



Tilak Maharashtra Vidyapeeth Lokamanya Tilak College of
Physiotherapy Kharghar, Navi Mumbai

Work Related Low Back Pain in Sedentary Railway Officials of the Age Group 30 to 60 Years at Chhatrapati Shivaji Maharaj Terminus Mumbai- A Survey Study

Research Project Submitted to Maharashtra University of Health Sciences, Nashik

BY

SUBMITTED BY

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UNDER GUIDANCE OF

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SUBMITTED TO

TMV's Lokamanya Tilak College Of Physiotherapy, Kharghar,
Affiliated to MUHS

CERTIFICATE

This is to certify that MISS SUDI KSHA DHARMENDRA RATHOD has satisfactorily completed research project titled WORK RELATED LOW BACK PAIN IN SEDENTARY RAILWAY OFFICIALS OF THE AGE GROUP OF 30 TO 60 YEARS AT CHHATRAPATI SHIVAJI MAHARAJ TERMINUS MUMBAI- A SURVEY STUDY

As a requirement for Bachelors Of Physiotherapy degree at Maharashtra University of Health Sciences for the academic year 2021-2022.

Guide
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ACKNOWLEDGEMENT

First and foremost, this research would not have been possible without the grace and the blessings of the Lord Almighty. It is my pleasure to acknowledge the roles of several individuals who were instrumental for completion of my research. I wish to express my sincerethanks to my college Principal, **Dr. Shweta Phadke** for granting me the permission to carry out this research & providing me with all the necessary facilities.

I would also like to thank and express my sincere gratitude to my guide **Dr. Tejal Pardeshi (PT), Assistant Professor** who initially helped me in preparing my research study and later **Dr. Jyoti Parle (PT), HOD & Professor** who helped me in the final stages of my research. I would like to express my deepest sense of thanks & gratitude to the controlling officer and allvolunteers of Central Railway who whole heartedly helped me in conducting this study. I take this opportunity to thank profusely all the faculty members of the Department of Physiotherapy of my college for their help & encouragement throughout my study period. My deepest appreciation with greatest debt of gratitude belongs to my father **Shri D.M.Rathod** & my mother **Smt Vaijanti Rathod** for their patience, unceasing support & encouragement. I would also like to thank my brother **Mr. Dhaval Rathod** and **Mr. Saahil Rathod** for their technical help in preparing my subject study report including Master Chart. I would also like to extend my heartfelt gratitude to thank my colleagues for their assistance & for successful completion of my research. I also place on record, my sense of gratitude to one & all, who directly or indirectly have lent their helping hand in this valuable research.

Date: 17.06.2022

Place: Lokmanya Tilak College Of Physiotherapy

ABSTRACT

➤ **Objectives:**

To carry out a survey study on work related low back pain in sedentary railway officials of age group 30 to 60 years. To study the level of disability of low back pain among railway officials. To study the affection of low back pain among males and females.

➤ **Methods:**

Ethical clearance was obtained from the ethics committee. Cross Sectional Study was performed with convenience sampling. 100 Samples were taken from sedentary railway officials of the age group 30-60 years at Chhatrapati Shivaji Maharaj Terminus, Mumbai. Based on exclusion and inclusion criteria Modified Oswestry Low Back Pain Disability Questionnaire was used.

➤ **Results and Conclusions:**

Based on the data collected by the researcher, it was concluded that 61 participants had complained of low back pain among which 44 were males and 17 were females. Since most of the officials were desk workers, long hours on desktop PCs and constantly sitting in one posture has resulted in more stress on the back.

➤ **Limitations:**

Disparity in volume of males and females. Study was limited to only Railway Officials of one Railway station of Mumbai only. Study included certain drawbacks regarding individual work load details and sitting ergonomics. The study does not cover consultation of doctor for pain.

Keywords:- Low Back Pain, Gender, Age, Disability, Modified Oswestry Low Back Pain Disability Questionnaire was used.

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LIST OF ABBREVIATIONS

1. LBP : Low Back Pain
2. MLBP : Mechanical Low Back Pain.
3. CA : Chartered Accountant.
4. HOER : Hours of Employment Rules.
5. RA : Rheumatoid Arthritis
6. OA : Osteoarthritis
7. TB : Tuberculosis.
8. MOLBPDQ : Modified Oswestry Low Back Pain Disability Questionnaire.
9. PCs : Personal Computers.

CHAPTER ONE INTRODUCTION

Low back pain (LBP) is the most common cause of disability worldwide. [1] LBP is defined as ‘pain and discomfort’ localized below the costal margin and above the inferior gluteal folds with or without leg pain’ [2] LBP can be categorized into 3 types a) Acute, b) Sub-Acute & c) Chronic. Acute low back pain is defined as an episode of pain persisting for 7 to 10 days, sub-acute as pain persisting between 10 days to 7 weeks and chronic as pain persisting longer than 7 weeks. [3]

The causes of low back pain are a) Structural (mechanical and non-specific), b) Neoplasm (primary or metastatic), c) Referred to spine, d) Infection (osteomyelitis), e) Inflammatory (spondylitis), f) Metabolic. Mechanical back pain could be a general definition that refers to any sort of back pain caused by inserting abnormal stress and strain on muscles of the backbone. Mechanical low back pain (MLBP) is a major cause of illness and disability, especially in people of working age. Typically, mechanical pain results from dangerous habits, like poor posture, poorly designed seating, and incorrect bending and lifting motions. [4]

The major contribution for low back pain comes from long sedentary hours, high amount of work load, low motivation, inappropriate sitting posture, long office hours sustaining one posture for prolonged period of time and continuing same job for many years. The five most common pain producing structure of low back are posterior longitudinal ligament, interspinous ligament, spinal nerve roots, facet joints and deep and muscles. [5]

➤ *There are four types of postural alignment that deviate from the ideal alignment are as follows*

a) Kyphosis, b) Lordosis, c) Sway back and d) Flat back. Various posture attend during sitting are slouching with the shoulders hunched forward, cradling phone between shoulder and the neck, sitting with crossed legs on chair, sitting with leaning to one side of the arm rest. There are various types of sitting jobs such as a) Railway Officials, b) Bankers, c) IT Professionals, d) Teachers, e) Advocates, f) Drivers, g) Receptionist, h) CA, etc. [6] Railway officials are commonly exposed to prolonged sitting or standing, lifting heavy loads, vibration, non-neutral body posture and psychological stress due to rigid protocols and limited rest in the course of their work, particularly during locomotive engine operation, railway track maintenance, shunting and freight, fleet services which are likely to perpetuate significant ‘yellow flags’ of workers LBP. [7]

Men and women are equally reported to be affected by low back pain. [2] While overall females have higher prevalence of low back pain (LBP) across all age groups, this male vs. female difference in LBP prevalence further increases after female menopause age. Postmenopausal women show accelerated disc degeneration due to relative estrogen deficiency leading to LBP. The most common age group to be affected among the males was 31-40 years of age, where 38.6% were affected, while amongst the female the most common age group to be affected was 41-50 years with 38.1%. [2]

Indian Railways is one of the biggest Government owned organization comprising of 1.6 million employees. The services of these employees are classified in to 4 major groups. Group A & B or Class I & II are officers, Group C or Class III are supervisors, ministerial staff etc., and Group D or Class IV staff are Peons, Khalasis etc. The biggest contributors for the Railway services are Group C officials. The further detailed classification of Group C employees are as follows [8] :-

- *Technical Supervisors such as Senior Section Engineer, Section Engineer, and Junior Engineer I & II.*
- *Ministerial Staff, such as Chief Office Superintendent, Office Superintendent, Gr I & II, Jr./Sr. Clerks*
- *Drawing/Design Supervisors such as Senior Section Engineer, Section Engineer, Junior Engineer I & II.*
- *Loco Inspectors, such as Chief Loco Inspectors, Loco Inspectors.*
- *Loco Maintenance, such as Senior Section Engineer (Loco), Section Engineer (Loco).*
- *Stenographers Gr. I & II.*

➤ *The Present Survey Study is to be Carried Out on Group C Officials*

- *Technical Supervisors Such as Senior Section Engineer, Section Engineer, Junior Engineer I & II*
- *Ministerial Staff, Such as Chief Office Superintendent, Office Superintendent, Jr./Sr. Clerks) of Headquarters Office of Chhatrapati Shivaji Maharaj Terminus, Mumbai.*

➤ *Need for Study*

Indian Railways is one of the biggest organization owned by the Government of India. At present, a total of about 1.6 million employees are working under this organization. Majority of the employees work in offices and come under Group C (Ministerial staff working in offices) category, which comprises about 92.6% of the entire Railway work force.

Hence, nearly 1.45 million i.e 14.5 lakhs employees work in office with desk jobs. As per HOER(Hours of Employment Rules), each employee works for nearly 8.5 hours in office with half hour break for lunch. Continuous working on desktop computer results in stiffness of back and leads to low back pain.

So need of the hour is to do a survey study of work related low back pain in sedentary railwayofficials of the age group of 30 to 60 years at Chhatrapati Shivaji Maharaj Terminus, Mumbai with help of Modified Oswestry Low Back Pain Disability Questionnaire.

