Prevalence of Low Back Pain Among Adult Patients Attending Family Medicine Clinics in Irrua Specialist Teaching Hospital, Edo State, Nigeria

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Abstract
Low Back Pain (LBP) has been found to be a leading cause of disability which significantly restricts normal activity and occupation of individuals who experience it. The objective of this study was to determine the prevalence of low back pain in adult patients attending family medicine clinics of Irrua Specialist Teaching Hospital, Edo State. It was a descriptive cross-sectional study carried out in 2013 among 245 adult patients with LBP using a semi-structured interviewer administered Oswestry Low Back Pain Disability and the General Health Questionnaires. Data analysis was done using SPSS software. The modal age group was 51-60 years, 71 (29.0%), majority of the respondents in this study were female (68.6%) and married (67.8%). Prevalence of low back pain for the period (May-October) was 31.3 per 1000 population (3.1%). Low back pain was a significant contributor to morbidity in the adult outpatient clinics and there is a need to design suitable interventions to reduce its prevalence in the population.

Keywords: Low Back Pain, Adults, Prevalence, Risk Factor, Edo State.

Introduction

Low Back Pain affects approximately 60-85% of adults at certain points in their life but fortunately for the large majority of individuals symptoms are mild, transient with 90% subsiding within 6 weeks (Middleton and Fish, 2009). It is common in Nigeria with a prevalence ranging from 20% in office workers to 67% in farmers (Omokhodion and Sanya, 2003; Birabi, *et al.*, 2012). Low Back Pain has been found to be a leading cause of disability which significantly restricts normal activity and occupation of individuals who experience it. It occurs in similar proportions in all cultures and is the most common reason for medical consultation in primary care setting (Ehrlich, 2003). Though a substantial contributor to morbidity in adults, it is morphed in significance by the attention given to other non-communicable diseases such as hypertension and diabetes mellitus globally. The situation is made worse in low- and middle-income countries where it usually ranks low as a public health priority (Ogunbode *et al.*, 2013).

Important structures of the low back that can be related to symptoms in this region include the vertebrae, intervertebral disc, facet joints, dura or theca, the ligaments and tendons, muscles and nerve roots. The lumbar spine has a genetic lordotic curve, the size of the vertebral body increases from L1 to L5, indicative of the increasing loads that each lower lumbar vertebra absorbs. Low back pain (LBP) is the pain felt in the region below T12 to the inferior gluteal folds. It usually originates from the muscles, nerves, bones, joints and aforementioned structures in the spine (Davies, 2008). LBP may be referred from adjacent or distant focus or may be psychological (Popoola, 2009). Pain in the lower part of the back is the primary symptom of low back pain. Mechanical back pain is related to activity and generally relieved by rest. Non mechanical back pain is constant and has little variation in intensity with or without activity. Inflammatory pain is associated with marked morning and inactivity stiffness and improves with activity. Radicular (nerve root) pain has a severe, sharp and lancinating quality, radiates down the back of the leg beyond the knee and is aggravated by coughing, sneezing and straining at stool. There may be numbness or weakness in the part of the leg that receives its nerve supply from a compressed nerve (Popoola, 2009; Levin, 2010).

The objective of this study was to determine the prevalence of low back pain in adult patients attending Family Medicine clinics of the Irrua Specialist Teaching Hospital, Edo State, Nigeria.

Materials and Methods

The study was carried out in the Family Medicine clinics of Irrua Specialist Teaching Hospital, a 288-bed tertiary institution with facilities for residency training in many specialties and subspecialties, such

as Internal Medicine, Surgery, Paediatrics, Obstetrics and Gynaecology, Ophthalmology, Community Medicine. It serves as a teaching hospital to Ambrose Alli University, which is an Edo state owned institution. The study population consisted of adult patients between ages 18 years to 64 years who presented at the Family Medicine clinics of ISTH with acute (less than 4 weeks), sub-acute (4 to 12 weeks) and chronic LBP (more than 12 weeks). Severely ill patients were excluded from this study. This was a descriptive cross-sectional study conducted between May and October 2013 (6 months). Two hundred and forty-five consecutive patients with LBP were recruited into the study. Data was collected using a semi-structured interviewer administered questionnaire, the Oswestry Low Back Pain Disability Questionnaire and the general health questionnaire GHQ-12. This was divided into 3 sections for socio-demographic characteristics, medical history and physical examination of respondents respectively.

