

PREVALENCE OF LOW BACK PAIN AMONG OFFICE WORKERS DUE TO SITTING IN SINDH, PAKISTAN

Dr. Khushboo Marriam^{*1}, Dr. Bisma Shaikh², Dr. Hamid Ali Kazi³, Dr. Sidra Faisal⁴,
Dr. Paras Chughani⁵, Dr. Sabvanti Manglani⁶, Dr. Nikeeta Karera⁷

¹Deputy Director, Department of Physiotherapy, Chandka Institute of Nursing and Allied Health Sciences, Larkana, Sindh, Pakistan.

²Director QEC, Chandka Institute of Nursing and Allied Health Sciences, Larkana, Sindh, Pakistan.

³Dean, Faculty of Pharmaceutical Sciences, People's University of Medical and Health Sciences for Women, Nawabshah, Sindh, Pakistan.

⁴Lecturer, Institute of Physiotherapy and Rehabilitation Sciences, People's University of Medical and Health Sciences for Women, Nawabshah, Sindh, Pakistan.

⁵Lecturer, Chandka Institute of Nursing and Allied Health Sciences, Larkana, Sindh, Pakistan.

^{6,7}Graduate, Institute of Physiotherapy and Rehabilitation Sciences, People's University of Medical and Health Sciences for Women, Nawabshah, Sindh, Pakistan.

*khushbooashfaq69@gmail.com

DOI: <https://doi.org/10.5281/zenodo.18400666>

Keywords

Prevalence, low back pain, office workers, sitting, Sindh.

Article History

Received: 03 November 2025

Accepted: 17 December 2025

Published: 31 December 2025

Copyright @Author

Corresponding Author: *

Dr. Khushboo Marriam

Abstract

Objective: The purpose of this study was to determine prevalence of Low back pain in office workers due to sitting.

Methodology: This cross-sectional study was conducted from November 2019 to January 2020 and consisted of office workers from Government and Private Offices of Nawabshah and Larkana. Data was collected from 250 males and female office workers, included through convenient sampling technique. Nordic Musculoskeletal Questionnaire and Numeric pain Rating Scale was used to collect data regarding low back pain in office workers due to sitting.

Results: Out of 250 participants 163(65.2%) reported low back pain, whereas 87(34.8%) did not feel back pain. 31(12.4%) got Hospitalized for their low back condition, whereas 134(53%) did not. People who changed their job due to low back pain were 28(11.2%) and people who did not changed the job were 136(54.4%). People who had pain last in 17 days 102(40.8%) due to work activity. While 115(46.0%) faced normal activity limitation during last 12 months. While only 64(25.6%) concerned it to the Doctor or physiotherapist, while 98(39.0%) people had back pain in last 7 days. While 82(32.8%) people marked mild pain on Numeric Pain Rating Scale. We also analyzed comparison in sitting duration and low back pain that showed participants who sit for 7- 10 hours reported low back pain.

Conclusion: According to Our study we determined the High prevalence of low back pain among office workers of Nawabshah and Larkana cities. We also analyzed comparison of sitting duration and occurrence of low back pain that showed the participants who sit for 7-10 hours reported low back pain.

INTRODUCTION

Among all complicated work related musculoskeletal disorders low back pain (LBP) is the common complain.[1] LBP is one of the most concerned health issue in workplace next to the respiratory problems and the most obvious reason for the physicians appointment.[2] Today the nature of occupations has been changed from active to deskbound because of the structure of workrooms that enhance lengthy sitting performance.[3] For every 2 hours addition in sitting period, the danger of obesity and diabetes raises by 5% and 7% respectively, In addition, long sitting compartment increases the hazard of Musculoskeletal disorder especially low Back pain says some research evidence.[4]

A research conducted in the Dutch that stated that among all the MSDs in office workers only the low back pain is associated with lengthy illness leave.[5] As compared to other bodily pains, low back pain has the greater prevalence ratio in office workers of japan.[2]Although there is a low evident background through which a bit relation of LBP and sedentary behavior of office workers could be hoped.[6]However sitting bout of more than 7 hours mainly increases risk of LBP says the latest research studies.[7] Besides this there is no certain relationship is found in between sitting duration itself and occurrence of LBP, therefore it shows no authentic relation between recurrence of LPB in office workers and sitting on its own in accordance to some systemic review.[8] Further, fatigue pain and discomfort are common outcomes of LBP, while yearly prevalence of LBP is in between 23% and 38% among office workers, and it's the most important cause of medical expenses workers recompense in the sense of work disability.[9] Condensed activities and work leaves are being arise from social penalties of LBP, Physical disability is the main outcome of the LBS (Low back symptoms) says The WHO (world health organization), Some serious financial and social influences has made LBS a very serious issue,[10] Work related musculoskeletal disorders (WMSDs),involving the back (51%),upper extremity (37%), neck (12%) with expense of