CHAPTER TWO

REVIEW OF LITERATURE

- Prevalence and associated occupational factors of low back pain among the bank employees in Dhaka City. (2020); by Mohammad Ali et.al. have stated in their study that The 1-month prevalence for LBP was found to be 36.6% among the bank employees, and the prevalence was the highest (64.3%) for the 51- to 59-year-old age group. The regression analysis indicates that respondents from both age groups, 41-50years (OR = 2.00, 95% confidence interval [CI] = 1.10-3.69) and 51-59 years age groups (OR = 5.14, 95% CI = 2.05-13.64), are significantly associated with LBP. Furthermore, obesity (OR = 2.06, 95% CI = 1.01-4.21), and prolong working hours (>9hours) (OR = 1.42, 95% CI = 1.01-2.0) are positively associated with LBP. The top five important variables for LBP identified by random forest technique are: age, length of employment, prolong office hours, presence of chronic illness, and physical activity.
- Psycho-Behaviourial risk of low back pain in Railway workers (2014); by K. Ganasegeran et.al. in their study stated that there were 513 study participants (70% response rate). The prevalence of LBP in the previous month was 69%. Multivariate analysis yielded four significant predictors of LBP employment of ≥ 10 years, lifting and lowering heavy loads, prolonged standing posture and psychological stress.
- Prevalence and risk factors of low back pain (2018) by Jella Ramdas et. al. in their study have clarified that the most common age group to be affected among the males was 31-40 years of age, where 38.6% were affected, while amongst the female the most common age group to be affected was 41-50 years with 38.1%. Most of the patients has strenuous physical exercise on daily basis for long period of time (70.9%). 58.3% patients were under stress and anxiety, while 56.3% lifted heavy weights regularly. 44.7% persons were either overweight or obese and had LBP due to the excess weight, while 28.6% had LBP due to sitting for long periods.
- Prevalence of back pain and associated factors among bank staff in selected banks in Kigali, Rwanda: A cross sectional study (2017) by Livingstone Kanyenyeri et.al. have enumerated that the prevalence of back pain among the bank staff was found to be 45.8%. Multiple logistic regression revealed that having no break off during working time {AOR=3.96; 95% CI=1.71-9.20; $p < 0.001$ }, sitting in a back bent position {AOR=9.20; 95% CI=2.41-35.17; $p = 0.001$ } and sitting in back twisted position {AOR=25.87; 95% CI=6.71-99.65; $p < 0.001$ } were predictors of back pain
- Prevalence and Risk Factors of Low Back Pain among Office Workers in Lebanon.(2015) by Wafa Bawabi et.al. Their results show that 112 (44.8%) of the recruited population suffer from back pain. Females are the most affected (68%) versus males (32%) ($P = 0.023$). The logistic regression showed that LBP was positively associated with backbone crookedness ($P = 0.003$), knee pain ($P < 0.001$), wrist pain ($P = 0.002$), contractions ($P = 0.014$), numbness ($P = 0.009$), previous treatment for back pain ($P < 0.001$), doctor consultation ($P = 0.029$), household work for 3-6 hours ($P = 0.001$), maintaining same posture for > 5 hours ($P = 0.024$), fear of changing job ($P = 0.036$) and higher BMI ($P = 0.005$). However, use of ergonomic chair, job advancement satisfaction, making radiography was negatively associated with LBP with P value=0.072, 0.022,0.005 respectively. LBP has an important prevalence among office worker in Lebanon.
- Prevalence of Low Back Pain in Sitting Vs Standing Postures in Working Professionals in the Age Group of 30-60.(2017) by Divya Pillai et.al have stated in their study that 76% of individuals with sitting occupation and 70% of individuals with standing occupations experience low back pain. 63.15% of individuals with sitting occupations and 60% of individuals with standing occupations feel that improper ergonomics might be one of the causes of their low back pain.
- *Aim and Objectives*
 - *Aim*
To study work related low back pain in sedentary railway officials of the age group 30 to 60 years at Chhatrapati Shivaji Maharaj Terminus, Mumbai.
 - *Objective*
 - ✓ To carry out a survey study on work related low back pain in sedentary railway officials of age group 30 to 60 years.
 - ✓ To study the level of disability of low back pain among railway officials.
 - ✓ To study the affection of low back pain among males and females.
- *Hypothesis*
 - *Null*
There is no marked significance in work related low back pain in sedentary railway officials of age group 30-60 years .

➤ *Alternate*

There is significant prevalence of low back pain in railway officials of age group 30-60years.

CHAPTER THREE METHODOLOGY

➤ *Group C*

- Technical Supervisors such as Senior Section Engineer, Section Engineer, Junior Engineer I & II
- Ministerial Staff, such as Chief Office Superintendent, Office Superintendent, Jr./Sr. Clerks).^[8]

➤ *Desk Job.*

- *Age – 30 to 60 years.*^[6]
- *Those who were willing to participate in the study and ready to fill the consent form.*
- *Officials who maintained a regular office hours for at least one year in railways.*^[5]

➤ *Exclusion Criteria:*

- History of acute trauma to low back, recent condition of fall, etc.^[9]
- Age below 30 and above 60 years.
- Known case of active infection e.g. TB Spine.^[9]
- Pregnant females.^[5]
- Breast feeding females & post-partum 6 months.^[5]
- Previous surgical history (lumbar laminectomy, discectomy for herniated disc, etc.).^[5]
- Degenerative and inflammatory condition (RA, OA etc.).^[5]
- Presently undergoing treatment /on medication for lowback pain.

➤ *Materials:*

Data Collection Sheet, Consent Form, Information Sheet, Pen.

➤ *Outcome Measures:*

Modified Oswestry Low Back Pain Disability Questionnaire

CHAPTER FOUR PROCEDURE

- *The study is going to be carried out on sedentary railway officials (Group C (i) &(ii)) on platform no.13 at Chhatrapati Shivaji Maharaj Terminus, Mumbai in the age group 30-60years*
- *Ethical clearance will be obtained from the ethical committee of Lokmanya Medical College of Physiotherapy, Kharghar, Navi Mumbai.*
- *Based on inclusion and exclusion criteria, a sample of (n=100) will be selected*
- *The objectives of the study will be explained to the subjects through an information sheet.*
- *The consent form will be filled by the subjects in presence of the examiner*
- *Subjects were asked to rate the occurrence of pain or discomfort in the low back with 4answering categories. [5]*
- *No Compliant b) Only once/a little c) Of short duration d) Frequently/Serious*
- *Subjects who answered “No compliant or “Only once/a little” on low back pain wereclassified as having NO Low Back Pain.*
- *Those who answered “Of short duration/some” or “Frequently/Serious” were classified ashaving complaints of Low Back Pain*
- *Age will be categorized in to 3 Groups.*
- *Group A- 30 to 40 years,*
- *Group B- 41 to 50 yearsGroup C-51 to 60 years*
- *Modified Oswestry Low Back Pain Disability Questionnaire will be administered to those subjects who complained of Low Back Pain.*

Table 1 Modified Oswestry Low Back Pain Disability Questionnaire (MOLBPDQ)

COMPONENTS (10 items)	
Pain Intensity,	Standing
Personal Care	Sleeping
Lifting,	Social Life
Walking,	Traveling
Sitting,	Employment

- *Total Score : 50*

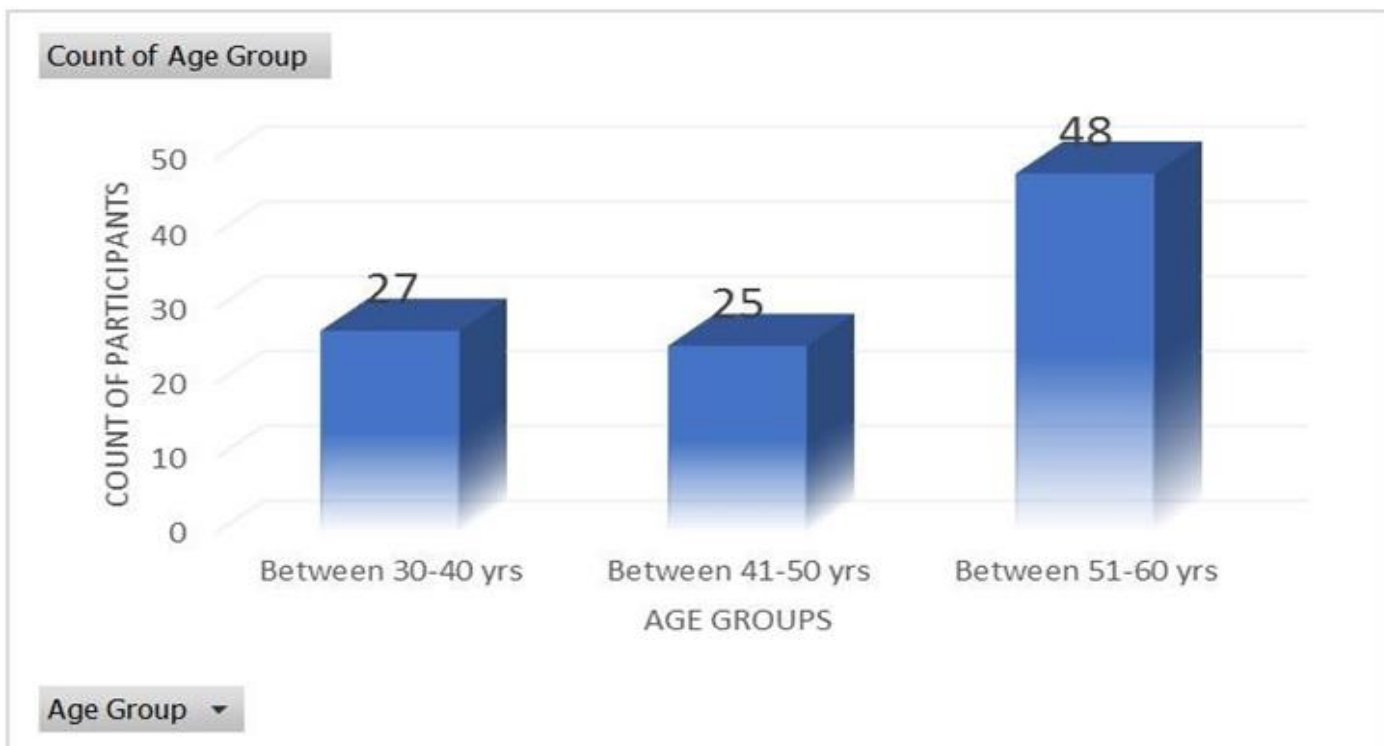
Table 2 Total Score

NO DISABILITY	0-4
MILD DISABILITY	5-14
MODERATE DISABILITY	15-24
SEVERE DISABILITY	25-34
COMPLETELY DISABLED	35-45

- *Reliability and Validity:*
- *Gold standard scale for low back pain (To measure subject’s functional disability). [12]*
- *Most reliable and valid scale. [10][11]*
- *Sufficient width scale to reliably detect improvement or worsening in most subjects.*
- *Cronbach’s alpha value = 0.90 [10]*

