



“CORRELATION BETWEEN SITTING AND LOW BACK PAIN IN PARUL UNIVERSITY OFFICE WORKERS”

¹ DR. DIDHITI DESAI

² DEEPAK SHARMA, ³HARSH PAREKH, ⁴HEENA PATEL and ⁵SHASHANK PAL

¹Assistant Professor, Parul Institute of Physiotherapy, Parul University, Vadodara Gujarat, India.

²Intern, Parul Institute of Physiotherapy, Parul University

³Intern, Parul Institute of Physiotherapy, Parul University

⁴Intern, Parul Institute of Physiotherapy, Parul University

⁵Intern, Parul Institute of Physiotherapy, Parul University

ABSTRACT

BACKGROUND:

Low back pain (LBP) could be a leading reason for incapacity and interferes with quality of life and work performance of an individual. Low back pain could be a common world problem. the purpose prevalence of low back pain in 2017 was calculable to be concerning 7.5% of the worldwide population, or around 577.0 million folks. Back pain is one in every of the foremost common medical issues, moving eight out of ten folks at some purpose throughout their lives. This analysis aimed to see the correlation and associated factors of LBP among workplace employees in Parul University

METHODOLOGY:

Present study was cross-sectional survey during which 119 subjects underneath age criteria of 21-50 years convenient sampling and subjects who followed inclusive & excluding criteria. Outcome measure for study was taken from modified Oswerty questionnaire. Subjects were explained about procedure and consent was taken. data was collected and results were calculated through SPSS version 20.

RESULT:

Results showed that there was a transparent correlation of low back pain in desk workers of the Parul University for the age cluster 21 to 30 was 16.5% that interprets in step with changed Modified Oswerty low back pain questionnaire they're having minimal disability. Whereas the age bracket of 31 to 40 have score of 38.42% that shows moderate disability and cohort of 41 to 50 have score of 54 that interprets severe disability .So, the result powerfully suggests that there's correlation of low back pain in of Parul University office employees

CONCLUSION:

The study concluded that there was increase in prevalence of Low back of Pain with increase in age.

KEYWORDS: Prolong sitting, musculoskeletal disorder, Modified Oswerty low back pain questionnaire.

INTRODUCTION

Modern workplaces have shifted the character of occupations from active to inactive and promote lengthy sitting behaviour. One explanation for this transformation is that the transition from paper-based work to computerized and paperless work ^[1]. Office employees are exposed to high levels of sedentary time, additionally to cardio-vascular and metabolic health risks, this inactive time might have system and/or psychological feature impacts on office workers ^[2].

The findings of some studies indicated that for every two-hour increment in sitting time, the chance of obesity and diabetes will increase by 5% and 7%, respectively ^[4]. In distinction, prolonged sitting behaviour raises the chance of musculoskeletal disorders, particularly low back pain ^[5]. to boot, the findings of Gianoudis et al.'s study disclosed that a bigger overall sitting time is related to an increased risk of sarcopenia, that climbs by 33% for every one-hour increment of sitting ^[6]. Alternative studies have shown that inactive occupations area unit related to a better risk of developing some varieties of cancers, like colorectal, ovarian, prostate, and endometrial cancer ^[7-9].

Another outcome of a inactive lifestyle is premature death the world Health Organization (WHO, 2013) estimates that 3.2 million folks worldwide die prematurely annually thanks to a inactive lifestyle ^[10]. Studies have shown that one who spend the majority of their operating time in sitting position have a 1.4-times bigger likelihood of premature death after 12 years than their counterparts who sit due to time at work ^[11].

One of the foremost common complaints of persons with low-back pain is inability to take a seat in comfort, with problem in straightening the rear on rising. This is often significantly noticeable when long sitting in an exceedingly overstuffed chair, an automobile, or a theatre seat, all of that area unit purported to be snug. This common criticism should represent some elementary defect in our conception of the proper sitting position and within the design of chairs and seats, for under young persons with elastic ligaments and no back pain will tolerate sitting for long within the variety of seats ordinarily designed. Older persons, who use chairs a lot of usually, don't have this physical property and sometimes sit in discomfort. ^[12]

The next most vital explanation for low-back pain in sitting is lack of primary back support over the vulnerable lower lumbar inter-vertebral discs .Added factors of comfort in seating are the shortness of the seat, a rounded slim front border, an open space below for better positioning of the legs, and permissive change of position within the seat. ^[13]

