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Original Research

The Prevalence and Impact of Low Back Pain Among Anaesthesia Care Providers in South-South, Nigeria

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Abstract

Background: Low back pain (LBP) is a common musculoskeletal disorder, that significantly impedes productivity. This study aims to ascertain the risk factors responsible for developing low back pain and the impact on personal workplace service delivery among Anesthetist's practicing in Rivers and Bayelsa States of Nigeria.

Methodology: A cross-sectional survey was conducted, A self-administered questionnaire reflecting the modified Oswestry Disability Index (ODI) was used to detect the risk factors and assess the severity and impact of low back pain on this group of professionals. The prevalence of low back pain was calculated and described by using frequency tables. A multivariate logistic regression model was fitted to identify factors associated with the prevalence of low back pain. Significance was considered at $p<0.05$ with a 95% confidence interval.

Results: A total of 65 anesthetist's responded, giving a response rate of 90%. There were more males (52.3%) than females (47.7%). The majority (69.2%) of those who responded had low back pain, more in females (53.3%) compared to males (46.7%) although not significant. (P=0.994); Majority had moderate pain 58.6%, 22.7% severe and 20.5% mild pain. There was no association between low back pain and age (P=0.130), gender(P=0.994), marital status (P=0.333) and BMI (P=0.164). Bending (P=0.032), lifting (P=0.024), and standing(P=0.016) were predictive variables for low back pain and were statistically significant $P<0.05$.

Conclusion: Using the Oswestry pain assessment tool for LBP, the estimated prevalence of low back pain was more than fifty percent among the respondents. In this study, frequent bending and twisting, prolonged standing, and lifting were important significant associated factors in the development of LBP among anesthetist's.

Keywords: Low back pain, Oswestry disability index, Anaesthesiologist

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Introduction

Pain which is described by the International Association for the Study of Pain (IASP) as an unpleasant sensory or emotional experience associated with actual or potential tissue damage or described in terms of such damage [1] is a major cause of disability. When this pain occurs in the lumbosacral region i.e. beneath the 12th rib up to the upper buttock, it is commonly referred to as low back pain.[1,2]Low back pain (LBP) is one of the most common musculoskeletal disorders, significantly impeding productivity and imposing a significant economic challenge on the sufferers.[3] It can be classified as Primary (mechanical or non-mechanical), Secondary (to systemic illnesses) or non-organic (relating to psychosomatic disorders); it may also be described in terms of specificity i.e. if the cause is known or unknown.[4] Globally, it is said to have a lifetime incidence of 40% and affects about 80% of the population in developed societies.[5] In Africa, LBP is estimated to have a lifetime prevalence of 47% while the point prevalence is about 39%.[3] It has been found to be one of the most common workplace-related complaints received from anaesthesia care providers.[3,6,7]In a study amongst anesthetist's, conducted by Anson et al[8] it was discovered that 46.6% of anesthetist's developed low back pain, 70.1 % of whom had no previous complaints prior to commencement of work or training. Common risk factors attributed to the development of this menace are age, body mass index, gender, exercise habits, physical health status, workplace-related activities and ergonomics.[5,9,10]The daily activities of this group of health care professionals like lifting, pushing stretchers, transferring patients and bending significantly increase the risk of low back pain.[6]According to Attar, the risk of developing low back pain might be significantly increased in those who work in surgical departments and surgery-related specialties because of the peculiarity of their job.[11]Although LBP has led to significant disability and or absence from work[8] there are several treatment options available ranging from worker education, rest or elimination of risk factors, and use of medications to non-pharmacological modalities like TENS and physical therapy.[9] Several studies have been carried out to assess the burden of the disease among medical[2,3,5,7,10,12] and non-medical personnel[13,14]; however, there has been no previous study of this burden among anaesthesia personnel in our environment. This study therefore aims to ascertain the risk factors responsible for developing low back pain and the impact on personal workplace service delivery among Anaesthetists practicing in Rivers and Bayelsa states of Nigeria.

Materials and Method

A cross-sectional survey was conducted to evaluate the prevalence, pattern, risk factors and impact of LBP on the physical well-being of anesthetist's who work in tertiary hospitals in Rivers and Bayelsa States of Nigeria. A modified self-administered questionnaire reflecting the Oswestry Disability Index (ODI)[15](See Table 1)was used to detect the risk factors and assess the severity and impact of low back pain on this group of professionals.

Table 1: The modified Oswestry Disability Index (ODI), (Greenberg 2010).

Modified ODI score (%)	Level of disability
0-20	Minimal disability
21-40	Moderate disability
41-60	Severe disability
61-80	Cripple, pain impinges on all aspects of the patient's life.
81-100	Patients are bed-bound or exaggerating their symptoms.