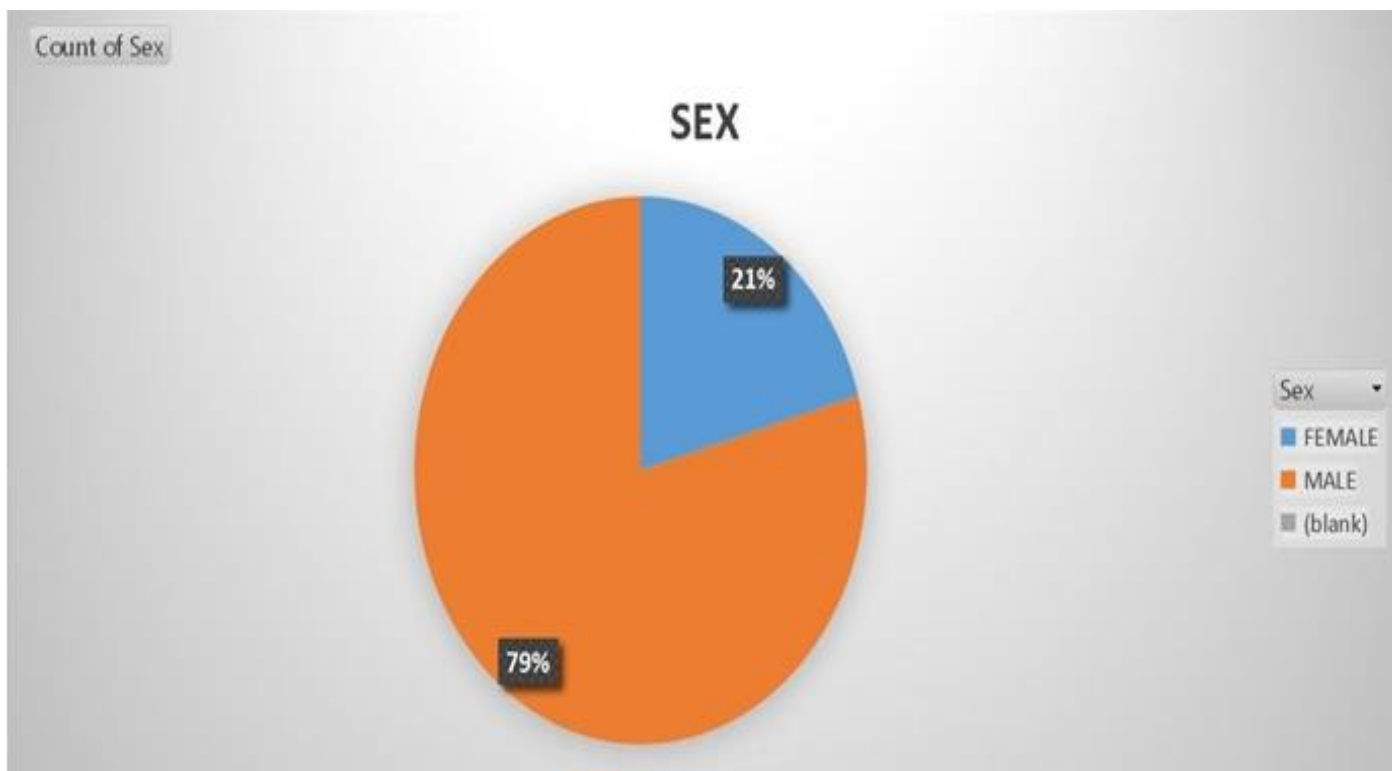
CHAPTER FIVE DATA ANALYSIS AND RESULTS

A total of 100 Railway employees have participated in the above study.



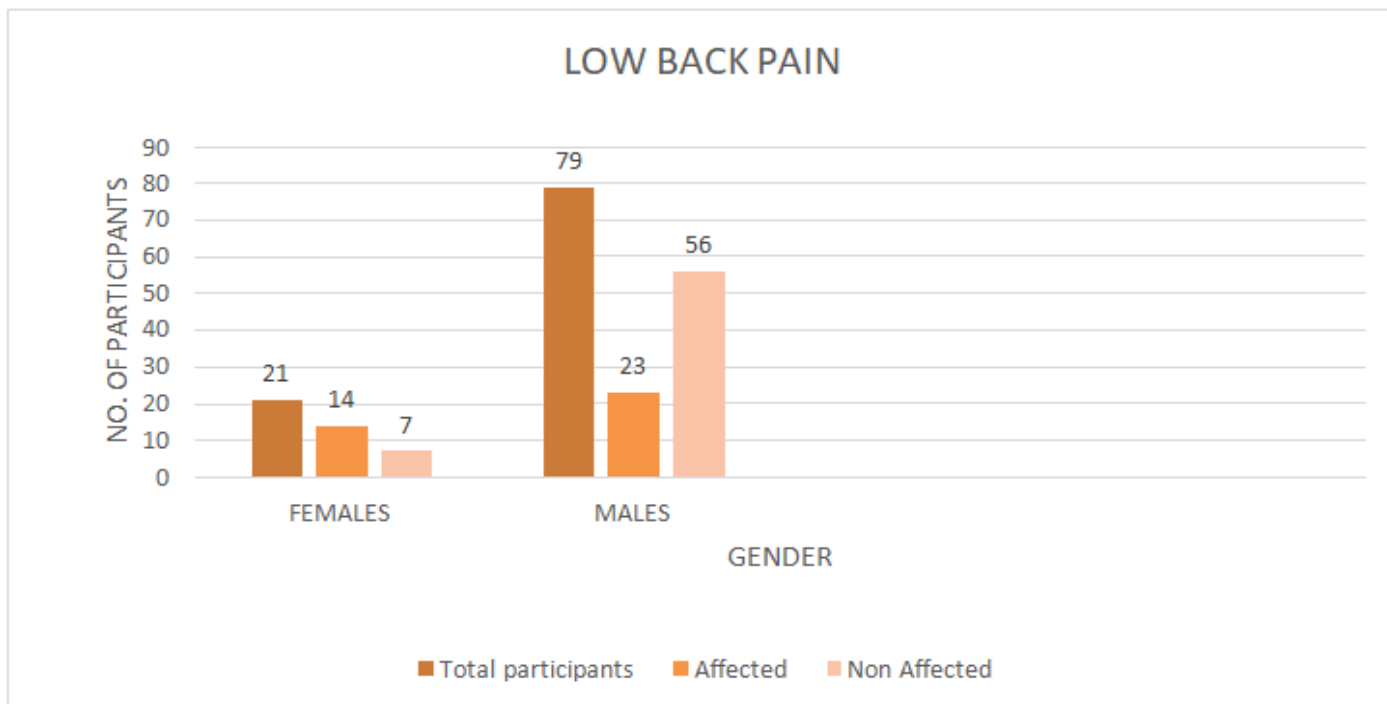
Graph 1 Age Group of Participants

➤ *Interpretation :*
Majority of the participants reported for this study were in the agegroup of 51 to 60 years (Total 48 participants)