It is troublesome to relate low-back pain to the workplace because it happens very often in employees used in inactive occupations. However, incidence, severity, and disability are all associated with the physical demands of the duty^[3]

METHODOLOGY

- Source of data:
 - Parul University, Vadodara
- Method of data collection:
 - Study Design: Survey design
 - Study Duration: 3Months
 - Sample size: 119 Subjects
 - Sampling Method: Convenient sampling
- Criteria for selection
 - INCLUSION CRITERIA
 - Age: 21-50.
 - Parul University office workers.
 - More than 4hours.
 - EXCLUSION CRITERIA
 - Having any recent fracture.
 - Had any surgery in past.
 - Pregnancy
- Outcome Measure
 - Modified Oswerty low back pain questionnaire.
- Materials
 - Paper
 - Pen
 - Laptop
 - Calculator

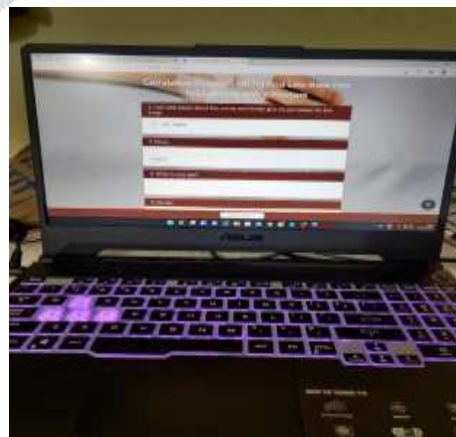
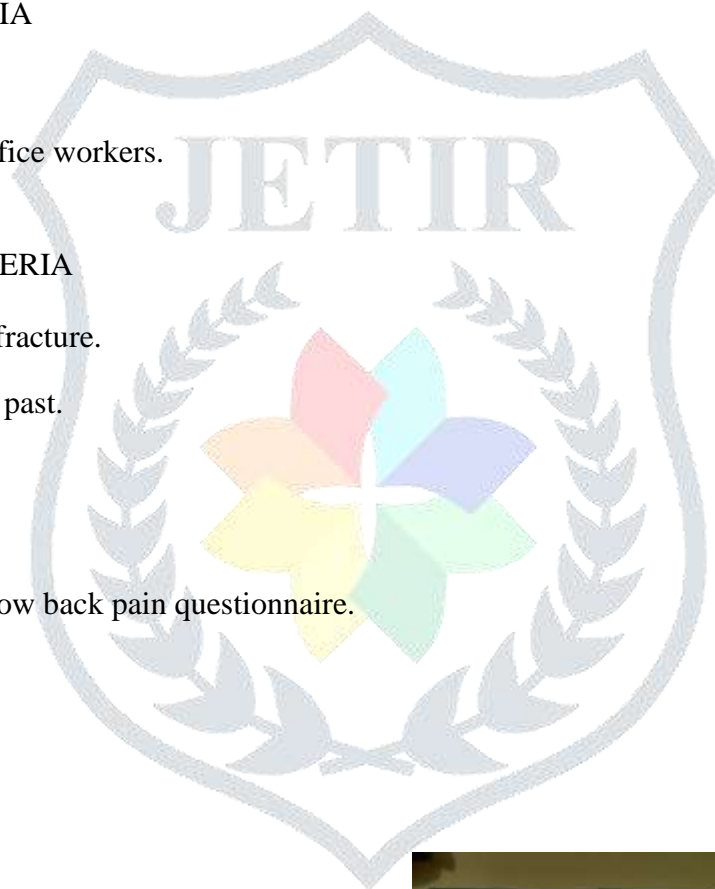


fig1: shows material used

PROCEDURE

Permission for conducting the survey was taken from the respective deans of the Parul University .We went to Various Institute of Parul University and explain them our survey purpose .Data was collected Modified Oswerty Low Back Pain questionnaire in the form of Google form .Responses were recorded .In this research 119 subjects were included all the subjects were selected on the basis of inclusion and exclusion Criteria .Modified Oswerty Low Back Pain score were calculated and master chart was prepared .Data analysis was done with SPSS software. Data Analysis was done and result was prepared through Modified Oswerty Low Back Pain questionnaire to find out the disability for low back pain in Parul University office workers.