The physical examination included: the weight which was measured using the analogue weighing scale (Harris scale) and measurements recorded in kilogram (kg) to the nearest 0.1kg, height was recorded in meters with a stadiometer (Harris) to the nearest 0.1 centimeter, the Body Mass Index (BMI) of the respondents was determined using the measured weight in kg and height in m^2. BMI was calculated using the formula weight in kilogram divided by height in meters squared. Blood pressure was measured using the Accoson mercury sphygmomanometer. Musculoskeletal as well as neurological examinations of the lower limbs were done; Observation of gait, observation of posture in sitting position. Inspection of the spine for previous surgery, trauma, asymmetry, lesions, scars. Range of motion including flexion, extension and lateral flexion were assessed. Palpation and percussion of the vertebrae to elicit tenderness, Straight leg raising test was done. Muscle bulk, power, tone, reflexes and sensation were all assessed. All results of the examinations were taken as normal or abnormal irrespective of the degree. Radiological and haematological investigations (lumbosacral x-rays, FBC, ESR,) were requested in cases of suspected fracture, chronic LBP, radicular symptoms.

Data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. Data was measured using continuous variables (age, weight, height, blood pressure) and categorical variable (sex, marital status, education, ethnicity, occupation, religion, duration of pain, severity of pain, functional disability and psychological disability). The frequencies, percentages, mean and standard deviation were calculated for continuous variables while frequencies, percentages and charts were used for categorical variables. Period prevalence for six months (May to October) was calculated using the formula (Rajvir, 2008).

$$\text{Prevalence} = \frac{\text{Number of cases of disease present in a population during a specific time period}}{\text{Number of persons at risk of having the disease at the specified time}}$$

The above ratio is multiplied by 1,000 or 10,000 to yield statistics that are more readily interpretable.

Ethical clearance was obtained from the ethics and research committee of Irrua Specialist Teaching Hospital Irrua, Edo State. The proposal was vetted and approved by the National Postgraduate Medical College of Nigeria.

A prepared informed consent form was given to the respondents to sign in an appropriate column after verbal explanation about the nature of the study had been provided and their full comprehension ascertained. Subjects were assured of strict confidentiality of information and non-use of invasive procedures during the exercise. Patients were given the opportunity to decide if they wanted to participate in the study and that it would in no way affect their professional care. Health education was given on the possible causes of LBP and preventive measures subsequently.

Results

Table 1: Socio-demographic characteristics of respondents (n=245)

Characteristic		Frequency	Percentage
Age			
	≤30	39	15.9
	31-40	35	14.3
	41-50	60	24.5
	51-60	71	29.0
	≥61	40	16.3
Gender			
	Male	77	31.4
	Female	168	68.6
Marital Status			
	Single	46	18.8
	Married	166	67.8
	Divorced	1	0.4
	Widowed	32	13.1
Ethnicity			
	Esan	150	61.2
	Etsako	34	13.9
	Ibo	17	6.9
	Owan	13	5.3
	Akoko-Edo	7	2.9
	Others	24	9.8
Occupation			
	Farming	70	28.6
	Trading	41	16.7
	Civil Servant	54	22.1
	Student	24	9.8
	Others	56	22.8
Educational Status			
	No Formal Education	48	19.6
	Primary	57	23.3
	Secondary	36	14.7
	Tertiary	104	42.4
Religion			
	Christianity	227	92.7
	Islam	18	7.3

