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## Low back pain and the severity amongst bank personnel within Nairobi City County

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### Abstract

Pain occurring in the lumbar part of the back is one of the major world health concerns. It is one of the causes of activity limitation thus leading to low productivity among various organizations. Depending on the nature of work or rather work environment, some individuals are at serious risk of developing LBP as compared to others. Exposure to physical inactivity which contributes to sedentariness can predispose individual to low back pain. Occupations requiring prolonged sitting and computer use, like banking, increase the risk of LBP. This is as a result of long working hours which exposes them to awkward postures such as stooping positions. This study therefore adopted a cross-sectional survey design that sought to investigate the impact of sedentary lifestyle, work-related and socio-demographics on pain occurring in the lumbar region of the back among bank workers in Nairobi County, Kenya. The research worked towards establishing the prevalence and severity of LBP among bank employees within Nairobi County, Kenya. All bank employees with an experience of working in the banking sector within Nairobi County for a period of over twelve months stood a chance to be part of the study. An amount to 211 bank employees were selected and took part in the study. LBP intensity was assessed using the Pain Intensity Numeric Scale, its prevalence was gauged with the modified Nordic, and the Oswestry Disability Index Questionnaire evaluated the disability level caused by LBP.

**Keywords:** Low back pain, prevalence, pain intensity, bank employees, Nairobi City County

### Introduction

Pain and tenderness that is confined to the area beneath the costal margin and over the glute fold has been reported to ravage the working population especially those who sit for an extended period of time like bankers. Origin of low back pain is multi-factorial, this is because it can be as a result of strain, tension or injury (Wáng, Wáng, & Káplár, 2016) <sup>[20]</sup>. Daily activities which involve repetitive movements, awkward postures such as bending with improper form, twisting movements, lifting heavy objects, stooping positions when using a computer straining the neck and lower back predisposes one to LBP (Das, 2015) <sup>[5]</sup>.

Low back pain being a frequent Musculo-skeletal condition, it is reported to be the main cause of activity limitation (Edomwonyi & Ogbue, 2018) <sup>[7]</sup>. The epidemiology of low back ache is said to raise, though most of the studies are confined to high income countries hence this bringing out that little information on the epidemiology in the rest of the world. It is approximated that 80% of the population in the world experience LBP at particular time in their life whereby, 15%-30% of a population develop the condition in adulthood leading to low productivity at work and thus low quality of life (Ye, Jing, Wei, & Lu, 2017) <sup>[23]</sup>.

Globally, the average prevalence of LBP despite the period is said to be 31%, while in Africa, the annual prevalence is 33% in adolescents and 50% in adults (Kanyenyeri *et al.*, 2017) <sup>[8]</sup>. The prevalence of LBP in developed countries such as USA and Australia range from 26.4% to 79.2%. The situation is said to be even worse in developing countries with unacceptable working conditions and also absence of ergonomic awareness in work places thus leaving significant number of the active population with activity limitation due to low back pain (Downing & Elias, 2016) <sup>[6]</sup>.

## Methods

**Research Design:** The research utilized cross-sectional analytical survey design to assess influence of socio-demographic characteristics, sedentary lifestyle and occupation related factors on low back pain among bank staffs in Nairobi City County. This design enabled the researcher gather information on demographics of respondents, physical activity level and work-related factors that could have contributed to LBP. This type of design was suitable in determining the prevailing characteristics of certain group at a given point in time (Maninder singh setia, 2016) [12] and therefore the information gathered enabled the researcher to make inferences about possible relationships based on the study.

### Study settings, population and sample

The study was conducted within Nairobi City County owing to the presence of many banking institutions within the bounds the city. The study was conducted in the 17 sub-counties in Nairobi where Banks were randomly selected for study in each sub-county. This was also necessitated by the high population of residents in the city, most of whom are customers seeking services in the banks (Lall & Restrepo, 2017) [10] and could have an impact on the employees working environment. In addition, the big number of banks in Nairobi provided a relatively large number of bank employees from where the study drew a fair representation of the study population.

### Sampling Technique

Stratified sampling enabled the utilization of sub-counties of Nairobi County for this study where 17 sub-counties were involved. The purpose for this was to have evenly representation of banks in each sub-county. Banks for study were identified by use of purposive sampling were; co-operative bank, Kenya Commercial Bank, Equity bank, KWFT and I&M Bank were identified in each sub-county. Specific bank branches where the respondents were selected from were identified by use of stratified sampling. A letter to the respective bank managers was done for permission to be granted to conduct the study. List of all bank staffs in each branch were obtained from the branch manager and names arranged in alphabetical order. Respondents were therefore selected randomly where all even numbers participated in the research. Consent was acquired from the participants.