Measurements were done using an electronic questionnaire that was divided into three main sections: Demography (age, sex, gender, marital status); Risk factors (BMI, exercise habits, duration of work, duration of employment, nature of work, presence of co-existing illnesses like diabetes mellitus, hypertension etc, smoking; impact on work and personal life (therapy, absenteeism, family life, financial burden and complications).

Statistical Package for Social Sciences (SPSS) version 22 was used to analyze the data obtained. Quantitative data was assessed using mean, standard deviation, and qualitative data using frequencies and

percentages. Chi-square was used for comparison of proportions and regression analysis to determine variables that predict LBP. All statistical analysis was set at a 5% level of significance ($p<0.05$).

Result

There are a total of 72 Anaesthesiologists in Rivers and Bayelsa states. An electronic questionnaire was sent out; there were 65 respondents giving a response rate of 90%. The socio-demographic variables of the study participants are shown in Table 2. The ages of the respondents ranged from 20 to >70 years, with a larger proportion (53.8%) within the 36-50 years age bracket; 43.7% have worked for 5-10yrs in anaesthesia. There were more males (52.3%) than females (47.7%).

The majority of them were married (78.5%), and 50.8 % had a BMI of 25-29.9. The majority (69.2%) of those who responded to the question reported suffering from low back pain; LBP was higher in females (53.3%) compared to males (46.7%), although there was no association between low back pain and age (P=0.130), gender(P=0.994), marital status (P=0.333) and BMI (P=0.164). The majority of respondents (40.9%) with LBP had it for a duration of 4-10 days.

Table 2: Socio-demographic characteristics of the study participants

VARIABLE	FREQUENCY (%)	TEST OF SIGNIFICANCE
Age		
20-30	11(16.9)	
36-50	35(53.8)	
50-65	12(18.5)	P=0.130, X^2 =52.06
65-70	6(9.2)	
>70		
Gender		
Male	34(52.3)	P=0.994, X^2 =16.22
Female	31(47.7)	
Ms		
Married	51(78.5)	P=0.333, X^2 =10.82
Single	14(21.5)	
BMI		
18.5-24.9	18(24.7)	
25-29.9	33(50.8)	P=0.164, X^2 =31.75
>30	14(21.5)	

Visual Analogue Score was used to assess the severity of pain. Of the 69.2% of respondents with LBP, the majority had moderate pain (56.8%), mild (20.5%) and severe (22.7%). 26.4% admitted to missing at least one day of work due to LBP. Oral analgesics were used in managing low back pain; 45.2% used only NSAIDS, 38.1% paracetamol, 7.1% required both, 4% opioids, and 9.5% required NSAIDS, opioids and physiotherapy; none required surgical intervention.

Using the multiple regression analysis, there was no association between low back pain, regular exercise and co-morbidities. There was a significant association between bending (P=0.032), lifting (P=0.024), standing(P=0.016) and low back pain.

Using the Oswestry disability index score interpretation guidelines, of the 65 respondents 21 (32.3%) had mild disability 39 (60%) had moderate disability, and 5 (7.7%) had a severe disability, but none was crippled or bedbound.

Table 3: Shows the risk factors for Low Back Pain

RISK FACTORS	FREQUENCY n=65(%)	TEST OF SIGNIFICANCE
Regular Exercise	22(33.8)	P=0.241, X^2=17.14
Yes		
No43(66.2)		
Comorbidities		
Hpt	5(33.3)	
Dm	1(6.7)	P=0.301, X^2=11.52
Scdx	-	
Others	9(60.0)	
Causes OfBackpain		
Lifting	14(21.5)	P=0.024*
Bending	22(33.8)	P=0.032*
Shifting	2(3.1)	P=0.241
Standing	23(35.4)	P=0.016*
Others	8(12.3)	P=0.201

Table 4: Depicts the Modified Oswestry Disability Score

OSWESTRY DISABILITY SCORE (n = 65)	(%of n)	
0-20% (Minimal mild disability)	21	32.3
21-40% (Moderate disability)	39	60.0
41-60% (Severe disability)	5	7.7
61-80%(Crippled)	0	0.0
81-100%(Bedbound)	0	0.0

Discussion

This study showed that more than 50% of anaesthetists working in Rivers and Bayelsa states of Nigeria suffer from low back pain; a prevalence of 69% is significant and unexpected. The Oswestry disability score also revealed that 60% of the participants have moderate disability. The prevalence in this study is low compared to the findings of Bin Homaid et al[6] in which the prevalence of LBP among anaesthesiologists was 82.4%, and other studies in Saudi Arabia and China with prevalence rates of 74.2% and 72.8%[6,16], respectively. In addition, the reported prevalence in this study also did not exceed the worldwide prevalence, which is about 84 %.[17,18,19] The results obtained in this study might be due to the prolonged sitting time and psychological stress of working long hours in tertiary institutions, especially with the dearth of qualified anaesthetists caused by the mass exodus of health workers (brain drain) in Nigeria. The prevalence of low back pain among health professionals in Bangladesh, Sokoto in Nigeria, and Ireland was 11.9%, 39.1%, and 30%, respectively[10,20,21] which is lower than the result of this study. This difference might be due to different sampling techniques, and the fact that these other studies were carried out among all health workers, compared to this study which was exclusively among anaesthesiologists.