USD 12,377, which is funded by 27% all Washington state fund accepted health insurance as declared in 1997 to 2005.[11]

There are some drawbacks that result from LBP are weakened posterior lumber structure, increased intradiscal load , cardio-metabolic disease, deceased metabolic exchange, obesity ,diabetes mellitus, coronary artery disease, musculoskeletal disorders, some type of cancer and premature death.[12] According to specific 12 month prevalence of LBS, Low back pain is being experienced by 15 to 23 per hundred workers and lasts greater than 30 days,[13] While LBS itself were experienced often 14 to 27 per hundred workers.[14] Those office workers that are in schools, hospitals and military show high incidence and prevalence of LBP, while LBP occurs due to lengthy inactivity, more burden of work/outputs and mainly unsuitable ergonomics of office furniture.[15] Among all other risk factors, mainly interior furniture designing of offices need to be ponder over the most and its preventive options should be programed.[16] Because of various diseases and huge financial load to the society has made LBP third leading cause of self-perceived disability.[17] Alteration in a posture at a regular intervals and much of back saver stuff should be given to the old aged staff.[18] Height- adjustable sit-stand work stations (SSWS) are usually acceptable to office workers as that allow desk based work in a standing or seated position so minimizing work flow description.[19] Risk factors for developing musculoskeletal symptoms in Office workers are mainly associated with, awkward postures, repetitive movement, prolonged static postures for example rotation of trunk, forward flexion and manual handling tasks, which are risk factors for developing musculoskeletal symptoms.[20] Further rick factors should be encountered in the spectrum of psychosocial problems for instance time and mental stress, high job demands, stressful work, low job satisfaction, lack of social support form colleagues and superiors, high work load and effort-reward imbalance at work.[21] Pain can be

reduced through exercise, lessen the risk of recurrent symptoms, increase the range of motion, and help people return to normal activities and work.[22] LBP among office workers was prevalent but in Pakistan few research has done before to know about the problem among office workers.[5] Therefore, our study aimed to survey the Prevalence of Low Back pain among Office Workers due to sitting in all government and private offices of Nawabshah and Larkana cities.

MATERIALS AND METHODS

This cross sectional study was conducted during November 2019 to January 2020 at different government and private offices or institutes of Nawabshah and Larkana Pakistan, and comprised office workers all of them (n=260) participant voluntarily. Those included were both male and female gender, who were office workers e.g Administration of QUEST university Nawabshah, Nawabshah court , NADRA office of Nawabshah , wapda office of Nawabshah , all banks of Nawabshah (private and government, administration of PUMHSW, sui gas office Larkana , Deputy commissioner office Larkana, office of Bureau a of statistic s planning and development of Sindh Larkana. Participants were of age between 25 to 60 years.

All those office workers who don't concerned with table work were excluded , and also those office workers who don't sit for long time e.g fields men ,site officers , pregnant females (2nd and 3rd trimester) and other musculoskeletal disorders e.g kyphosis and scoliosis etc. and fractures or any recent trauma to spine.

Ethical Approval for the study was obtained from the institutional ethics committee (letter No/PUMHSW/IPRS/ORS/3111/10) and informed written consent was taken from all the subjects. The subjects completed a questionnaire concerning demographic and baseline information, Nordic standardized musculoskeletal questionnaire and numeric pain rating scale. Prior to the inclusion in the study all the subjects signed and informed consent.

All the participant were given a detailed description of study and their anonymity and data confidentiality was guaranteed.

Our questionnaire was divided into three sections; first section was on the socio demographic proforma of the office workers like Name, Age, Gender, Marital status, Year of service, sitting duration. The second section includes the specific part of standardized Nordic questionnaire about the low back region which includes the eight questions about symptoms and duration of low back pain (LBP). Third section includes the numeric pain rating scale (NPRS) which ranges from 0-10, 0 represents the no pain, 1-3 represents mild pain, 4-6 represents the moderate pain, 7-10 represents the severe pain. Data was entered in Microsoft entry sheet analyzed by using statistical package for social science (SPSS) version 20. Demographic data was summarized by descriptive statics (mean, standard deviation, frequency, percentage %) and Nordic musculoskeletal questionnaire to determine the prevalence of low back pain among office workers.

