

Original Research Article

Prevalence of low back pain and associated factors among office workers in Kano city, Nigeria

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ABSTRACT

Background: Many studies across the globe have reported the prevalence of low back pain (LBP) among office workers. This study aimed to find out the prevalence of LBP and associated factors among office workers in Kano city, Nigeria.

Methods: A cross-sectional type of study was conducted among the office workers in Kano metropolitan from September to December 2019. A total of 300 office workers were selected using a convenience sampling technique. The data was collected from the respondents by face-to-face interview technique using a semi-structured questionnaire and all the data collected were analyzed using statistical software (SPSS version 22.0).

Results: In this study, the mean age of the respondents was 38.6±9.6 years and 72.7% of them were male. More than half (54.7%) of the respondents had a bachelor's degree and above. About 71.3% of the respondents had a familial history of LBP. About 68.0% of the respondents had suffered musculoskeletal disorder in the past and the majority (54.4%) mentioned they suffered hip pain. Only 33.7% of the respondents were maintaining the proper posture and 37.7% of the respondents were using an ergonomic chair.

Conclusions: The findings of this study found a 65.3% prevalence of low back pain among the office workers in Kano metropolitan. Office workers should be encouraged to maintain proper postures at work and there is a need for more educational programs regarding the prevention measures of low back pain.

Keywords: Low back pain, Office workers, Occupational health, Kano

INTRODUCTION

Low back pain (LBP) is among the most common causes of musculoskeletal disorders related to work status and condition.¹ It was estimated that about 80.0% of the general population will experience a back problem at some time in their lives.² LBP can induce a lack of mental unrest, enthusiasm as well as physical discomfort.³ It was reported that among the working population, the LBP became a significant cause of taking sick leave as well as early retirement.⁴ LBP has been recognized as one of the major causes for decreased efficiency and well-being in the working populace.⁵⁻⁷ Office workers are characterized to spend a substantial amount of time sitting at a desk. Many studies have shown different levels of the prevalence of LBP among office workers.⁸⁻¹⁰ The prevalence of LBP in high-income countries was found to be lower than that of low-income countries.¹¹

LBP was reported to account for an average number of disability-adjusted life years (DALYs) higher than road injuries, chronic obstructive pulmonary disease (COPD,) HIV, tuberculosis, lung cancer and preterm birth complications.¹² In 1990, LBP was estimated to contribute around 58.2 million DALYs to the global burden of disease, ranking it as the 11th leading global contributor to years lost from premature mortality or years lived in ill health. Later in 2010, LBP was ranked as the sixth leading contributor to overall disease burden, with an estimation of about 83 million DALYs.¹³ Numerous studies have been conducted across the globe to evaluate as well as explore the social and economic impact of LBP. A study conducted in the United Kingdom reported LBP as the most common cause of disability in young adults, with above 100 million workdays lost per year.¹² It was estimated that close to 150 million workdays are lost every year because of LBP in the United States.^{14,15} This study aimed to find out the prevalence of LBP and associated factors among office workers in Kano city, Nigeria.

METHODS

Study setting and period

This study was carried out in Kano metropolitan, a capital city of Kano state in the North-West zone of Nigeria. It is the commercial nerve center of Northern Nigeria as well as the second largest city all over the country. The study was conducted for a period of three months (September to December 2019).

Study design, population and selection criteria

This was a descriptive cross-sectional study conducted in Kano metropolitan in the North-Western part of Nigeria. The study populations were all the office workers (such as healthcare providers, bankers, teachers, legal practitioners,

business administrators, offices secretaries, social workers) in Kano metropolitan, who were available during the period of this study and willing to participate.

Sample and sampling technique

A total of three hundred (300) office workers from different areas across the eight local governments (Dala, Fagge, Gwale, Kano-Municipal, Kumbotso, Nassarawa, Tarauni and Ungogo) in the Kano metropolitan were selected using a convenience sampling technique.