The incidence of LBP has been reported to be highest in the third decade of life with the overall prevalence increasing with age until the 60–65-year age group and then gradually declining.[22] In our study, 53.8% of those with low back pain were between 36-50 years. The association between younger age and ODI scores found in this study is similar to the findings by Anson et al, [8] as injured young practitioners may be in the "acute phase," while older clinicians may be in the "stable" phase with less expected pain. The occurrence of LBP in the older age group could be due to physiological changes and cumulative occupational risk factors at the workplace over the years. However, the observed decline between 50-65, 18%, 65-70, 9.2% and >70, 1.5% may be because these groups of workers are not likely to be exposed to the risk factors at the workplace any longer as they may have either retired or progressed into administrative / management cadre.

In this study, the number of female anaesthetists (32.9%) with LBP was more compared with males (28.8%) although not statistically significant. This could be attributed to the anatomical, physiological, and structural differences between women and men,[2] and the fact that females tend to do extra-professional activities in the household and childbearing.[23] although two studies conducted in Kuwait and Uganda disproved this theory.[24,25]

Among those with LBP, 40.9% of pain occurred for a duration of 4-10 days, followed by 29.5% for 1-3 days. This differs from the study by El Soud et al[26] in which 76.5% of respondents had chronic LBP and 5.9% had acute LBP; though El Soud et al[26] used all categories of health workers, while this study was only amongst anaesthetists. Using the VAS, 56.8% of those with LBP had moderate pain scores, and about 20.5% were mild. A study by Karahan et al [24] observed mild cases to be about 65.3% and moderate cases at 63%. These differences may be attributed to the subjective nature of pain.

Low back pain is a common reason to be absent from work.[5] In this study, about 26.4% of those with LBP obtained excuse duty because of the pain. This reveals that the pain was serious and severe enough to interfere with the work schedule and warrant taking time off while recovering from the acute onset of the illness. They may likely rest or self-medicate hence majority (45.2%) were on NSAIDS, and 38.1% on Paracetamol.

Prolonged standing and sitting, awkward posture during surgeries, work overload, psychological stress, physical hard work, and long working hours may predispose to LBP. Smoking, high BMI, advancing age, female gender, inactivity, long-standing time, and perceived stress were significantly associated with the presence of LBP worldwide.[6,25,27,28] However, we did not find a statistically significant relationship ($p>0.05$)between LBP and gender, age, BMI, regular exercise, shifting, and work experience in this study. This may be due to the fact that 53.8% of anaesthetists in this study were between 35-50years.

Anaesthetists usually perform some risky activities daily that were found to be significantly associated with LBP.[24] This may include lifting heavy objects above the waist, transferring patients onto a bed or chair, transferring patients onto a stretcher, ambulating a patient, repositioning patients, pulling a patient up the bed, and rotating the torso while bearing some weight.[24] In the present study, we found that some of such activities as lifting (0.024), bending (0.032), and standing (0.016) were significantly associated with the presence of LBP. This can be improved by health education on posture, exercise and correct lifting techniques.[5] The provision of ergonomically sound chairs with back support rather than backless stools is necessary in the workplace and workers can interrupt prolonged sitting or standing and walk around occasionally while at work.

Conclusion

Using the Oswestry pain assessment tool for LBP, the estimated prevalence of low back pain was found to be high. We also found that frequent bending, twisting, prolonged standing, and lifting were important significant associated factors with LBP among Anaesthetists; age, gender BMI and number of work years in anaesthesia were not significant factors, but LBP was severe and serious enough to cause anaesthetists to ask to be excused from work.

Abbreviations

BMI: Body Mass Index. ; ODI; Oswestry Disability Index. LBP: Low Back Pain; SD: Standard Deviation. VAS; Visual Analogue Score.MS; Marital status.NSAIDS; Non-Steroidal Anti-Inflammatory Drug.TENS; TranscuteneousElectrical Nerve Stimulation, UPTH; University of Port Harcourt Teaching Hospital.

Conflicting Interest

The authors declare that there are no conflicting interests.

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