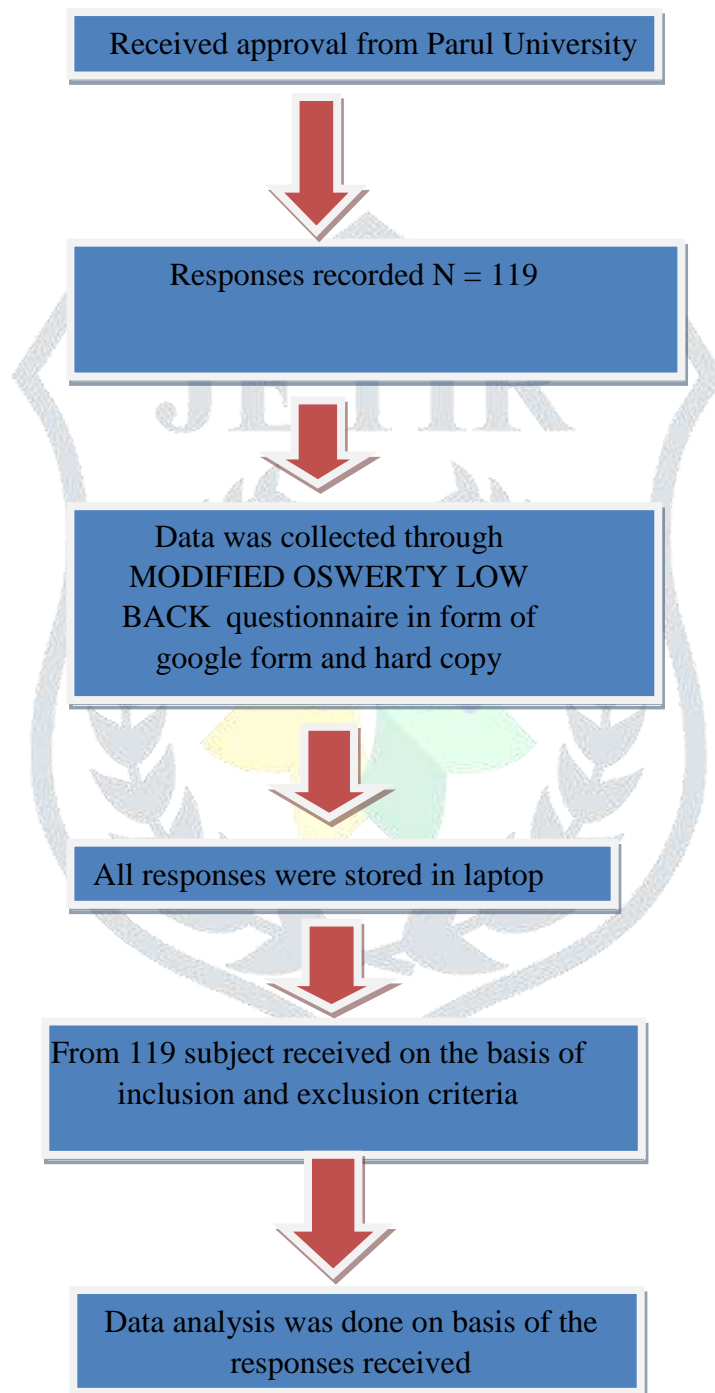


fig2: procedure

Outcome measure:

Modified Oswerty low back pain questionnaire:

The Modified Oswestry Disability Index (ODI) is one of the most commonly used outcome measures for individuals with low back pain (LBP). The ODI is a self-administered questionnaire that requires 5 minutes to complete and 1 minute to score.

RESULT

Results showed that among 119 students there were 59 Female and 60 Male and the mean ODI score for the age group 21 to 30 was 16.5% that interprets they are having minimal disability. Whereas the age group of 31 to 40 have ODI score of 38.42% which shows moderate disability and age group of 41 to 50 have ODI score of 54% that interprets severe disability .So, the result strongly suggests that there is correlation of low back pain in of Parul University office workers.

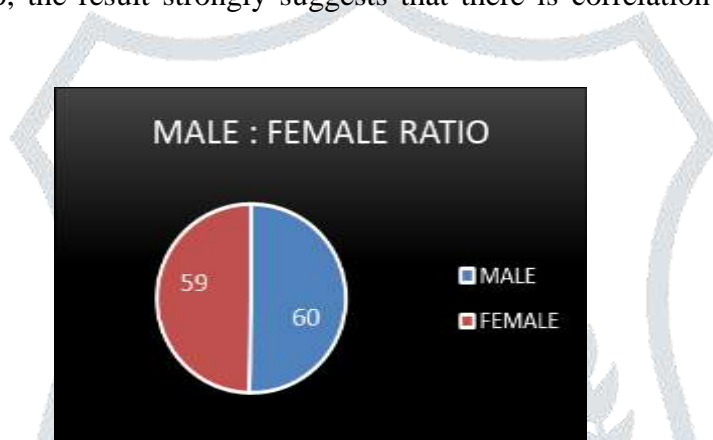


fig3: pie chart shows the total number of subjects included in the study graph shows percentage of subjects included in study.