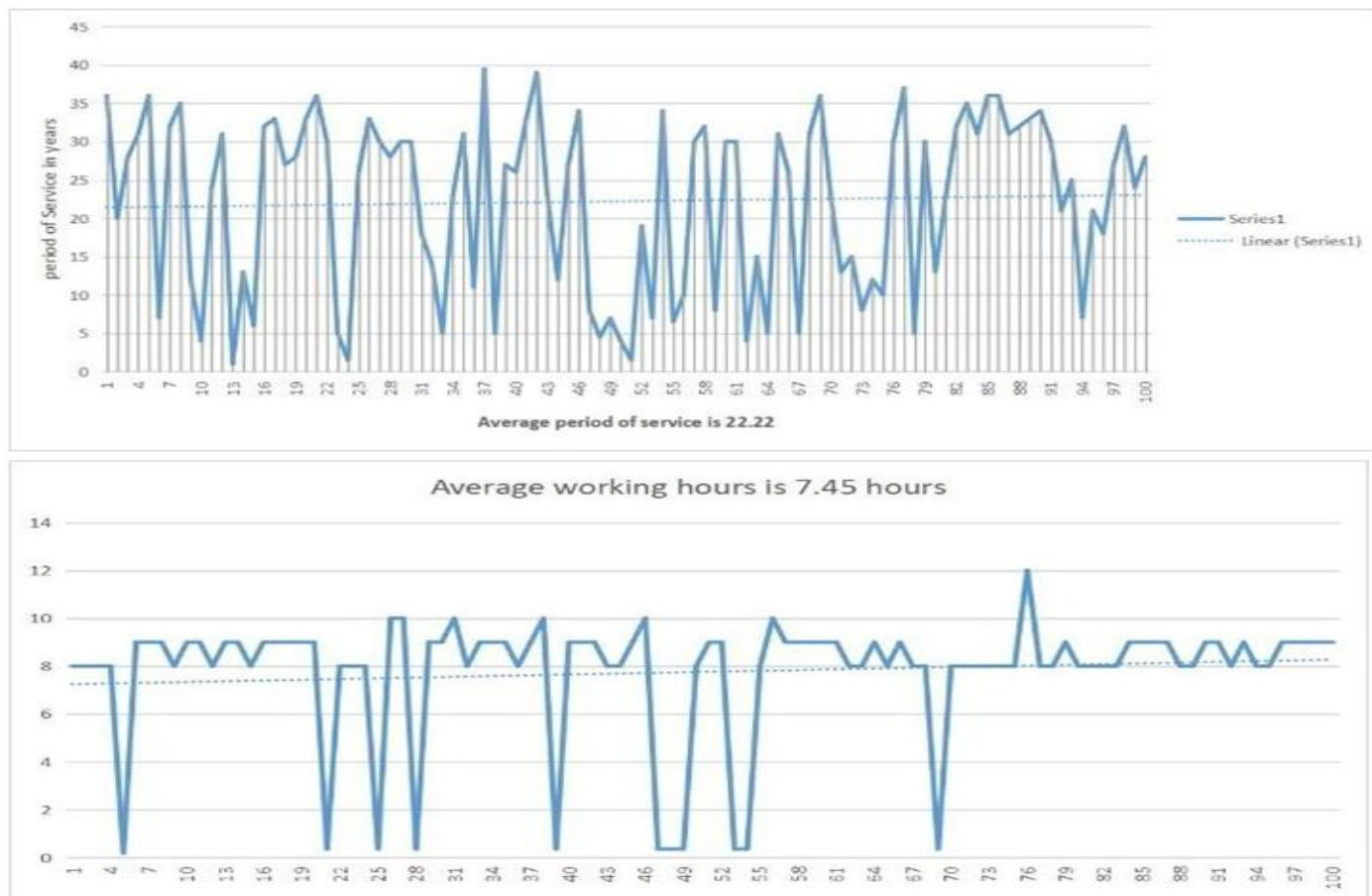
Graph 2 Gender of Participants

➤ *Interpretation:*
Majority of the participants were male (Total 79 participants)



Graph 3 Low Back Pain in Males and Females

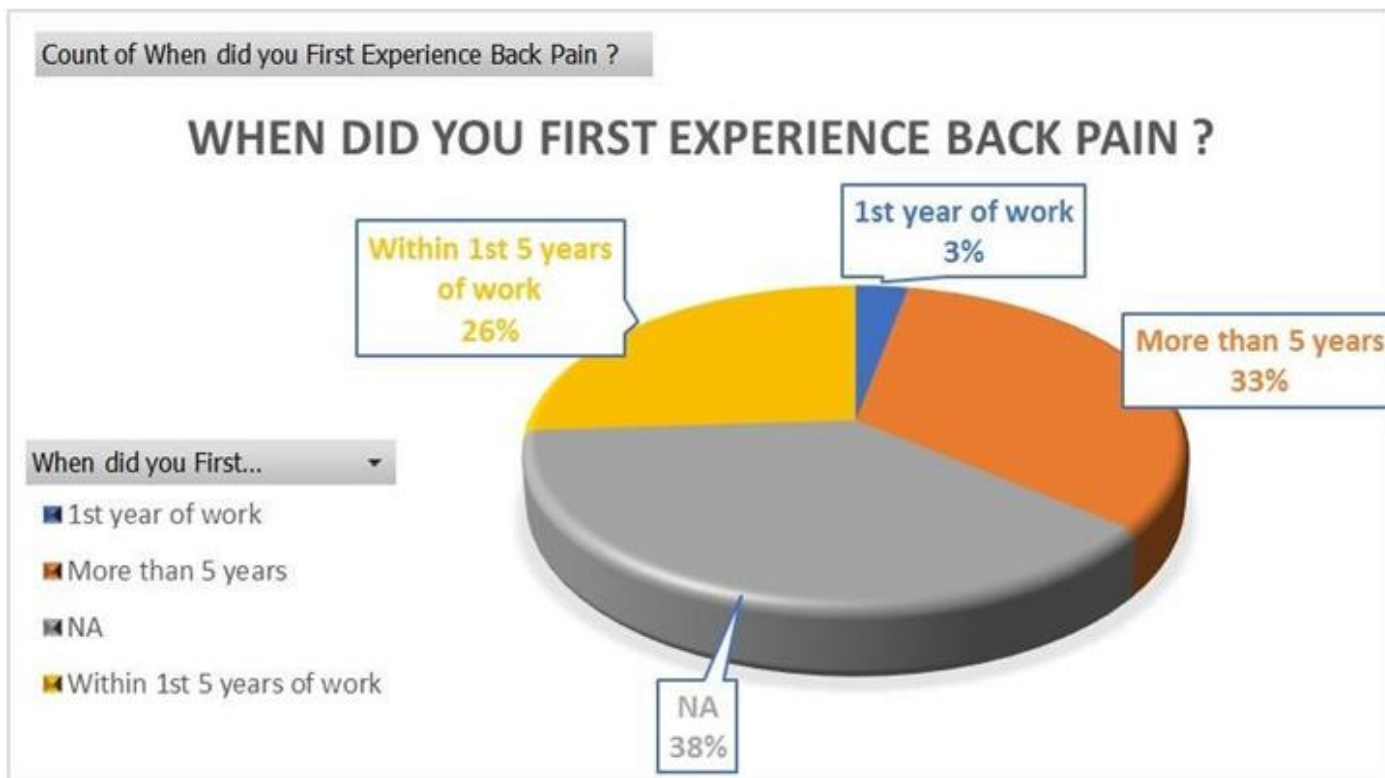
➤ *Interpretation:*
14 females were affected and 23 males were affected.



Graph 4 Average Period of Service and Average Working Hours Per Day

➤ Interpretation :

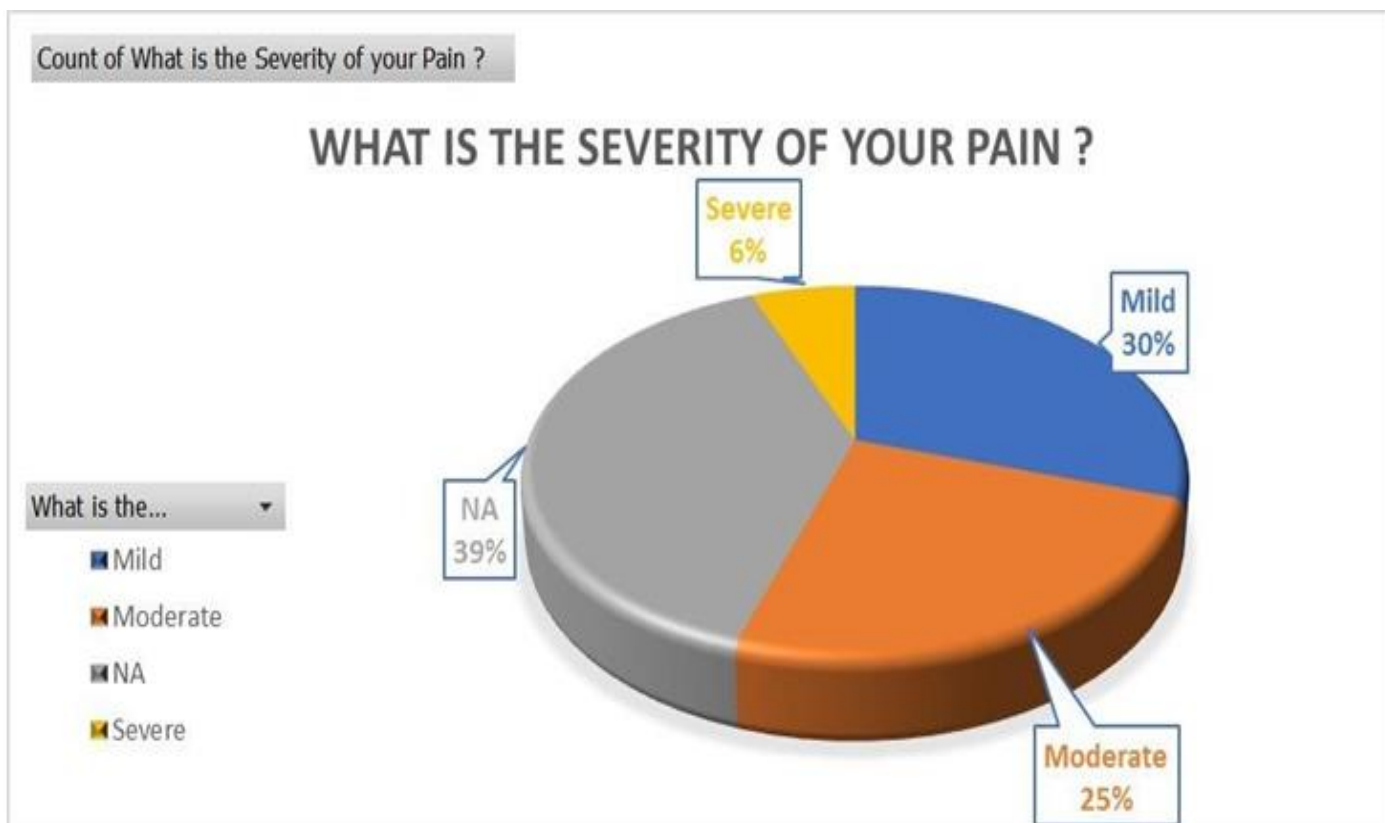
Average period of service is 22.22 years and average working hours is 7.45 hours per day.