RESULTS

The results of our research project are presented in three sections. First section includes demographic information. The second section includes the prevalence of low back pain among office workers due to sitting through the standardized Nordic musculoskeletal questionnaire (SNMQ). The third section consist of numeric pain rating scale (NPRS) through which we had determined pain.

People who had pain in 1-7 days 102 (40.8%) due to work activity. While 115 (46.0%) faced normal activity limitation during last 12 months. While only 64 (25.6%) concerned it to the Doctor or Physiotherapist, while 98 (39.0%) people had back pain in last 7 days. While 82 (32.8%) people marked mild pain on Numeric Pain Rating Scale. Out of 250, participants 110 individuals that sit for (7-10) hours had experienced low back pain.

Table 1: Demographic characteristics of the participants.

Variable	Range	Mean	Standard deviation
Age	25-60	40.14	10.775
Gender	Male	234	93.6
	Female	16	6.4
Marital status	Single	45	18.0
	Married	205	82.0
Sitting duration	1-6 hours	37	14.8
	7 -10 hours	201	80.4
	>10 hours	12	4.8
Years of service	1-5	50	20.0
	6-10	74	29.6
	11-15	31	12.4
	>15	95	38.0

Table 2: Prevalence of low back pain.

Variable	Category	Frequency	Percentage (%)
Low back trouble (ache, pain, discomfort)	Yes	163	65.2
	No	87	34.8
Hospitalization	Yes	31	12.4
	No	134	53.6
Job switch due to low back trouble	Yes	28	11.2
	No	136	54.4

Length of time had low back trouble during the last 12 months.	0 days	16	6.4
	1-7 days	102	40.8
	8-30 days	33	13.2
	More than 30 days but not every day	8	3.2
	Every day	6	2.4
Length of time had low back trouble during the last 12 months.	Yes	115	46.0
	No	49	19.6
Length of time that low back trouble has prevented you from doing your	0-1 Days	27	10.8
	1-7 days	94	37.6
	8-30 days	34	13.6
	More than 30 days	10	4.0
Consultations due to low back trouble during the last 12 months.	Yes	64	25.6
	No	100	40.0
The low back trouble at any time during the last 7 days.	Yes	98	39.2
	No	67	26.8

Numerical pain Rating Scale	No pain	97	38.8
	Mild	82	32.8
	Moderate	67	26.8
	Severe	4	1.6

Table 3: Comparison of low back pain with sitting duration.

Pain Scale	Sitting Duration			Total (n)
	1-6 hrs.	7-10hrs.	>10 hrs.	
No Pain	20	91	4	115
Pain	17	110	8	135
Total (n)	37	201	12	250

DISCUSSION

Today, sedentary lifestyle has become omnipresent, as an increasing number of individuals spend extended periods in a seated position at work as well as during leisure time, simultaneously, the prevalence of low back pain (LBP) has increased among office workers in general.[23]

Therefore the aim of our study was to determine the prevalence of low back pain among office workers due to sitting. This present study reported prevalence rate of Low back pain about

163(65.2%) among 250 participants Current study was supported by the findings reported in Greek public office workers that showed (61.6%) prevalence of low back pain.[24] Furthermore, a study in Africa that determined similar findings about 62% prevalence.[25] and in King Edward university Lahore prevalence of 69.20% is showed in office workers due to low back pain.[26] Generally, the high prevalence of MSD has been reported that range from 40-80% among office workers,[27] but specifically they reported low back pain prevalence about (53.2%).[4]

Moreover, in Nigeria the low back pain prevalence was 38% among office workers[18], both studies showed lower prevalence rate comparatively to our findings the reason might be due to that, they only determined low back pain prevalence in specific duration of 8 hours working shift and their sample size was too large. In Putra University Malaysia the prevalence of LBP was 37%, that is about one third of the office working population,[28] the reason of their low prevalence rate had might be their small sample size of 155 office workers.