GENDER	ODI MEAN
MALE	29.016
FEMALE	32.915

Table1: male and female Modified Oswerty low back pain questionnaire mean.

AGE	MEAN OF ODI	SD	SAMPLE SIZE	COORELATION
21-30	16.15	12.47	53	0.4

table2: table shows the age,mean of odi , sd , sample size & correlation of sample age 21-30 years of age.

AGE	MEAN OF ODI	SD	SAMPLE SIZE	COORELATION
31-40	38.32	9.50	47	0.64

table3: table shows the age, mean of odi , sd ,sample size & correlation of sample age 31-40 years of age.

AGE	MEAN OF ODI	SD	SAMPLE SIZE	COORELATION
41-50	54.00	12.54	19	0.56

table4: table shows the age, mean of odi ,sd ,sample size & correlation of sample age 41-50 years of age.

AGE GROUP	ODI MEAN
21-30	16.15
31-40	38.32
41-50	54

table5: table shows the age, mean of odi , of sample age 21-30, 31-40 & 41-50 years of age respectively.

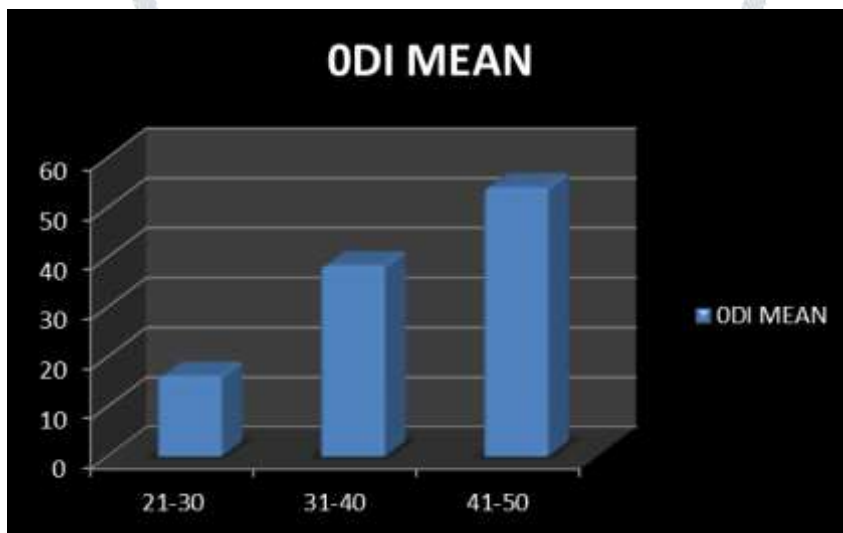


fig4: graph shows the age ,mean of odi , of sample age 21-30, 31-40 & 41-50 years of age.

DISCUSSION

The purpose of this study was to see if there was a link between low back pain and extended working hours in Parul University office workers. The data was distributed and gathered in the form of a questionnaire on the Parul University campus in Vadodara for the study.

Subjects responded to the questionnaire, and data analysis was completed. Based on the findings of the study, it can be concluded that people in the age range of 40 to 50 experience pain while performing daily activities, and that this patient requires further investigation.

It has been stated that during their extended working hours, office personnel at Parul University spend the majority of their time emailing, scheduling, using computers, and perusing the internet.

A study conducted by Wong, A.Y., Karppinen et.al suggested that ,the majority of LBP in older adults is classified as non-specific LBP since there is no identifiable pathology (e.g., fracture or inflammation). These people have LBP that varies according on their posture, activities, and time of the day. Different pain sources can cause non-specific LBP. Disc degeneration appears to become more prevalent as people age on magnetic resonance imaging (MRI), so it's more common in older people; nevertheless, it's less likely to be the source of pain in older people than it is in young people. ⁽¹⁴⁾

According to Leonid Kalichman et.al research's the lumbar spinal facet joints were initially mentioned in the medical literature as a source of low back and lower extremities discomfort ^[15].