Graph 5 Experience of back pain for the first time by participants.

➤ Interpretation :

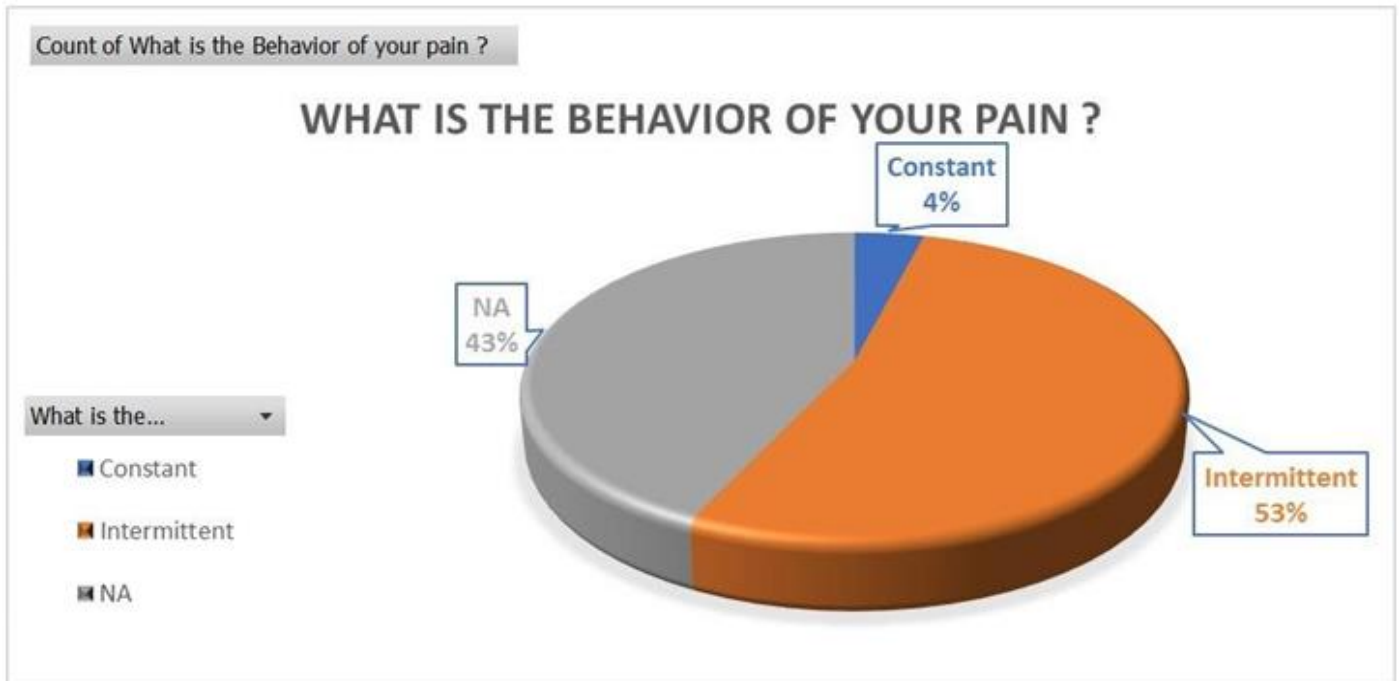
3% experienced back pain in 1st year of work, 26% within 5 years of work and 33% in more than 5 years of work



Graph 6 Severity of back pain in participants.

➤ *Interpretation :*

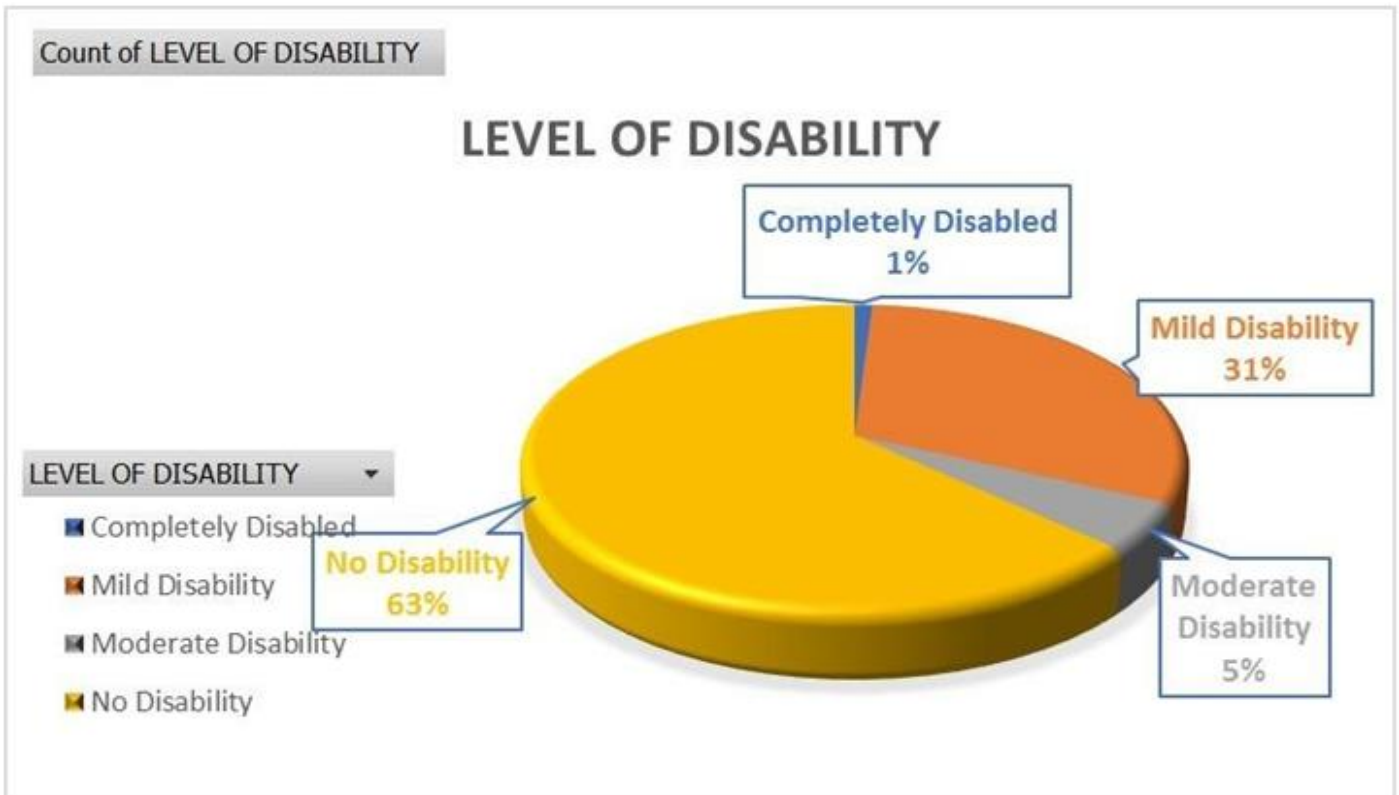
30% participants experienced mild pain, 25% experienced moderate pain and only 6% participants experienced severe pain.



Graph 7 Behavior of pain in participants.

➤ *Interpretation :*

53% of the participants experienced intermittent pain whereas 4% of the participants complained of constant pain.



Graph 8 Level of disability of pain in participants.

➤ *Interpretation:*

31% of the participants experienced mild disability, 5% participants experienced moderate disability and only 1 participants was completely disabled.

CHAPTER SIX DISCUSSION

Subject study was undertaken to determine the prevalence of low back pain among Railways official at Chhatrapati Shivaji Maharaj Terminus of Central Railway in the age group of 30 to 60 years. A total of 100 participants had given their consent for the subject study. Out of the above total participants, 79 were males and 21 were females. 27 participants were in the age group of 30 to 40 years, 25 participants of 40 to 50 years and 48 participants were of the age group of 50 to 60 years.

8 Participants (4 Males & 4 females) out of a total of 28 complained of LBP in the age group of 30 to 40 years, 11 participants (7 males & 4 females) out of total of 25 in the age group of 40 to 50 years & 18 participants (12 males & 6 females) out of a total of 47 complained of LBP in the age group of 50-60 years. Hence, it can be concluded that prevalence of low back pain was more among male participants in the all age groups. The main reason behind having LBP is related to the length of service of these officials, some of whom have given more than 25 years of service and the other reason being working in sitting position for long period of time i.e., around 4-5 hours continuously in one position.

Level of disability was sought from each participant and as per record, mild disability was observed in most of the cases. Around 31 participant out of a total of 37 affected participant have complained of mild disability.

