



(RESEARCH ARTICLE)



## Low back pain among doctors in a tertiary institution in Southern Nigeria

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### Abstract

**Introduction:** Low back pain is common in health workers with deleterious effects on their work and quality of life.

**Aims:** This study aimed to identify work related disabilities and risk factors for low back pain amongst doctors in Nigeria.

**Methodology:** One hundred and fifty-four doctors were recruited and a structured proforma was administered using the Aberdeen low back pain scale, revised Oswestry and Quebec pain scales as guides. Data was analysed using Statistical Package for the Social sciences version 25. Univariate and multivariable logistic regression were used to calculate the odds ratios for the independent risk factors for LBP. Level of significance was determined at  $p < 0.05$ .

**Results:** The male to female ratio was 1.8:1 and 70(45.50%) doctors were in the age range of 31-40years. Half (50%) of the respondents were obese while 21.9% were overweight. The duration of an episode of back pain was less than a week in 130 (84.40%) persons. A few doctors- 22(14.29%) reported that low back pain had prevented them from coming into work, of these, 12 had been absent for a day, four for 2-7 days and six for 1 to 4 weeks. Anesthetists were ten times more likely to develop low back pain than any other medical specialty (OR=10.99, 95%CI=1.336-90.545,  $p=0.026$ ) and increasing age and BMI were also identified as predictors of low back pain.

**Conclusion:** Low back pain is associated with poor productivity among doctors and can impact health care delivery.

**Keywords:** Low back pain; Doctors; Risk factors; Nigeria

### 1. Introduction

Low back pain is common worldwide, and a 2017 study estimated a point prevalence to be about 7.5% of the global population, or around 577.0 million people [1]. Almost everyone has had some form of low back at some time in their life, [2] ranging from a mild discomfort to severe debilitating pain [3].

The development of low back pain is multifactorial as various physical and mechanical risk factors contribute to the development of the pain, progression of the pain and even perception of the pain. Age is an important factor that has a significant relationship with low back pain in various studies. [4,5] Because with age, the probability of osteoporosis increases and the supporting muscles become weaker, and with increasing years of work and the passage of time, the probability of physical injuries increases [6].

Low back pain is common among individuals with exhausting occupations; in the world, 37% of LBP is related to occupations in which professionals are exposed to vibrations or prolonged periods of standing, such as miners, health

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care workers (HCWs), and professional drivers. A greater proportion of LBP is concomitant with the repetitive or prolonged awkward postures, which professionals within these jobs often undertake. [7] Among health workers, low back pain has been a major health problem and results from heavy lifting, prolonged standing, sitting or a combination of the three. [8]

There is a paucity of data generally on the frequency of low back pain among doctors, and its effect on their work and life.

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## **2. Material and methods**

### **2.1. Study design and subjects**

This study was a descriptive, cross-sectional study conducted among medical doctors in the University of Port Harcourt Teaching Hospital, a tertiary hospital in Rivers State, Nigeria. Rivers State is one of the thirty-six states of Nigeria, located in the southernmost part of the country. All doctors, from both genders, all specialities and qualifications working in University of Port Harcourt Teaching Hospital were eligible for the study

### **2.2. Sampling technique**

Stratified random sample technique with proportional allocation was adopted to select physicians from different departments of the hospital proportional to the total number of physicians in each department. Stratification was done based on working departments.

### **2.3. Outcome measures**

- To determine the frequency of low back pain among doctors in the hospital
- To identify work related risk factors for LBP
- To assess work related disability caused by LBP on respondents.

### **2.4. Data collection**

A structured proforma was developed using the Aberdeen low back pain scale, revised Oswestry and Quebec pain scales as guides. The self-administered questionnaire was distributed among 154 medical doctors in the hospital over two weeks. Fully informed and appropriate consent of the participants was sought and obtained. The questionnaire included information regarding demographic data (e.g., age, sex, rank and speciality), body mass index as well as pain related variables and perceived restriction of duties at work.

### **2.5. Statistical analysis**

Data were entered to a personal computer and were analysed using Statistical Package for the Social sciences (SPSS, Chicago Illinois) program version 25. Descriptive statistics were presented as numbers and percentages. Univariate and multivariable logistic regression were used to calculate the odds ratios (ORs) and antecedent 95% confidence intervals (95% CIs) for the independent factors for LBP among doctors in the study. In the multivariable analysis, age and BMI were handled as continuous variables, while other categorical variables were dichotomized. All variables were included in the multivariable analysis. Level of significance was determined at  $p < 0.05$ .