Data collection and analysis

The data was collected from the respondents by face-to-face interview technique using a semi-structured questionnaire. Written and verbal informed consent was taken from the respondents before the data collection. All the data collected were coded numerically and entered into statistical software (SPSS version 22.0) for analysis. A Chi-square test was performed to find the association between variables and a p value of ≤ 0.05 was considered statistically significant.

RESULTS

Socio-demographic characteristics of the respondents

Table 1 shows that seven-tenths (70.0%) of the respondents were 36 years and above and the mean age of the respondents was 38.6 ± 9.6 years. About 72.7% of the respondents were male and more than half (54.7%) had bachelor's degrees and above. More than seven-tenths (74.0%) of the respondents were married and the rest were unmarried (26.0%). Nevertheless little below nine-tenths (89.3%) of the respondents were from urban areas and the rest (10.7%) were residing in rural areas.

Figure 1 shows the prevalence of low back pain among the respondents of this study, the prevalence of LBP was 65.3% among the office workers in Kano metropolitan.

Distribution based on LBP risk factors

Table 2 shows that about 71.3% of the respondents had a familial history of LBP and more than half (57.0%) of the history was paternal. About 68.0% of the respondents had suffered musculoskeletal disorder in the past and the majority (54.4%) mentioned they suffered hip pain, followed by knee pain (39.7%). In this study less than one-tenth (7.0%) of the respondents were smokers and only 37.0% were exercising regularly. Little above two-fifths (41.7%) of the respondents used to take meals regularly and close to six-tenths (59.7%) of the respondents mentioned they were getting less than 6 hours of sleep a day.

Table 1: Socio-demographic characteristics of the respondents (N=300).

Variables	Frequency	Percent
Ages (in years)		
≤35	90	30.0
≥36	210	70.0
Mean±SD	38.6±9.6	
Sex		
Male	218	72.7
Female	82	27.3
Educational level		
Diploma/NCE and below	136	45.3
Bachelor's degree and above	164	54.7
Marital status		
Married	222	74.0
Unmarried	78	26.0
Residence		
Rural	32	10.7
Urban	268	89.3

Table 2: Distribution based on LBP risk factors (N=300).

Variables	Frequency	Percentage
Family history of LBP		
Yes	214	71.3
No	86	28.7
If yes who? (N=214) (multiple response)		
Father	122	57.0
Mother	99	46.3
Others	88	41.1
Had musculoskeletal disorder		
Yes	204	68.0
No	96	32.0
If yes, which? (N=204) (multiple response)		
Knee pain	81	39.7
Hip pain	111	54.4
Wrist pain	74	36.3
Others	44	21.6
Smoking status		
Yes	21	7.0
No	279	93.0
Physical exercises		
Yes	111	37.0
No	189	63.0
Habit of taking meal		
Regularly	125	41.7
Irregularly	175	58.3
Sleeping hours		
<6	179	59.7
≥6	121	40.3

Table 3: Distribution based on occupational and psychological factors (N=300).

Variables	Frequency	Percentage
Maintaining proper posture		
Yes	101	33.7

Continued.

Variables	Frequency	Percentage
No	199	66.3
Using ergonomic chair		
Yes	113	37.7
No	187	62.3
Weekly working hours		
<25	131	43.7
≥25	169	56.3
Job satisfaction		
Yes	97	32.3
No	203	67.7
Work related stress		
Yes	117	39.0
No	183	61.0
Family related stress		
Yes	77	25.7
No	223	74.3
Financial related stress		
Yes	213	71.0
No	87	29.0

Table 4: Relationship between prevalence of LBP and other related factors (N=300).