Average period of service is 22.22 years and average working hours is 7.45 hours per day. However, those who put in more hours of service without rest have complained of low back pain. Targeted work involving those officials who have to constantly feed data of all running train services which are updated from time to time, sitting in one single posture are the most affected. The pain in sitting posture may arise mainly because prolonged sitting can subject the spine to various stresses i.e., the discs have to withstand a lot of compressive forces and there is an increase in intradiscal pressure, which may lead to gradual creep of tissues (*Divya Pillai et.al.2018*)^[6]. Similar study conducted by *P Shahul Hameed et al.2013* also relates to LBP among IT professionals in India who put in long working hours per week.

Severity of pain was observed and most of the participants have complained of mild or moderate pain (Mild-30, Moderate-25) and only 6 participants have complained of severe LBP.

The behaviour of pain was mostly intermittent in most of the cases. Around 53 participants have complained of having low back pain intermittently as compared to 4 participants having constant low back pain.

➤ *Clinical Implication:*

After the completion of this study, further approach is to provide awareness and educate them about ergonomics, proper posture, need for taking break in between continuous work & relaxation, as this will ultimately improve job satisfaction and performance.

➤ *Future Scope:*

Study should include other offices of different department with relation to their working postures.

CHAPTER SEVEN CONCLUSION

- *Based on the data collected by the researcher, it was concluded that 37 participants among 100 participants had complained of low back pain among which 23 were males and 14 were females.*
- *Majority of participants were suffering from mild to moderate range of pain.*
- *Participants with low back pain showing the mild level of disability.*
- *Therefore my study concluded that more number of years given to service increased the severity of pain which increased the disability of the railway officials.*
- *Limitations*
Disparity in volume of males and females. Study was limited to only Railway Officials of one Railway station of Mumbai only. Study included certain drawbacks regarding individual workload details and sitting ergonomics. The study does not cover consultation of doctor for pain.

REFERENCES

- [1]. Ferguson SA, Merryweather A, Thiese MS, Hegmann KT, Lu ML, Kapellusch JM, Marras WS. Prevalence of low back pain, seeking medical care, and lost time due to low back pain among manual material handling workers in the United States. *BMC musculoskeletal disorders*. 2019 Dec;20(1):1-8.
- [2]. Ramdas J, Jella V. Prevalence and risk factors of low back pain.
- [3]. Magee DJ. *Orthopedic physical assessment-E-Book*. Elsevier Health Sciences; 2014 Mar 25.
- [4]. Fahmy E, Shaker H, Ragab W, Helmy H, Gaber M. Efficacy of spinal extension exercise program versus muscle energy technique in treatment of chronic mechanical low back pain. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*. 2019Dec;55(1):1-6.
- [5]. Ali M, Ahsan GU, Hossain A. Prevalence and associated occupational factors of low back pain among the bank employees in Dhaka City. *Journal of Occupational Health*. 2020;62(1):e12131.
- [6]. Pillai D, Haral P. Prevalence of Low Back Pain in Sitting Vs Standing Postures in Working Professionals in the Age Group of 30-60.
- [7]. Ganasegeran K, Perianayagam W, Nagaraj P, Al-Dubai SA. Psycho-behavioural risks of low back pain in railway workers. *Occupational Medicine*. 2014 Jul 1;64(5):372-5..
- [8]. Designation of Group C Categories of Indian Railways.
- [9]. Towhid EA. *Prevalance of Low Back Pain Among the Bank Workers at Some Selected Banks in Savar* (Doctoral dissertation, Department of Physiotherapy, Bangladesh Health Professions Institute, CRP).
- [10]. Fritz JM, Irrgang JJ. A comparison of a modified Oswestry low back pain disability questionnaire and the Quebec back pain disability scale. *Physical therapy*. 2001 Feb 1;81(2):776-88.
- [11]. Stratford PW, Binkley JM, Riddle DL. Development and initial validation of the back pain functional scale. *Spine*. 2000 Aug 15;25(16):2095-102.
- [12]. Fairbank JC, Couper J, Davies JB, O'brien JP. The Oswestry low back pain disability questionnaire. *Physiotherapy*. 1980 Aug 1;66(8):271-3.
- [13]. P Shahul Hameed "Prevalence of Work Related Low Back Pain among The Information Technology Professionals In India – A Cross Sectional Study". *International journal of scientific & technology re-search* volume 2, issue 7, July 2013

ANNEXURES

CONSENT FORM

Title: - *“Work related low back pain in sedentary railway officials of the age group 30 to 60 years at Chhatrapati Shivaji Maharaj Terminus, Mumbai- A Survey Study.”*

PARTICIPANTS: - I confirm that _____(investigator) has explained me the purpose of the research, the study procedure and possible risk and benefits that I may experience. I have read and understood this consent to participate as a subject in this research project.

Name: -

Date: -

Signature: -

INVESTIGATOR: -

I have explained to _____the purpose of the research, the procedure required and the possible risk and benefits to the best of my ability. I have made every effort to make participant understand and clear all questions put forward.

Date: -

INFORMATION SHEET

The study titled “*Work related low back pain in sedentary railway officials of the age group 30 to 60 years at Chhatrapati Shivaji Maharaj Terminus, Mumbai-A Survey Study.*” is being conducted by *Miss Sudiksha D Rathod* a final year student of TMV’s Lokmanya Medical College of Physiotherapy, Kharghar under the guidance of *Dr. Tejal Pardeshi* (Assistant Professor)

The purpose of this survey study is to find *work related low back pain in sedentary railway officials of the age group 30 to 60 years* with the help of *Modified Oswestry Low Back Pain Disability Questionnaire*.

You will be forwarded a set of questions that will help us to survey *Low BackPain* in your population.

Your information will be kept private and confidential throughout & even after the survey.

You are neither liable to any remuneration for any of the procedure mentioned above nor would you be remunerated for any during course of the research.

The nature & course of this study is explained to you.

We would like to appreciate your time & contribution into our study.

Thanking you for your time and participation.

DATA COLLECTION SHEET

SERIAL NUMBER: _____ INTERVIEW: _____
 DATE OF _____

➤ *Demographic Information*

- NAME :
- DESIGNATION UNDER GROUP C :
- AGE :
- SEX :
- EDUCATIONAL QUALIFICATION :
- CONTACT NO. :
- PERIOD OF SERVICE IN YEARS :
- WORKING HOURS :
- NUMBER OF BREAKS DURING WORK:

➤ *Back Pain Related Questions:*

- *Have you Experienced Back Pain?*
 No Complaint Only once/a little of short duration Frequently/Serious
- *When did you First Experienced Back Pain?*
 1st Year of work Within first 5 years of work More than 5 years
- *What is the behavior of your Pain?*
 Constant Intermittent Not applicable
- *What is the Severity of your Pain?*
 Mild Moderate Severe
- *Have you Experienced any Trauma in your Back?*
 Yes No

Modified Oswestry Low Back Pain Disability Questionnaire^a

This questionnaire has been designed to give your therapist information as to how your back pain has affected your ability to manage in everyday life. Please answer every question by placing a mark in the **one** box that best describes your condition today. We realize you may feel that two of the statements may describe your condition, but **please mark only the box that most closely describes your current condition.**

Pain Intensity

- I can tolerate the pain I have without having to use pain medication.
- The pain is bad, but I can manage without having to take pain medication.
- Pain medication provides me with complete relief from pain.
- Pain medication provides me with moderate relief from pain.
- Pain medication provides me with little relief from pain.
- Pain medication has no effect on my pain.

Personal Care (e.g., Washing, Dressing)

- I can take care of myself normally without causing increased pain.
- I can take care of myself normally, but it increases my pain.
- It is painful to take care of myself, and I am slow and careful.
- I need help, but I am able to manage most of my personal care.
- I need help every day in most aspects of my care.
- I do not get dressed, I wash with difficulty, and I stay in bed.

Lifting

- I can lift heavy weights without increased pain.
- I can lift heavy weights, but it causes increased pain.
- Pain prevents me from lifting heavy weights off the floor, but I can manage if the weights are conveniently positioned (e.g., on a table).
- Pain prevents me from lifting heavy weights, but I can manage light to medium weights if they are conveniently positioned.
- I can lift only very light weights.
- I cannot lift or carry anything at all.

Walking

- Pain does not prevent me from walking any distance.
- Pain prevents me from walking more than 1 mile. (1 mile = 1.6 km).
- Pain prevents me from walking more than 1/2 mile.
- Pain prevents me from walking more than 1/4 mile.
- I can walk only with crutches or a cane.
- I am in bed most of the time and have to crawl to the toilet.

Sitting

- I can sit in any chair as long as I like.
- I can only sit in my favorite chair as long as I like.
- Pain prevents me from sitting for more than 1 hour.
- Pain prevents me from sitting for more than 1/2 hour.
- Pain prevents me from sitting for more than 10 minutes.
- Pain prevents me from sitting at all.

Standing

- I can stand as long as I want without increased pain.
- I can stand as long as I want, but it increases my pain.
- Pain prevents me from standing for more than 1 hour.
- Pain prevents me from standing for more than 1/2 hour.
- Pain prevents me from standing for more than 10 minutes.
- Pain prevents me from standing at all.

Sleeping

- Pain does not prevent me from sleeping well.
- I can sleep well only by using pain medication.
- Even when I take medication, I sleep less than 6 hours.
- Even when I take medication, I sleep less than 4 hours.
- Even when I take medication, I sleep less than 2 hours.
- Pain prevents me from sleeping at all.

Social Life

- My social life is normal and does not increase my pain.
- My social life is normal, but it increases my level of pain.
- Pain prevents me from participating in more energetic activities (e.g., sports, dancing).
- Pain prevents me from going out very often.
- Pain has restricted my social life to my home.
- I have hardly any social life because of my pain.