FJ OA was shown to be very common on CT imaging (59.6 percent of males and 66.7 percent of females). With age, the prevalence of FJ OA rises. FJ OA was found in 24.0 percent of people under the age of 40, 44.7 percent of people aged 40 to 49, 74.2 percent of people aged 50 to 59, 89.2 percent of people aged 60 to 69, and 69.2 percent of people aged >70. The prevalence of FJ OA varies with spinal level .By spinal level the prevalence of FJ OA was: 15.1% at L2–L3, 30.6% at L3–L4, 45.1% at L4–L5 and 38.2% at L5–S1. In this community-based population, individuals with FJ OA at any spinal level showed no association with low back pain.^[15].

CONCLUSION:

The goal of this study was to find out how common low back pain is among Parul University's desk workers. Low back pain (LBP) is one of the most costly illnesses among the global workforce. The act of sitting has been related to an increased risk of LBP. Sitting for lengthy periods of time increases the risk of musculoskeletal problems, particularly low back discomfort

LIMITATIONS

- Sample size was less.
- Subjects included in study were selected from same area.

FUTURE RECOMMENDATIONS

- Sample size can be increased.
- Subjects can be selected from different location.
- Study including intervention for Prevention of low back pain can be done.

REFERENCES

1. Church TS, Thomas DM, Tudor-Locke C, Katzmarzyk PT, Earnest CP, Rodarte RQ, Martin CK, Blair SN, Bouchard C. Trends over 5 decades in US occupation-related physical activity and their associations with obesity. *PLoS One*. 2011;6:e19657. doi: 10.1371/journal.pone.0019657. [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
2. Richelle Baker, Pieter Coenen, Erin Howie, Ann Williamson, Leon Straker International journal of environmental research and public health 15 (8), 1678, 2018
3. ARUN Garg, JS Moore Occupational medicine (Philadelphia, Pa.) 7 (4), 593-608, 1992
4. Hu FB, Li TY, Colditz GA, Willett WC, Manson JE. Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes mellitus in women. *JAMA*. 2003; 289:1785–91. doi: 10.1001/jama.289.14.1785. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
5. Nourbakhsh MR, Moussavi SJ, Salavati M. Effects of lifestyle and work-related physical activity on the degree of lumbar lordosis and chronic low back pain in a Middle East population. *J Spinal Disord Tech*. 2001;14:283–92. doi: 10.1097/00002517-200108000-00002. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
6. Gianoudis J, Bailey C, Daly R. Associations between sedentary behaviour and body composition, muscle function and sarcopenia in community-dwelling older adults. *Osteoporos Int*. 2015;26:571–9. doi: 10.1007/s00198-014-2895-y. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
7. Friedenreich CM, Cook LS, Magliocco AM, Duggan MA, Courneya KS. Case-control study of lifetime total physical activity and endometrial cancer risk. *Cancer Causes Control*. 2010;21:1105–16. doi: 10.1007/s10552-010-9538-1. [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
8. Parent MÉ, Rousseau MC, El-Zein M, Latreille B, Désy M, Siemiatycki J. Occupational and recreational physical activity during adult life and the risk of cancer among men. *Cancer epidemiology*. 2011;35:151–9. doi: 10.1016/j.canep.2010.09.004. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
9. Simons CC, Hughes LA, Van Engeland M, Goldbohm RA, Van Den Brandt PA, Weijenberg MP. Physical activity, occupational sitting time, and colorectal cancer risk in the Netherlands cohort study. *Am J Epidemiol*. 2013;177:514–30. doi: 10.1093/aje/kws280. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
10. World Health Organization. *Physical inactivity: a global public health problem*. Geneva: World Health Organization; 2008. [[Google Scholar](#)]
11. Katzmarzyk PT, Church TS, Craig CL, Bouchard C. Sitting time and mortality from all causes, cardiovascular disease, and cancer. *Med Sci Sports Exerc*. 2009;41:998–1005. doi: 10.1249/MSS.0b013e3181930355. [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
12. J Jay Keegan, Ergonomics: The history and scope of human factors 1, 339, 2005
13. The Journal of Bone & Joint Surgery: July 1953 - Volume 35 - Issue 3 - p 589-603

14. Wong, A.Y., Karppinen, J. & Samartzis, D. Low back pain in older adults: risk factors, management options and future directions. *Scoliosis* **12**, 14 (2017).
15. Facet joint osteoarthritis and low back pain in the community-based population L Kalichman, L Li, D Kim, A Guermazi, V Berkin... - *Spine*, 2008 - ncbi.nlm.nih.gov