Variables	Prevalence		Chi-square	Df	P value
	Yes	No			
Age (in years)					
≤30	32	58	19.848	1	<0.001
≥36	164	46			
Sex					
Male	117	101	2.946	1	0.086
Female	79	3			
Family history of LBP					
Yes	126	88	13.733	1	<0.001
No	70	16			
Habit of taking meal					
Regularly	62	63	20.504	1	<0.001
Irregularly	134	41			
Sleeping hours					
<6	133	46	5.820	1	0.016
≥6	63	58			
Physical exercises					
Yes	45	66	47.817	1	<0.001
No	151	38			
Smoking status					
Yes	20	1	8.916	1	0.003
No	176	103			
Maintaining proper posture					
Yes	11	90	1.172	1	<0.001
No	185	14			
Using ergonomic chair					
Yes	15	98	1.840	1	<0.001
No	181	6			
Weekly working hours					
<25	46	85	26.431	1	<0.001
≥25	150	19			

Continued.

Variables	Prevalence		Chi-square	Df	P value
	Yes	No			
Work related stress					
Yes	101	16	9.284	1	0.002
No	95	88			
Family related stress					
Yes	71	6	33.032	1	<0.001
No	125	98			
Financial related stress					
Yes	120	93	26.240	1	<0.001
No	76	11			

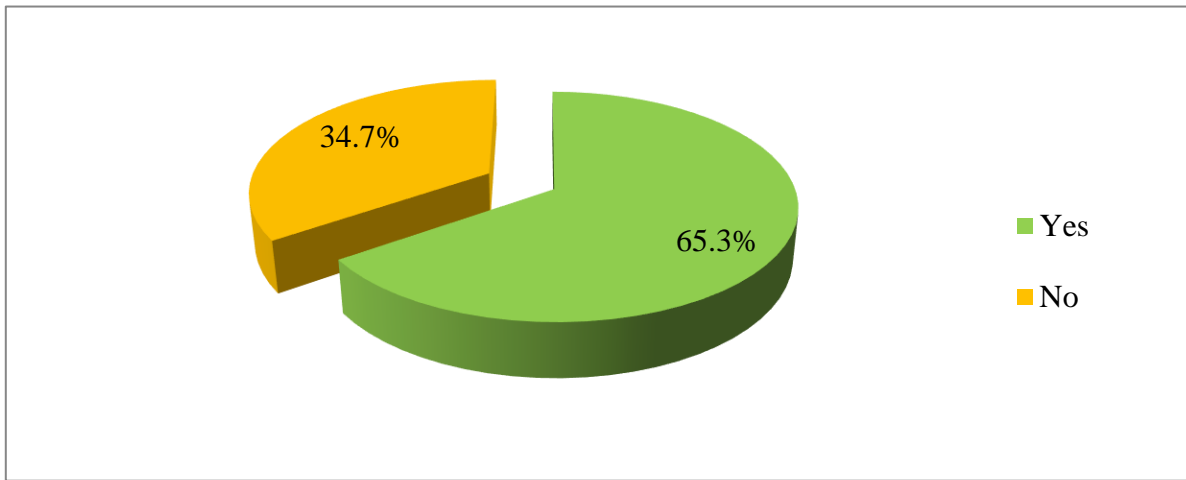


Figure 1: Prevalence of LBP (N=300).

Distribution based on occupational and psychological factors

Table 3 shows that 33.7% of the respondents were maintaining the proper posture and 37.7% of the respondents were using an ergonomic chair. About 56.3% of the respondents used to have about 25 or more working hours every week and only 32.3% of them were satisfied with their jobs. Close to two-fifths (39.0%) of the respondents had faced work-related stress, 25.7% family-related stress, and 71.0% financial-related stress.

Relationship between prevalence of LBP and other related factors (N=300)

Table 4 shows that the prevalence of LBP was significantly associated with the age of the respondents, family history of LBP, the habit of taking a meal, sleeping hours, physical exercises, smoking status, maintaining proper posture, using an ergonomic chair, weekly working hours, work-related stress. Family-related stress and financial-related stress. However, the gender of the respondents was not significantly associated with the prevalence of LBP.