Please complete questionnaire on other side.

Traveling

- I can travel anywhere without increased pain.
- I can travel anywhere, but it increases my pain.
- My pain restricts my travel over 2 hours.
- My pain restricts my travel over 1 hour.
- My pain restricts my travel to short necessary journeys under 1/2 hour.
- My pain prevents all travel except for visits to the physician / therapist or hospital.

Employment / Homemaking

- My normal homemaking / job activities do not cause pain.
- My normal homemaking / job activities increase my pain, but I can still perform all that is required of me.
- I can perform most of my homemaking / job duties, but pain prevents me from performing more physically stressful activities (c.g., lifting, vacuuming).
- Pain prevents me from doing anything but light duties.
- Pain prevents me from doing even light duties.
- Pain prevents me from performing any job or homemaking chores.

FOR OFFICE USE ONLY

Score: /50 x 100 = ____ % points

Scoring: For each section the total possible score is 5: if the first statement is marked the section score = 0, if the last statement is marked it = 5. If all ten sections are completed the score is calculated as follows:

Example: $\frac{16 \text{ (total scored)}}{50 \text{ (total possible score)}} \times 100 = 32\%$

If one section is missed or not applicable the score is calculated:

$\frac{16 \text{ (total scored)}}{45 \text{ (total possible score)}} \times 100 = 35.5\%$

Minimum Detectable Change (90% confidence): 10%points (Change of less than this amount may be attributed to error in the measurement.)

Name: _____

Date: _____

Source: Fritz JM, Irrgang JJ. A comparison of a modified Oswestry Low Back Pain Disability Questionnaire and the Quebec Back Pain Disability Scale. *Physical Therapy*. 2001;81:776-788.

^aModified by Fritz & Irrgang with permission of The Chartered Society of Physiotherapy, from Fairbanks JCT, Couper J, Davies JB, et al. The Oswestry Low Back Pain Disability Questionnaire. *Physiotherapy*. 1980;66:271-273.

MASTER CHART

Sr.no	Designation	Age	Age Group	Sex	Period of service (in Years)	Working Hours	Number of Breaks	Have you Experienced Back Pain ?	When did you First Experience Back Pain ?	What is the Behavior of your pain ?	What is the Severity of your Pain ?	Have you Experienced any trauma in your Back ?	OSWESTRY LOW BACK DISABILITY QUESTIONNAIRE SCORE (OUT OF 50)	LEVEL OF DISABILITY
1	POWER CONTROLLER	59	Betwe en 30-40 yrs	MALE	36	8	2	No complaints	NA	NA	NA	NA	0	No Disability
2	LOCO PILOT	44	Betwe en 41-50 yrs	MALE	20	8	2	Of short duration	More than 5 years	Intermittent	Moderate	No	14	Mild Disability
3	TLC HQ	49	Betwe en 41-50 yrs	MALE	28	8	2	Of short duration	More than 5 years	NA	Mild	No	16	Moderate Disability
4	CHC	57	Betwe en 51-60 yrs	MALE	31	8	2	No complaints	NA	NA	NA	NA	0	No Disability
5	CHEIF INSP.	56	Betwe en 51-60 yrs	MALE	36	4:30	1	No complaints	NA	NA	NA	NA	0	No Disability
6	SR. CLERK	33	Betwe en 30-40 yrs	MALE	7	9	2	No complaints	NA	NA	NA	NA	0	No Disability
7	CLI HQ	52	Betwe en 51-60 yrs	MALE	32	9	2	Frequently/serious	More than 5 years	Intermittent	Moderate	No	7	Mild Disability
8	CTLH/HQ	56	Betwe en 51-60 yrs	MALE	35	9	2	Only Once or a little	More than 5 years	Intermittent	Mild	No	0	No Disability
9	M/F.I	37	Betwe en 30-40 yrs	MALE	12	8	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	4	No Disability
10	SR.ALP	38	Betwe en 30-40 yrs	MALE	4	9	2	No complaints	Within 1st 5 years of work	Intermittent	Mild	No	0	No Disability
11	GENERAL ASSTT.	43	Betwe en 41-50 yrs	MALE	24	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	5	Mild Disability
12	M/MAN	51	Betwe en 51-60 yrs	MALE	31	8	5	Only Once or a little	Within 1st 5 years of work	Intermittent	Moderate	No	11	Mild Disability
13	ALP	39	Betwe en 30-40 yrs	MALE	1	9	2	No complaints	Within 1st 5 years of work	Intermittent	Mild	No	3	No Disability
14	LPG	38	Betwe en 30-40 yrs	MALE	13	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	3	No Disability
15	SR. SECTION	35	Betwe en 30-	MALE	6	8	1	No complaints	NA	NA	NA	NA	0	No Disability

	ENGINEER	40 yrs												
16	PS-2	56	Betwe en 51- 60 yrs	FEMA LE	32	9	2	Of short duration	More than 5 years	Intermitt ent	Moderate	No	13	Mild Disability
17	CH.OS.	57	Betwe en 51- 60 yrs	MALE	33	9	2	No complaints	NA	NA	NA	NA	0	No Disability
18	GENERAL ASSTT.	45	Betwe en 41- 50 yrs	MALE	27	9	2	No complaints	NA	NA	NA	NA	3	No Disability
19	SSE	55	Betwe en 51- 60 yrs	MALE	28	9	2	Frequently/seri ous	Within 1st 5 years of work	Intermitt ent	Moderate	No	14	Mild Disability
20	SSE	59	Betwe en 51- 60 yrs	MALE	33	9	2	Of short duration	More than 5 years	Intermitt ent	Mild	No	12	Mild Disability
21	CHEIF OS.	56	Betwe en 51- 60 yrs	FEMA LE	36	8:30	2	Only Once or a little	More than 5 years	NA	Mild	No	7	Mild Disability
22	SR. SECTION ENGINEER	53	Betwe en 51- 60 yrs	FEMA LE	30	8	1	Frequently/seri ous	More than 5 years	Intermitt ent	Moderate	No	8	Mild Disability
23	GENERAL ASSTT.	36	Betwe en 30- 40 yrs	FEMA LE	5	8	2	Only Once or a little	Within 1st 5 years of work	NA	Mild	No	1	No Disability
24	JR. ENGINEER	30	Betwe en 30- 40 yrs	MALE	1.5	8	1	No complaints	NA	NA	NA	NA	0	No Disability
25	GENERAL ASSTT. ELE.	48	Betwe en 41- 50 yrs	MALE	26	8:30	2	No complaints	NA	NA	NA	NA	0	No Disability
26	GENERAL ASSTT.	51	Betwe en 51- 60 yrs	MALE	33	10	2	Of short duration	More than 5 years	Intermitt ent	Moderate	No	14	Mild Disability
27	SR. TRANSLAT OR	50	Betwe en 41- 50 yrs	MALE	30	10	2	Of short duration	More than 5 years	Intermitt ent	Mild	No	5	Mild Disability
28	PS-2	52	Betwe en 51- 60 yrs	MALE	28	8:30	2	Only Once or a little	NA	NA	NA	NA	0	No Disability
29	CH.OS.	48	Betwe en 41- 50 yrs	FEMA LE	30	9	2	Frequently/seri ous	More than 5 years	Constant	Severe	No	19	Moderate Disability
30	PS-2	53	Betwe en 51- 60 yrs	FEMA LE	30	9	2	Of short duration	More than 5 years	Intermitt ent	Moderate	Yes	12	Mild Disability
31	KHULSHI	47	Betwe en 41- 50 yrs	MALE	18	10	2	Only Once or a little	More than 5 years	Intermitt ent	Mild	No	6	Mild Disability
32	KHULSHI	32	Betwe en 30- 40 yrs	MALE	14	8	2	No complaints	NA	NA	NA	NA	0	No Disability
33	SSE/4	34	Betwe en 30- 40 yrs	MALE	5	9	2	No complaints	NA	NA	NA	NA	0	No Disability
34	SR. CLERK	45	Betwe en 41- 50 yrs	MALE	23	9	2	Of short duration	More than 5 years	Intermitt ent	Moderate	No	10	Mild Disability
35	CHEIF OS.	53	Betwe	FEMA	31	9	1	Of short duration	More	Intermitt	Moderate	No	10	Mild