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## **3. Results**

A total of one hundred and fifty-four (154) doctors were assessed via structured questionnaires over a two-week period.

Males constituted the majority of the respondents, accounting for 64.3% (99) of the population with a male to female ratio of 1.8:1, and almost half of the respondents 70(45.50%) were between the age of 31-40 years.

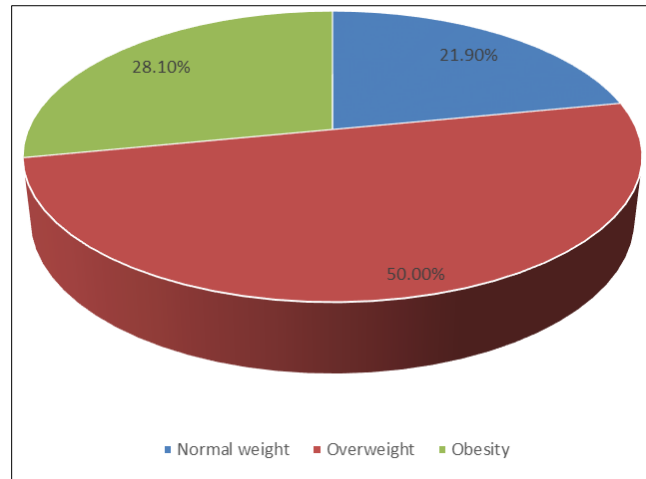
Although doctors were recruited from all the departments, the majority of the respondents were in the departments of Surgery, Obstetrics & Gynecology and Internal Medicine, with Registrars being the most common recruited cadre. The sociodemographic characteristics of the study population are shown in Table 1.

**Table 1** Social demographic characteristics of the respondents

Sociodemographic characteristics	Frequency (%)
<b>Age (years)</b>	
21-30	29 (18.80)
31-40	70 (45.50)
41-50	28 (18.20)
51-60	19 (12.30)
61-70	8 (5.20)
<b>Gender</b>	
Male	99 (64.30)
Female	55 (35.70)
<b>Marital Status</b>	
Single	45 (29.20)
Married	103 (66.90)
Divorced	3 (1.90)
Widowed	3 (1.90)
<b>Department</b>	
Anaesthesia	22 (14.30)
Family medicine	6 (3.90)
Internal Medicine	25 (16.20)
Laboratory Medicine	8 (5.20)
O&G	37 (24.00)
Paediatrics	4 (2.60)
Surgery	41 (26.60)
Others	7 (4.50)
<b>Rank</b>	
House officer	17 (11.00)
Registrar	63 (40.90)
Senior Registrar	24 (15.60)
Consultant	50 (32.50)

While 28 (21.9%) of the respondents were normal weight, 64(50%) were overweight. This is demonstrated in figure 1.

Most of the respondents 78(50.60%) had at least one episode of low back pain in the last one year while 13 persons (8.40%) described their pain as constant. The duration of an episode of back pain was less than a week in 130 (84.40%) of the respondents whereas 8 persons (3.90%) reported pain duration of over a month, however, the description of the pain of most of the respondents 83(53.90%) was mild and intermittent.



**Figure 1** Body mass index (BMI) distribution of the respondents

**Table 2** Nature of low back pain among the respondents

Variable	Frequency (%)
Episodes of Low back pain within a year	
1	78 (50.60)
2-5	34 (22.10)
More than 5	29 (18.80)
Constant low back pain	13 (8.40)
Average duration of Pain	
Less than a week	130 (84.40)
1-2 Weeks	14 (9.10)
2-4 Weeks	6 (2.60)
More than a month	8 (3.90)
Description of Pain	
Severe and Constant	5 (3.20)
Severe and Intermittent	9 (5.80)
Moderate and constant	10 (6.50)
Moderate and Intermittent	43 (27.90)
Mild and Constant	4 (2.60)
Mild and intermittent	83 (53.90)

Only 37 (24.0%) persons had visited a doctor for treatment of their pain but 40 (26.0%) reported use of oral analgesia, 17 (11.0%) visited the physiotherapist, 5 (3.20%) used a corset, 1 (0.60%) received injections and 2 (1.30%) had been hospitalized for low back pain.

As shown in table 3, the nature of work activity commonly engaged in by the doctors in their respective departments was standing for 3 or more hours at a stretch daily which was reported by 106(68.80%) doctors.