### Sample size determination

Cochran's formula was applied to get the sample size for the study population. Bank employees consist of large population and therefore this formula was appropriate in sample size determination.

$$n_0 = \frac{Z^2 PQ}{d^2}$$

n referred to the desired sample size, z represented the standard normal deviation (1.96) for 95% confidence level, sampling error (0.05). This therefore give a sample size of

384 participants for population of more than 10,000 (Polonia, 2013) [17]. Modification of the Cochran's formula for a lesser population when applied, it gave a total of 256 respondents where by all the job category be represented.

$$\frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384$$

### Modification of Cochran's formula

$n = n_0$  part in the study

$$\frac{1 + (n_0 - 1)}{N}$$

N

And therefore 256 respondents took part in the study.

### Data Collection procedures

The researcher made formal application to the management of the sampled Banks for authorization to conduct research. Permission was granted on agreement that confidentiality of the employees would be taken care of were in this case, numerals were used in identifying participant's code. The respondents were then briefed on the overview of the research and requested to participate. Bank employees who admitted to participate in the research were then requested to sign the authorization form. The responders were given questionnaires after the official working hours and requested to complete them and given a period of one week after which the research assistants would come to pick them after filling. The respondents were briefed to contact the researcher in case of any question or made clarifications on any arising issue through a phone call. In addition, the researcher made a random unstructured non-participant observation at the banks on type of shoes worn, either flat or heels for female employees and findings were recorded for purpose of report on the study.

### Ethical considerations

Ethical approval for the study was given by Kenyatta University Ethical Review Committee (KUERC). Authorization for the research given by the National Council for Science, Technology and Innovation (NACOSTI). Research authorization from the branch managers was also sought prior to data collection. On a date agreed upon by the managers and the researcher, the research team visited the banks and introduced themselves and the study to the participants. Participants who voluntarily accepted to participate had to sign the consent form and submit them to the manager and informed of the importance of the research. Confidentiality of the participants was assured whereby the questionnaires did not bear personal information and the data collected was only used for the study by the primary researcher.

### Data analysis

Data gathered was examined using SPSS version 22 (statistical package for the social sciences). Means, percentages and medians descriptive statistics were used to summarize the data. LBP intensity was assessed using the Pain Intensity Numeric Scale, its prevalence was gauged with the modified Nordic, and the Oswestry Disability Index Questionnaire evaluated the disability level caused by LBP.

## Results

**Table 1:** Prevalence of Low Back Pain among the participants

Low back pain	Frequency	Percent
No	97	46.0
Yes	114	54.0
Low back pain under treatment	Frequency	Percent
No	164	77.7
Yes	47	22.3
Duration of treatment	Frequency	Percent
less than 3 months	19	9.0
3 to 6 months	13	6.2
6 to 12 months	8	3.8
more than 12 months	6	2.8
No medication	165	78.2
Pain intensity scale	Frequency	Percent
0(no pain)	60	28.4
1(no pain)	2	.9
3(less pain)	26	12.3
5(moderate pain)	1	.5
6(more pain)	24	11.4
8(much pain)	50	23.7
10(severe pain)	48	22.7

As indicated on table 1, majority of bank employees (114, 54%) had experienced or been diagnosed with low back pain while 97(46%) have never experienced low back pain. Those undergoing treatment were 164 (77.7%) while those who did not seek treatment were 47 (22.3%). The outcome also displayed that of the bank staff who have experienced or been diagnosed with low back pain, 19 (9%) have been under treatment for less than three months, 13 (6.2%) have been under treatment for a duration of three to six months, while 8(3.8%) have been on treatment for six to twelve months. For those who have been on treatment for more than a year where 6(2.8%) while 165(78.2%) did not indicate the duration in which they have been under treatment. The participants indicated their discomfort level due to low back pain and the results showed that, 62(29.3%) didn't experience any pain, 26(12.3%) experienced less pain, only 1(.5%) experienced moderate pain. In addition, 24(11.4%) of the participants to experience more Low back pain with 50 (23.7%) reporting much pain. For the participants who reported severe pain where 48 (22.7%).

