures, many [83(51.9 %)] said yes, their back, shoulders, and upper back are exposed to the cold blast from the air conditioning unit.

- **Ventilation and Quality of Indoor Air:** Proper ventilation aids in the improvement of indoor air quality. Indoor humidity and airborne contaminants, both of which contribute to or pose health risks, can be controlled by ventilation. OSHA has no Indoor Air Quality (IAQ) standards but it does provide guidelines about the most common IAQ workplace complaints. The qualities of a good IAQ should include comfortable temperature and humidity, an adequate supply of fresh outdoor air, and control of pollutants from inside and outside of the building.



Temperature and humidity cannot be tightly controlled, there are no filtration, reduced security, poor ventilation control, less flexible air intake locations- air quality issues, and the system is less effective during hot, humid summer days. The regular operation of a mechanical

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ventilation system is frequently disrupted by a utility service interruption or equipment failure. Because of these issues, mechanical ventilation systems may contribute to the spread of pollution in the area rather than being a necessary tool for providing healthy air.

In most workplaces, mechanical ventilation is part of the demographic process to ensure good ambient air parameters, fresh outdoor air, and removes contaminated indoor air. Natural ventilation (for example, by opening a window) or mechanically (e.g., fans or blowers). Fig 8 depicts the study participants' responses if the ventilation ducts are unobstructed and clean. 89 (55.7 %) said yes, while 71 (44.3 %) said it was dirty or obstructed. Poor indoor air quality can harm a worker's health in a variety of ways. Numerous studies have found a direct relationship between workplace air quality and productivity. Impurities in the air can reduce employee productivity, stifling economic growth. Workers are also more likely to be absent from work due to illness caused by poor indoor air quality. Because workplace productivity is dependent on employees being present and working efficiently, anyway an employer can assist their employees in staying healthy is beneficial.

When asked if indoor air quality was acceptable for the majority of occupants, i.e. temperature, humidity, airflow, etc., 85(53.1 %) said they were satisfied with the quality of the indoor air within their premises, while 75(46.9 %) said no.

5. Suggestions

A productive work environment is both safe and healthy. All organizations, regardless of size or industry, should strive to create an ergonomically sound workplace for all employees–simply it's good for the economy. Poor ergonomic practices can lead to decreased productivity and, in extreme cases, physical injury, which is detrimental to the organization. However, regardless of how well an organization designs a workspace, it is the responsibility of each employee to ensure that they are using good ergonomics at their workstation and in their surroundings.

The overall working environment is frequently overlooked when discussing employees' health and well-being. Lighting, temperature, and air quality are all mandatory requirements.

a) Good Illumination

- Lighting should not cause glare on computer screens, so many workplaces should be outfitted with softer lighting systems. Lighting that is suitable for reading printed material is not always suitable for computer displays.
- One of the most important aspects of proper lighting ergonomics is ensuring adequate lighting around the workstation. Because poor lighting forces the eyes to work harder to make sense of the task, eye strain and headaches result.
- A typical office space should be illuminated with 300 – 500 lux. During the day, make use of natural lighting.
- Choosing a bulb with a higher lumen output (a measure of brightness) provides brighter light.
- Using a combination of direct and indirect lighting can help to eliminate dark spots and shadows.
- Evenly illuminate the workstation. Make sure there is enough contrast between the background and the foreground.
- Cleaning of lighting fixtures from time to time.
- Avoid placing your computer monitor or screen directly beneath an overhead light fixture.
- If an individual sit directly beneath a light fixture, have maintenance remove a bulb or two to make light levels more compatible with your work tasks.
- At the desk, general office lighting should range from 20 to 50 foot-candles, with older workers typically requiring the higher end of the range. The best overall lighting environment is provided by indirect lighting fixtures.
- Diffusers should be installed on standard fluorescent fixtures to soften the light. Because of their warmer colour and reduced glare, soft white fluorescent or full-spectrum bulbs are preferred.
- Make a visor for the top of your monitor (a file folder works well) to shade it, or tilt the monitor downward.

b) Thermal Comfort

- Temperature settings are a little trickier because everyone's preferences differ, but every effort should be made to keep a temperature that is comfortable for as many people as possible. Colder temperatures, in particular, should be avoided to prevent MSD injuries.
- To keep the work area clean which will lower the levels of dust, molds, allergens, etc contaminants that spread through the air.

c) Air Quality

- The use of air-cleaning devices such as air scrubbers, dehumidifiers, and air purifiers are excellent ways to maintain good IAQ and avoid hiring professionals.
- HVAC systems should be cleaned regularly.

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- Turn off your HVAC system and open the windows whenever possible to allow fresh air into the building. Make sure that air vents are not obstructed.
- To carry out Indoor air tests which will provide workers with the necessary information and insights to improve IAQ (Indoor Air Quality).

d) Noise Reduction

- To get rid of preferably high sound levels, install noise-friendly floorings such as engineered hardwood and easy-to-maintain LVT flooring. Carpet is also a good alternative.
- Installing sound insulation material is a time-consuming and costly option for reducing noise in the office space.
- Finally, adhere to the ABCs of acoustic design.
    - A - absorb (i.e. ceiling tiles)
    - B - Section (i.e. cubical partitions)
    - C - Coverage (i.e. sound masking).

Conclusion

The study concludes that the illumination level, sound level, and temperature should be maintained correctly; otherwise, it can hinder worker productivity and well-being and is perhaps one of the causes of MSDs. According to the findings of the study, more than 60% of employees are still experiencing discomfort as a result of environmental factors. As a result, the proper application of ergonomics can benefit the worker and improve their efficiency, workplace relationships, and employees' health.

This study will provide bank employees with useful information about the importance of proper environmental factor use. The research was carried out in the banking industry. The Human Resources department may use this to investigate the firm's level of work satisfaction with ergonomic design. Participatory research methods such as group discussions, sharing personal experiences, interviews, surveys, and data analysis can be used to conduct workshops on thermal comfort, natural and mechanical ventilation, proper air quality, and other topics.

Other professions, such as desk workers, government officials, receptionists, and so on, can be included. Furthermore, researchers can conduct the research using public health research, health policy and system research, product development, and other methods to expand on the existing study on bankers. In the interest of worker safety and comfort. Creating a workplace health and safety policy that includes risk assessments, incident management, and emergency management action plans. Because ergonomics information is useful to everyone, the research will benefit.

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