**Table 3** Nature of work activities engaged in daily

Variable	Frequency (%)
Sitting for 3 or more hours	
Yes	60(39.00)
No	94(61.00)
Standing for 3 or more hours	
Yes	106(68.80)
No	48(31.20)
Lift/push/pull heavy loads	
Yes	34(22.10)
No	120(77.90)

Concerning the perception of the cause of their back pain, 94(61.00%) of the respondents felt that their jobs was the cause of the low back pain and 22(14.29%) persons reported that low back pain had prevented them from coming into work. Of these 22 doctors, 12 had been absent for a day, four doctors absent for 2-7 days and six doctors absent from work for 1 to 4 weeks.

### 3.1. Predictors of low back pain

Doctors between the ages of 31 to 40 years and 51 to 60years were more likely to have low back pain when compared with those between the ages of 61-70 and the result was significant at p-value = 0.032 and 0.021 respectively. However, having low back pain between the ages of 31 to 41 was not significant when confounders were taken into consideration (table 4). Also, doctors who work in the Anesthesia department are more likely to have low back pain when compared with doctors who work in other departments of the hospital and this result was statistically significant.

**Table 4** Predictors of low back pain in the study population

Variable	Adjusted Odds ratio	p value	95 C.I.
<b>Age (years)</b>			
21-30	2.061	0.616	0.122-34.924
31-40	12.153	0.059	0.914-161.594
41-50	6.720	0.132	0.563-80.256
51-60	21.356	0.018	1.693-269.454
61-70	Ref		
<b>Gender</b>			
Males	1.120	0.795	0.467-2.638
Females	ref		
<b>Rank</b>			
House officer	0.886	0.903	0.127-6.182
Registrar	0.622	0.493	0.160-2.416
Senior registrar	0.755	0.708	0.174-3.287
<b>Department</b>			
Anaesthesia	10.999	0.026	1.336-90.545

Family medicine	0.882	0.921	0.074-10.457
Internal medicine	1.552	0.679	0.193-12.476
Laboratory medicine	2.029	0.557	0.192-21.479
O&G	6.647	0.067	0.876-50.437
Paediatrics	1.211	0.901	0.060-24.574
Surgery	2.659	0.305	0.410-17.227
Others	ref		
<b>BMI</b>			
Normal weight	0.432	0.202	0.119-1.568
Overweight	0.402	0.096	0.137-1.176
Obese	Ref		

Key: O&G= Obstetrics and gynaecology, BMI= body mass index

#### 4. Discussion

Most studies on low back pain in health care workers were carried on nurses with few studies elucidating this problem amongst doctors. This study was designed to describe the frequency and nature of low back pain as well as identify the predictors of low back pain amongst medical doctors working in a tertiary hospital in a developing country.

The relationship between gender and low back pain suggests a higher occurrence in females. A systematic review on low back pain among health care workers described a significant association with female gender and low back pain [9] which was also noted in a smaller study amongst health workers in Nigeria [10]. Females are more prone to LBP than males as a result of the anatomical, physiological and structural factors as well as the fact that mechanical disadvantage, sprain and strain, are more common in women than men [11]. Although males were more likely to have low back pain than females in this study, this association was not statistically significant. The male preponderance in this study may be due to the recruitment of more male than female medical doctors in a developing country.

Age and low back pain have been well described in literature as Mattuizi et al [4] described cases of LBP exhibiting a gradual increase, reaching the peak between 40–50 years, and then progressively declining. This study reported higher odds of low back pain in doctors between the ages of 51-60 years. However, a study by Lee et al [12] did not describe any significant association between increasing age and low back pain. This may be due the small sample size of their study.

Body mass index is another risk factor associated with low back pain in health care personnel. A normal body mass index is a measure of fitness, which reduces the load on the lower back and reduces pain in this area [13]. This study has also confirmed the positive association of increasing BMI with the development of low back pain as obesity is said to exaggerate the mechanical burden on the spine by causing a higher compressive force on the lumbar spine structures during various movements [14]. A small hospital-based study on doctors in Saudi Arabia [15] also established this relationship where they revealed a significant protective effect of practising regular exercise on developing LBP within the past 12 months.

#### 5. Conclusion

Low back pain is a common musculoskeletal disorder and the prevalence of low back pain in health care personnel is high. Increasing age and obesity were the strongest risk factors. Future studies and educational programs are required to minimize the incidence of low back pain and adequately manage symptoms when they occur.

#### Limitations

- This was cross sectional study with an inherent risk of coincidence findings
- The sample size was small. A larger sample size may be required to attain more comprehensive results.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

Ethical approval was given by the University of Port Harcourt Teaching Hospital Ethical Committee (UPTH/ADM/90/S.II/VOL.XI/1459).

### *Statement of informed consent*

A written informed consent was obtained from the proposed study participants before recruitment in accordance with ethical principle.

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