**Table 2:** Prevalence of Low Back Pain among Bank Employees in Relation to Age

Age	Low Back Pain				Total		X <sup>2</sup>	df	sig
	No	%	Yes	%	Total	%			
20-29	24	53.3%	21	46.7%	45	100.0%	6.2	3	0.098
30-39	53	49.1%	55	50.9%	108	100.0%			
40-49	19	38.0%	31	62.0%	50	100.0%			
50 and above	1	12.5%	7	87.5%	8	100.0%			
Total	97	46.0%	114	54.0%	211	100.0%			

Table 2 showed that bank employees in the age category of 50 years and above had the highest percentage occurrence of low back pain (7, 87.7%) followed by 40-49 years (31, 62.0%), 30-39 years (55, 50.9%) and 20-29 years (21, 46.7%). To establish if the observed differences were significant, chi-square test of independence was computed and results indicated that no statistically significant difference existed between occurrence of low back pain and age of the participants. Owing to the chi-square results  $X^2(3, N=211) = 6.3, p=.098$  the null hypothesis that there is no

significant relationship between age and low back pain among bank employees in Nairobi County was not rejected.

**Table 3:** Prevalence of low back pain amidst bank employees within Nairobi City County in relation to gender

Gender	Have you ever experienced or have been diagnosed with Low Back Pain?				Total	%	X <sup>2</sup>	df	Sig.
	No	%	Yes	%					
Female	38	39.2%	59	60.8%	97	100%	3.3	1	0.045
Male	59	51.8%	55	48.2%	114	100%			
Total	97	46.0%	114	54.0%	211	100%			

Table 3 shows that more female bank employee's experienced low back pain (59, 60.8%) compared to those who did not (38, 39.2%). Male employees who reported to have experienced or been diagnosed with low back pain were (55, 48.2%) while those who did not experience low back pain were (59, 51.8%). Chi-square results indicated that there was statistically significant relationship between occurrence of low back pain and gender of the participants. Owing to the chi-square results  $X^2(1, N=211) = 3.3, p=.045$  the null hypothesis that there is no significant relationship between gender and low back pain among bank employees in Nairobi County was rejected.

**Table 4:** Discomfort level (Pain severity) due to low back pain

Discomfort level	Frequency	Percent
0(no pain)	52	24.6
1(no pain)	1	.5
3(less pain)	28	13.3
6(more pain)	24	11.4
8(much pain)	54	25.6
10(severe pain)	52	24.6
Total	211	100.0

Table 4 indicated that, majority of bank employees experienced much and severe pain based on the discomfort level scale. The results were; much pain 54 (25.6%), severe pain 52 (24.6%), more pain 24 (11.4%), less pain 28 (13.3%), no pain 1 (0.5%) and 52(24.6%).

**Table 5:** Results on age and discomfort level of bank employees in Nairobi City County

Age	Discomfort level due to low back pain.					Total
	0(no pain)	3(less pain)	6(more pain)	8(much pain)	10(severe pain)	
20-29	17 (37.8%)	4(8.9%)	4(8.9%)	9(20.0%)	11(24.4%)	45(100.0%)
30-39	30(27.8%)	19(17.6%)	15(13.9%)	24(22.2%)	20(18.5%)	108(100.0%)
40-49	6(12.0%)	4(8.0%)	4(8.0%)	19(38.0)	17(34.0%)	50(100%)
50 and Above	0(0.0%)	1(12.5%)	1(12.5%)	2(25.0)	4(50.0%)	8(100.0%)
Total	53(25.1%)	28(13.3%)	24(11.4%)	54(25.6%)	52(24.6%)	211(100.0%)

Table 5 shows that participants who are 50 years and above reported the highest number of severity on low back pain 4(50.0%), then those who were between the age brackets of ss40-49 years 17(34.0%), 20-29 years 11(24.4%) with those between the age of 30-39 years reporting the lowest 20(18.5%).

**Table 6:** Chi-square test of results

	Value	df	Asymp. Sig. (2 sided)
Pearson Chi-Square	22.732 <sup>a</sup>	12	.030
Likelihood Ratio	24.485	12	.017
Fisher's Exact Test	. <sup>b</sup>		
Linear-by-Linear Association	12.471	1	.000
N of Valid Cases	211		

Chi square results presented on table 5 imply that a statistically significant association existed between age and severity of pain caused by low back pain. Owing to the chi-square results  $\chi^2(12, N=211) = 22.73, p = .030$ . Therefore, the hypothesis on there is no significance relationship on low back pain prevalence and pain severity among bank employees was rejected.