Back pain is an important public health problem in developed and developing countries. Globally, it is one of the leading musculoskeletal disorders and it is a worldwide disabling occupational Hazard.[27] Desk-based workers particularly engage in high levels of sitting spending an average of their working hours in sitting position.[29] Pain in sitting may arise mainly because prolong 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[28].Therefore in our study we have analyzed the comparison of sitting and occurrence of low back pain. Therefore the findings of present comparison showed that 110 individuals out of 250 participants who sit for 7-10 hours during work have LBP and these findings were supported by a recent study that stated working period longer than 7 hours per day significantly increase the risk of low back pain.[7] Another Study reported similar findings that demonstrated the adults who generally spend as much as 6-8 hours per day or more than 45- 50% of their working hours in a sitting position may indicate the risk factor for the low back pain.[29] Reorganizing offices to encourage more physical activity for instance reassuring the use of stairs as opposite to the elevators and using activity – permissive table while its talented intervention to reduce sitting at work is to familiarize table that let the workers to change posture between sitting and standing, that is sit stand table.[30].

CONCLUSION

In present study we reported the higher prevalence of low back pain among office workers and in present study we also determined the comparison of sitting duration with occurrence of low back pain that showed that the participants who sit for 7-10 hours had prevalence of lower back pain. Therefore, lower back pain is the actual reason of their work off leaves, show laziness during work and give less output of their performance. It is therefore of importance that certain preventive strategies should be considered as they spent much of their day while sitting so their seating ergonomics should be comfortable, they should have break hours to refresh or relax themselves so that they can give good output of their work.

Strength and Limitations

There are very few studies conducted in Pakistan that determined the prevalence of low back pain among office workers.[5] Therefore the main strength of this study is that it explored the prevalence and comparison of low back pain with sitting duration. Also the response rate was high in this study because data collection was under observation of one researcher during data collection and this study comprised on large sample size and data was collected from urban areas of larkana and Nawabshah cities only. However, there are some limitation of the current study. Firstly, this study is cross-sectional it does not provide information as to the nature of the development of pain nor the influence of other factors on the pathways to pain and psychological problems. As in present study the data was based on self-report questionnaire, which may be subject to recall and other biases.

Future Recommendations

As the present study is only concerned to the prevalence and comparison of low Back pain with sitting duration. But there are many other key factors related to it for example, Ergonomics of the seating, Stress of workload, age factor and obesity in office workers etc. So future research must consider these risk factors and interactions

that may occur between them and must understand their predictive ability.

REFERENCES

1. Bawab W, Ismil k, Awada S, Rachidi S, Al HaJJje A, Salameh P. Prevalence and risk factors of low back pain among office workers in Lebanon. *International Journal of Occupational Hygiene*. 2015;7(1):45-52.
2. Rezaee M, Ghasemi M, Jafari NJ, Izadi M. Low back pain and related factors among Iranian office workers. *Int J Occup Hyg*. 2011:23-8.
3. Straker L, Abbott RA, Heiden M, Mathiassen SE, Toomingas A. Sit-stand desks in call centres: Associations of use and ergonomics awareness with sedentary behavior. *Appl Ergon*. 2013;44(4):517-22.
4. Daneshmandi H, Choobineh A, Ghaem H, Karimi M. Adverse effects of prolonged sitting behavior on the general health of office workers. *J.lifestyle Med*. 2017;7(2):69.
5. Arslan SA, Hadian MR, Olyaei G, Bagheri H, Yekaninejad MS, Ijaz S, et al. Prevalence and risk factors of low back pain among the office workers of King Edward Medical University Lahore, Pakistan. *Physical Treatments.Spec Phys Ther J*. 2016;6(3):161-8.
6. Subramanian S. Risk Factor Analysis in Sedentary Office Workers with Low Back Pain. *Journal of Chalmeda Anand Rao Institute of Medical Sciences Vol*. 2017;13(1):16.
7. Cho C-Y, Hwang Y-S, Chergn R-J. Musculoskeletal symptoms and associated risk factors among office workers with high workload computer use. *J.Manipulative physiol Ther*. 2012;35(7):534-40.
8. Bontrup C, Taylor WR, Fliesser M, Visscher R, Green T, Wippert P-M, et al. Low back pain and its relationship with sitting behaviour among sedentary office workers. *Appl Ergon*. 2019;81:102894.
9. Janwantanakul P, Pensri P, Moolkay P, Jiamjarasrangi W. Development of a risk score for low back pain in office workers-a cross-sectional study. *BMC Musculoskeletal Disord*. 2011;12(1):23.
10. Adamson J, Atkin K. Commentary: Culture and pain in the work place: the domain of occupational epidemiology. *Int J. Epidemiol*. 2008;37(5):1189-91.
11. Widanarko B. Interaction between physical and psychosocial work risk factors for low back symptoms: a study of prevalence, risk factors, and interaction between physical and psychosocial work risk factors for low back symptoms and its consequences (reduced activities and absenteeism) in a random sample of workers in New Zealand and in Indonesian coal mining workers: a thesis presented in fulfilment of the requirements for the degree of Doctor of Philosophy in Ergonomics at Massey University, Manawatu, New Zealand: Massey University; 2013.
12. Chen S-M, Liu M-F, Cook J, Bass S, Lo SK. Sedentary lifestyle as a risk factor for low back pain: a systematic review. *Int. Arch Occupa and Environ health*. 2009;82(7):797-806.
13. Madan I, Reading I, Palmer KT, Coggon D. Cultural differences in musculoskeletal symptoms and disability. *Int J. Epidemiol*. 2008;37(5):1181-9.
14. Engholm G, Holmström E. Dose-response associations between musculoskeletal disorders and physical and psychosocial factors among construction workers. *Scand J. work, Environ Health*. 2005:57-67.
15. Janwantanakul P, Sitthipornvorakul E, Paksaichol A. Risk factors for the onset of nonspecific low back pain in office workers: a systematic review of prospective cohort studies. *J.Manipulative physiol Ther*. 2012;35(7):568-77.
16. Wieser S, Horisberger B, Schmidhauser S, Eisenring C, Brügger U, Ruckstuhl A, et al. Cost of low back pain in Switzerland in 2005. *Eur J. Health Econ*. 2011;12(5):455-67
17. Vos T, Allen C, Arora M, Barber RM, Bhutta ZA, Brown A, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The lancet*. 2016;388(10053):1545-602