DISCUSSION

This study aimed to find out the prevalence of LBP and associated factors among office workers in Kano city, Nigeria. In this study, the mean age of the respondents was 38.6±9.6 years. This was consistent with that of a similar study conducted among healthcare workers in Sokoto, Nigeria.¹⁶ About 72.7% of the respondents were male, this was inconsistent with the finding of a similar study conducted in the southern part of Nigeria.¹⁷

The prevalence of LBP among the office workers in Kano metropolitan was found to be 65.3%. A similar study conducted among professional drivers in Kano reported a 73.5% prevalence of low back pain.¹⁸ Another study conducted in Dhaka, Bangladesh among bank employees reported the prevalence of 36.6% which was inconsistent with that of our study.¹⁹ A study conducted in Nigeria found a 59.7% prevalence of LBP among industrial workers.²⁰ More than half of the respondents used to have about 25 or more working hours every week. A study conducted in Denmark reveals that workers who spent a long time at the office were found to have a higher rate of low back pain.²¹

The prevalence of LBP was significantly associated with the age of the respondents, a study reported increasing age as a significant risk factor for low back pain.²² Another study also revealed that older adults were reported to have LBP than young adults.¹⁹ Maintaining proper posture, weekly working hours and work-related stress were significantly associated with low back pain. A study carried out in Nigeria among healthcare providers reported that the respondents believed that poor posture, heavy physical work and prolonged sitting were responsible for their LBP.¹⁶ Smoking status was found significantly associated with LBP in this study. A similar study conducted in Nigeria found that smoking status was not significantly associated with LBP.²⁰

In this study, regular physical exercise was significantly associated with LBP. Some studies on LBP reported that routine physical activity could reduce LBP.^{23,24} However gender of the respondents was not significantly associated with the prevalence of LBP. A similar study from Bangladesh reported that gender was not significantly associated with LBP.¹⁹ Nevertheless a systematic review revealed that the prevalence of LBP was increased for women relative to men.²⁵

CONCLUSION

The findings of this study found a 65.3% prevalence of low back pain among the office workers in Kano metropolitan. However the prevalence of low back pain was significantly associated with the age of the respondents, family history of low back pain, the habit of taking a meal, sleeping hours, physical exercises, smoking status, maintaining proper posture, using an ergonomic chair, weekly working hours, work-related stress. Family-related stress and financial-related stress. Nevertheless, the gender of the respondents was not significantly associated with the prevalence of low back pain.

Recommendations

Office workers should be encouraged to maintain proper postures at work and there is a need for more educational programs regarding the prevention measures of low back pain. We also recommend a similar study to assess the level of knowledge and practice regarding prevention measures of LBP among the office workers in Kano metropolitan.

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REFERENCES

- Cunningham C, Flynn T, Blake C. Low back pain and occupation among Irish health workers. *Occup Med.* 2006;56(7):23-8.
- Mafuyai MY, Babangida BG, Mador ES, Bakwa DD, Jabil YY. The increasing cases of lower back pain in developed Nations: a reciprocal effect of development. *AJIS.* 2014;3(5):23-8.
- Hanna F, Daas RN, El-Shareif TJ, Al-Marridi HH, Al-Rojoub ZM, Adegboye OA. The relationship between sedentary behavior, back pain, and psychosocial correlates among university employees. *Front Public Heal.* 2019;7:80.
- Lotters F, Burdorf A. Prognostic factors for duration of sickness absence due to musculoskeletal disorders. *Clin J Pain.* 2006;22(2):212-21.
- Miyamoto M, Konno S, Gembun Y, Xinyu Liu, Kazufumi Minami, Hiromoto Ito H. Epidemiological study of low back pain and occupational risk factors among taxi drivers. *Ind Health.* 2008;46(2):112-7.
- Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. *Spine.* 2008;8(1):8-20.
- Tulder MWV, Koes BW, Bouter LM. A cost-of-illness study of back pain in The Netherlands. *Pain.* 1995;62(2):233-40.
- Andersen JH, Gaardboe O, Anderson SP, Oakman J, Article O, Arvidsson I, et al. National institute for working life ergonomic expert committee document no 1 visual display unit work and ... committee document no 1 visual display unit work and upper extremity musculoskeletal disorders a review of epidemiological findings. *Appl Ergon.* 2015;7(1):37-41.
- Ayanniyi O, Ukpai B, Adeniyi A. Differences in prevalence of self-reported musculoskeletal symptoms among computer and non-computer users in a Nigerian population: a cross-sectional study. *BMC Musculoskelet Disord.* 2010;11(1):177.
- Hameed S. Prevalence of work-related low back pain among the information technology professionals in India-a cross-sectional study. *Int J Sci Technol Res.* 2013;2(7).
- Campos-Fumero A, Delclos GL, Douphrate DI, Felknor SA, Vargas-Prada S, Serra C, et al. Low back pain among office workers in three Spanish-speaking countries: findings from the CUPID study. *Inj Prev.* 2017;23(3):158-64.
- Vos T, Flaxman A, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380(9859):2163-96.
- Murray C, Vos T, Lozano R, Naghavi M, Flaxman A, Michaud C, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: a systematic analysis for the global burden of disease study 2010. *Lancet.* 2012;30:2197-223.
- CDC. Fact sheet: Preventing back injuries in health care settings. Atlanta, USA: Centers for Disease Control and Prevention 2008. Available at: <http://>