**Table 7:** Spearman Rank-Order Correlation between age and discomfort level of bank employees in Nairobi City County

Spearman's rho Correlations			Discomfort level due to low back pain.
Age	Correlation Coefficient	1.000	.229**
	Sig. (2-tailed)	.	.001
	N	211	211
Discomfort level due to low back pain.	Correlation Coefficient	.229**	1.000
	Sig. (2-tailed)	.001	.
	N	211	211

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The outcome of the spearman Rho test shows that there is a significant positive relationship between age and discomfort level due to low back pain ( $r$  is .229) and this is statistically significant ( $p = .001$ ). We therefore reject the hypothesis stating that there is no significant relationship between low back pain and socio demographic profiles (age) of bank employees within Nairobi City County.

## Discussion

Lower back pain is still one of persistent public health challenge around the globe that significantly has impact on the lifestyle quality hence causing disability among those who are employed (Mweu, Mbuya, & Mwanthi, 2019) [14]. It is said to be the most prevalent musculoskeletal condition that is related to work as well as working environment (Chiwaridzo, Makotore, Dambi, Munambah, & Mhlanga, 2018) [3]. Low back pain has become a threat to the working

population and more so the office and health workers (Ntuli, Maimela, Alberts, Choma, & Dikotope, 2015) [15].

Past studies have reported a higher frequency of low back pain in countries with low income as compared to nations with high income (Ali, Ahsan, & Hossain, 2020) [2]. A study done in Bangladesh on prevalence of low back pain and associated factors showed that of employment-related issues are prevalent to low back pain and concluded to excel in various work environments. The current study established that majority of participants (54%) as shown in table 1 suffered low back pain. These findings were similar to those of (Downing & Elias, 2016) [6] where by prevalence of low back pain was reported to lies between 14-72% among his participants.

In this study, female gender reported a higher prevalence (60.8%) as compared to male gender (48.2%). Poor posture causes unnecessary strain in the spine and muscles in the back and it can cause low back pain (Al-hadidi *et al.*, 2020) [1]. An observation made during the current study revealed that most of the female bank employees wore high heeled shoes. This could be one of the factors that predisposes them to poor sitting postures hence leading to the more common occurrence of low back pain. Therefore, it concurred with the findings of the study done by (Williams *et al.*, 2015) [22] which indicated that female gender is said to have more predisposing factors to low back pain as compared to male gender (Watanabe, Takahashi, Takeba, & Miura, 2018) [21]. The findings indicated that there was a significance relationship between gender and low back pain ( $\chi^2(1, N=211) = 3.3, P = 0.045$ ).

Result of the present research indicated that, prevalence of low back pain among bank staffs was also associated with age as well as duration of employment. Pain severity across age indicated that there was a significance relationship ( $\chi^2(12, N=211) = 22.73, p = 0.030$ ). The reason is because there was increased frequency of low back discomfort with increase in age with those with 50 years and above reporting 87.5%, 40-49 years 62.0%, 30-39 years 50.9% and those within the 20-29 year age range reporting the lowest prevalence of 46.7 %. Low back pain becomes increasingly with increase in age due to loss of bone strength and muscle elasticity as well as tone decrease (Ali *et al.*, 2020) [2]. With increase in age, intervertebral disc begins to lose fluid and flexibility decreasing their ability to cushion the vertebrae hence causing low back pain. Therefore working in the same position for hours and continuing with the same job for long time predisposes bank employees to low back pain. Thus, the odds of getting low back pain for bank employees aged 50 years and above is high as compared to those with less years.

Bank employees who have been working for a longer duration and of older age gave an account of the highest commonality of low back pain. Bank employees who reported to have spent 5-10 hours seated reported the

highest prevalence of low back pain. This is because of working in a sedentary environment which attributed them to low back pain. In connection to sitting posture, bank employees who sat while leaning back reported the highest prevalence of low back pain. Bank employees who spent more than 10 hours using computer reported the highest prevalence of low back pain.

### Study limitations

Since the study relied on self-reported data from the bank employees on the experiences of low back pain and its severity if at all, the respondents might over or under report the situation. To curb this, the researcher requested the respondents to be honest and truthful in their responses and emphasized on the importance of the research to them.

### Conclusion

This study concludes that prevalence of low back pain among bank staffs in Nairobi City County was 54%. The findings of this investigation revealed that age significantly influenced low back pain among bank employees. The study also concluded that gender had significant influence on low back pain thus females are at higher risk compared to males. The high prevalence of low back pain reported concurred with other studies done in east Africa among office workers.

### Recommendation

This study focused on low back discomfort among bank staff in Nairobi City County, a study to investigate further the number of the participants who experiences chronic low back pain compared to acute low back pain is highly recommended

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