		en 51-60 yrs	LE					than 5 years	ent	te			Disability	
36	TECH-1	33	Betwe en 30-40 yrs	MALE	11	8	2	No complaints	NA	NA	NA	NA	0	No Disability
37	CHEIF OS.	58	Betwe en 51-60 yrs	MALE	39.5	9	2	Of short duration	More than 5 years	Constant	Severe	No	21	Moderate Disability
38	SSE	35	Betwe en 30-40 yrs	MALE	5	10	2	Only Once or a little	Within 1st 5 years of work	Intermitt ent	Mild	No	2	No Disability
39	SSE / ELE.	56	Betwe en 51-60 yrs	MALE	27	8:30	2	No complaints	NA	NA	NA	NA	0	No Disability
40	SSE / ELE.	56	Betwe en 51-60 yrs	MALE	26	9	2	No complaints	NA	NA	NA	NA	2	No Disability
41	MTR-2	55	Betwe en 51-60 yrs	MALE	33	9	2	Of short duration	More than 5 years	Intermitt ent	Moderate	No	13	Mild Disability
42	CH.OS.	59	Betwe en 51-60 yrs	FEMALE	39	9	1	No complaints	NA	NA	NA	NA	0	No Disability
43	SR. SECTION ENGINEER	51	Betwe en 51-60 yrs	MALE	23	8	1	No complaints	NA	NA	NA	NA	0	No Disability
44	EF	38	Betwe en 30-40 yrs	MALE	12	8	1	No complaints	NA	NA	NA	NA	3	No Disability
45	GENERAL ASSTT.	50	Betwe en 41-50 yrs	MALE	27	9	1	Of short duration	Within 1st 5 years of work	Intermitt ent	Moderate	No	7	Mild Disability
46	SSE / ELE.	58	Betwe en 51-60 yrs	MALE	34	10	2	Only Once or a little	More than 5 years	Intermitt ent	Mild	No	3	No Disability
47	SR. SECTION ENGINEER	39	Betwe en 30-40 yrs	FEMALE	8	8:30	1	Of short duration	Within 1st 5 years of work	Intermitt ent	Mild	No	4	No Disability
48	SSE	32	Betwe en 30-40 yrs	MALE	4.5	8:30	1	Of short duration	Within 1st 5 years of work	Intermitt ent	Moderate	No	10	Mild Disability
49	SR. SECTION ENGINEER	31	Betwe en 30-40 yrs	FEMALE	7	8:30	1	Of short duration	Within 1st 5 years of work	Intermitt ent	Mild	No	2	No Disability
50	KHALAS T	34	Betwe en 30-40 yrs	FEMALE	4 MONTHS	8	1	Of short duration	1st year of work	Intermitt ent	Moderate	No	6	Mild Disability

Sr. no	Designation	Age	Age Group	Sex	Period of service (in Years)	Working Hours	Number of Breaks	Have you Experienced Back Pain ?	When did you First Experience Back Pain ?	What is the Behavior of your pain ?	What is the Severity of your Pain ?	Have you Experienced any trauma in your Back ?	OSWESTRY LOWBACK DISABILITY QUESTIONNAIRE SCORE (OUT OF 50)	LEVEL OF DISABILITY
51	JE/TLAC	51	Between 51-60 yrs	MALE	1.5	9	1	Of short duration	1st year of work	NA	Mild	No	3	No Disability
52	DYCEE/TRD/NO	42	Between 41-50 yrs	MALE	19	9	1	No complaints	NA	NA	NA	NA	0	No Disability
53	SSE	45	Between 41-50 yrs	MALE	7	8:30	2	Of short duration	Within 1st 5 years of work	Intermittent	Mild	NA	11	Mild Disability
54	SR. SECTION ENGINEER	55	Between 51-60 yrs	MALE	34	8:30	1	Of short duration	More than 5 years	Intermittent	Mild	No	4	No Disability
55	CH.OS.	55	Between 51-60 yrs	MALE	6.5	8	1	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	10	Mild Disability
56	EFI	34	Between 30-40 yrs	MALE	10	10	2	Of short duration	Within 1st 5 years of work	Intermittent	Mild	No	10	Mild Disability
57	SSE	53	Between 51-60 yrs	MALE	30	9	2	Frequently/severious	More than 5 years	Intermittent	Severe	Yes	14	Mild Disability
58	SSE	59	Between 51-60 yrs	MALE	32	9	1	Only Once or a little	NA	NA	NA	NA	0	No Disability
59	SR. SECTION ENGINEER	33	Between 30-40 yrs	FEMALE	8	9	2	Of short duration	More than 5 years	Intermittent	Moderate	No	13	Mild Disability
60	M/MAN	53	Between 51-60 yrs	MALE	30	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Moderate	No	7	Mild Disability
61	M/MAN	53	Between 51-60 yrs	MALE	30	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	2	No Disability
62	KHALASI	32	Between 30-40 yrs	MALE	4	8	1	No complaints	NA	NA	NA	NA	0	No Disability
63	E/FITTER-1	41	Between 41-50 yrs	MALE	15	8	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	0	No Disability
64	OFFICE ASSISTANT	36	Between 30-40 yrs	MALE	5	9	1	No complaints	1st year of work	NA	NA	NA	0	No Disability
65	CELE/CENTRAL RAIL.	54	Between 51-60 yrs	MALE	31	8	1	No complaints	NA	NA	NA	NA	0	No Disability

66	OS/PERSONNEL	49	Between 41-50 yrs	FEMALE	26	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	8	Mild Disability
67	SATAIWALA	55	Between 51-60 yrs	FEMALE	5	8	1	No complaints	NA	NA	NA	NA	0	No Disability
68	SR. TRANSLATOR	53	Between 51-60 yrs	MALE	31	8	1	No complaints	NA	NA	NA	NA	0	No Disability
69	SR. TRANSLATOR	58	Between 51-60 yrs	MALE	36	8:30	1	No complaints	NA	NA	NA	NA	0	No Disability
70	KHALASI	42	Between 41-50 yrs	MALE	23	8	1	Only Once or a little	More than 5 years	Intermittent	Mild	No	3	No Disability
71	COSTABLE	31	Between 30-40 yrs	MALE	13	8	1	No complaints	NA	NA	NA	No	0	No Disability
72	PEON	35	Between 30-40 yrs	MALE	15	8	1	Of short duration	More than 5 years	Intermittent	Moderate	No	3	No Disability
73	PEON	31	Between 30-40 yrs	MALE	8	8	1	No complaints	NA	NA	NA	NA	0	No Disability
74	PEON	44	Between 41-50 yrs	FEMALE	12	8	1	Of short duration	More than 5 years	Intermittent	Severe	No	11	Mild Disability
75	KHALASI	44	Between 41-50 yrs	FEMALE	10	8	1	Frequently/severious	More than 5 years	Constant	Severe	No	15	Moderate Disability
76	SIPF	49	Between 41-50 yrs	MALE	30	12	1	Only Once or a little	More than 5 years	Intermittent	Mild	No	0	No Disability
77	SR CLERK	60	Between 51-60 yrs	MALE	37	8	2	No complaints	NA	NA	NA	NA	0	No Disability
78	PEON	35	Between 30-40 yrs	MALE	5	8	2	No complaints	NA	NA	NA	NA	0	No Disability
79	PEON	53	Between 51-60 yrs	FEMALE	30	9	2	Of short duration	More than 5 years	Intermittent	Moderate	No	4	No Disability
80	PEON	33	Between 30-40 yrs	MALE	13	8	1	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	3	No Disability
81	OS	41	Between 41-50 yrs	MALE	23	8	1	Only Once or a little	Within 1st 5 years of work	Intermittent	Mild	No	6	Mild Disability
82	SSE/ENGINEERING	54	Between 51-60 yrs	MALE	32	8	1	Only Once or a little	Within 1st 5 years of work	Intermittent	Moderate	No	15	Moderate Disability
83	CTI	56	Between 51-60 yrs	MALE	35	8	1	Only Once or a little	Within 1st 5 years of work	Intermittent	Moderate	No	10	Mild Disability
84	OS/PERSONNEL	51	Between 51-	MALE	31	9	2	No complaints	NA	NA	NA	NA	0	No Disability

			60 yrs											
85	GENERAL ASSTT.	57	Between 51-60 yrs	MALE	36	9	2	Of short duration	More than 5 years	Intermittent	Moderate	No	4	No Disability
86	SSE	57	Between 51-60 yrs	MALE	36	9	2	Of short duration	More than 5 years	Intermittent	Moderate	No	2	No Disability
87	CLT	56	Between 51-60 yrs	MALE	31	9	2	Of short duration	More than 5 years	Intermittent	Mild	No	3	No Disability
88	SSE	53	Between 51-60 yrs	MALE	32	8	2	No complaints	NA	NA	NA	NA	0	No Disability
89	CH.OS.	56	Between 51-60 yrs	FEMALE	33	8	1	Of short duration	More than 5 years	Intermittent	Mild	No	3	No Disability
90	HQ	54	Between 51-60 yrs	MALE	34	9	2	No complaints	NA	NA	NA	NA	0	No Disability
91	CLE/HQ	55	Between 51-60 yrs	MALE	30	9	2	No complaints	NA	NA	NA	NA	0	No Disability
92	LPP	45	Between 41-50 yrs	MALE	21	8	1	No complaints	NA	NA	NA	NA	0	No Disability
93	CHIEF CO INSPET.	46	Between 41-50 yrs	MALE	25	9	3	No complaints	NA	NA	NA	NA	0	No Disability
94	SSE	34	Between 30-40 yrs	MALE	7	8	2	Frequently/severious	Within 1st 5 years of work	Constant	Moderate	Yes	5	No Disability
95	CTPC/HQ/CR	48	Between 41-50 yrs	MALE	21	8	-	Frequently/severious	More than 5 years	Intermittent	Severe	Yes	35	Completely Disabled
96	KHALASHI	48	Between 41-50 yrs	FEMALE	18	9	2	Of short duration	More than 5 years	Intermittent	Moderate	No	6	Mild Disability
97	OS	54	Between 51-60 yrs	MALE	27	9	2	No complaints	NA	NA	NA	NA	0	No Disability
98	SSE	56	Between 51-60 yrs	MALE	32	9	2	No complaints	NA	NA	NA	NA	0	No Disability
99	JR CLERK	46	Between 41-50 yrs	FEMALE	24	9	2	No complaints	NA	NA	NA	NA	0	No Disability
100	LPM	49	Between 41-50 yrs	MALE	28	9	2	Only Once or a little	Within 1st 5 years of work	Intermittent	Moderate	No	7	Mild Disability