18. Omokhodion F, Sanya A. Risk factors for low back pain among office workers in Ibadan, Southwest Nigeria. *Occup Med.* 2003;53(4):287-9.
19. Gardner B, Dewitt S, Smith L, Buckley JP, Biddle SJ, Mansfield L. The ReSiT study (reducing sitting time): rationale and protocol for an exploratory pilot study of an intervention to reduce sitting time among office workers. Pilot and feasibility studies. 2017;3(1):47.
20. Burdorf A. Exposure assessment of risk factors for disorders of the back in occupational epidemiology. *Scand J. work, Environ Health* . 1992:1-9.
21. Bakker AB, Killmer CH, Siegrist J, Schaufeli WB. Effort-reward imbalance and burnout among nurses. *J.Adv Nurs.* 2000;31(4):884-91.
22. Vlaeyen JW, Linton SJ. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain.* 2000;85(3):317-32.
23. Saidj M, Menai M, Charreire H, Weber C, Enaux C, Aadahl M, et al. Descriptive study of sedentary behaviours in 35,444 French working adults: cross-sectional findings from the ACTI-Cités study. *BMC public health.* 2015;15(1):379.
24. Spyropoulos P, Papathanasiou G, Georgoudis G, Chronopoulos E, Koutis H, Koumoutsou F. Prevalence of low back pain in Greek public office workers. *Pain physician.* 2007;10(5):65
25. Louw QA, Morris LD, Grimmer-Somers K. The prevalence of low back pain in Africa: a systematic review. *BMC musculoskeletal Disord.* 2007;8(1):105.
26. Katz JN, Amick BC, Carroll BB, Hollis C, Fossel AH, Coley CM. Prevalence of upper extremity musculoskeletal disorders in college students. *Am J. Med.* 2000;109(7):586-8
27. Damanhuri Z, Zulkifli A, Lau A, Zainuddin H. Low back pain among office workers in a public university in Malaysia. *Int J. of Public Health and Clin Sciences.* 2014;1(1):99- 108
28. Straker L, Abbott RA, Heiden M, Mathiassen SE, Toomingas A. Sit-stand desks in call centres: Associations of use and ergonomics awareness with sedentary behavior. *Appl Ergon.* 2013;44(4):517-22.
29. Lunden K, Bolton K. Structure and function of the lumbar intervertebral disk in health, aging, and pathologic conditions. *J.Orthop Sports Phys Ther.* 2001;31(6):291-306
30. Corlett EN, Wilson JR, Manenica I. *Ergonomics Of Working Postures: Models, Methods And Cases: The Proceedings Of The First Int Occup Ergon Symposium, Zadar, Yugoslavia, 15-17 April 1985: CRC Press; 2003.*
30. Barbieri DF, Srinivasan D, Mathiassen SE, Oliveira AB. Comparison of sedentary behaviors in office workers using sit-stand tables with and without semiautomated position changes. *Hum factors.* 2017;59(5):782-95.