- blogs.cdc.gov/niosh-science-blog/2008/09/22/lifting. Accessed on 27 December 2020.
15. Ansari MA, Subedi K, Panta OB, Suwal S. MRI pattern of lumbosacral degeneration in Tribhuvan University Teaching Hospital, Nepal. *JIOM*. 2015;38(2):51-5.
 16. Awosan KJ, Yikawe SS. Prevalence, perception and correlates of low back pain among healthcare workers in tertiary health institutions in Sokoto, Nigeria, Oche M. Oche Muhammad Oboirien Ghana *Med J*. 2017;51(4):164-74.
 17. Johnson OE, Edward E. Prevalence and risk factors of low back pain among workers in a health facility in South-South Nigeria. *BJMMR*. 2016;11(8):1-8.
 18. Rufa'I AA, Sa'idu IA, Ahmad RY, Elmi OS, Aliyu SU, Jajere AM, et al. Prevalence and risk factors for low back pain among professional drivers in Kano, Nigeria. *Archiv Environment Occupation Health*. 2015;70(5):251-5.
 19. Ali M, Ahsan GU, Hossain A. Prevalence and associated occupational factors of low back pain among the bank employees in Dhaka City. *J Occup Health*. 2020;62(1):12131.
 20. Sanya AO, Ogwumike OO. Low back pain prevalence amongst industrial workers in the private sector in Oyo State, Nigeria. *Afr J Med Medic Sci*. 2005;34(3):245-9.
 21. Gupta N, Christiansen CS, Hallman DM, Korshøj M, Carneiro IG, Holtermann A. Is objectively measured sitting time associated with low back pain? A cross-sectional investigation in the NOMAD study. *PLoS One*. 2015;10(3):0121159.
 22. Wong AY, Karppinen J, Samartzis D. Low back pain in older adults: risk factors, management options and future directions. *Scoliosis Spinal Disord*. 2017;12(1):14.
 23. Hossain MD, Aftab A, AlImam MH, Mahmud I, Chowdhury IA, Kabir RI, et al. Prevalence of work related musculoskeletal disorders (WMSDs) and ergonomic risk assessment among readymade garment workers of Bangladesh: A cross sectional study. *PLoS One*. 2018;13(7):0200122.
 24. Gordon R, Bloxham S. A systematic review of the effects of exercise and physical activity on non-specific chronic low back pain. *Healthcare*. 2016;4(2):22.
 25. Wáng YXJ, Wáng JQ, Káplár Z. Increased low back pain prevalence in females than in males after menopause age: evidences based on synthetic literature review. *Quant Imaging Med Surg*. 2016;6(2):199-206.

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