Results in Table 1 show the socio-demographic characteristics of the respondents. Two hundred and forty-five patients presented to the family medicine clinic and were diagnosed with low back pain in the six-month study period. More of the patients representing (29.0%) were within 51-60 years age groups, followed by age group 41-50 which represented (24.5 %). Majority of the respondents in this study were females (68.6%) with the males constituting (31.4%) with a male: female ratio of 1: 2.2. Majority of the respondents were married (67.8%), while (18.8%) were single and (13.1%) widowed. Only one respondent was divorced representing 0.4%. With regards to ethnicity, most of the patients were Esan, constituting (61.2%), followed by Etsako 34 (13.9%), Ibo (6.9%), Owan (5.3%) and Akoko Edo (2.9%). With regards to occupation, majority of the respondents were farmers (28.6%), other occupations represented included civil servants (22.1%), traders (16.7%), students (9.8%). The occupational category "others" which included unemployed and housewives was (22.9%). With regards to education, (19.6%) respondents did not have any formal education, (23.3%) had primary education, (14.7%) had secondary education and (42.4%) had a tertiary level of education. With regard to religion, the study population was predominantly Christian (92.7%).

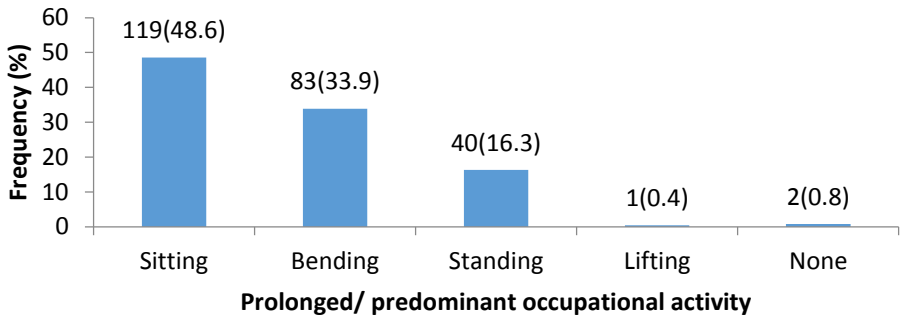

Figure 1: Distribution of predominant activity associated with respondents' occupation

Figure 1 shows the predominant activity the respondent's occupation mostly entailed. Prolonged sitting (48.6%), bending (33.9%) and prolonged standing (16.3%) were important occupational risk factors for LBP. Only one respondent reported lifting as most frequent activity while two patients could not tell what their activity mostly entailed.

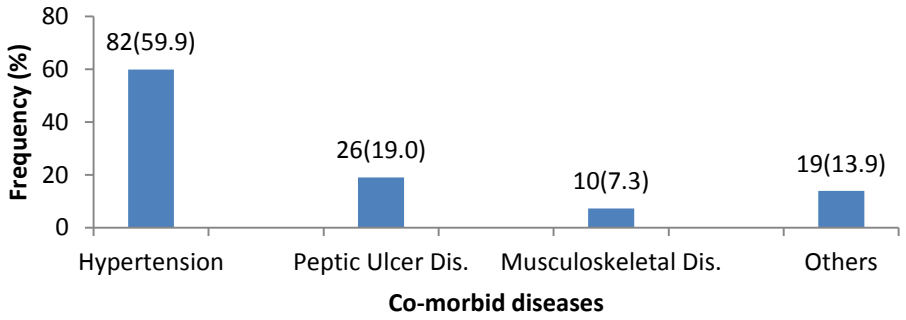

Figure 2: Distribution of co-morbid conditions identified among respondents

Figure 2 shows the distribution of co-morbidities identified among respondents. Majority (59.9%) of the patients were hypertensive, (19%) had peptic ulcer disease while (7.3%) had various forms of musculoskeletal abnormalities apart from LBP. Other forms of co-morbid conditions as stated above represented (13.9%) and were Diabetes Mellitus, DM (4), Erectile Dysfunction, ED (2), Asthma (3), Depression (1), Fibroid (1), Goitre (1), Haemorrhoid (1), Infertility (1), Pelvic Inflammatory Disease, PID (3), Psychiatric disorder, (1), and Rash (1).

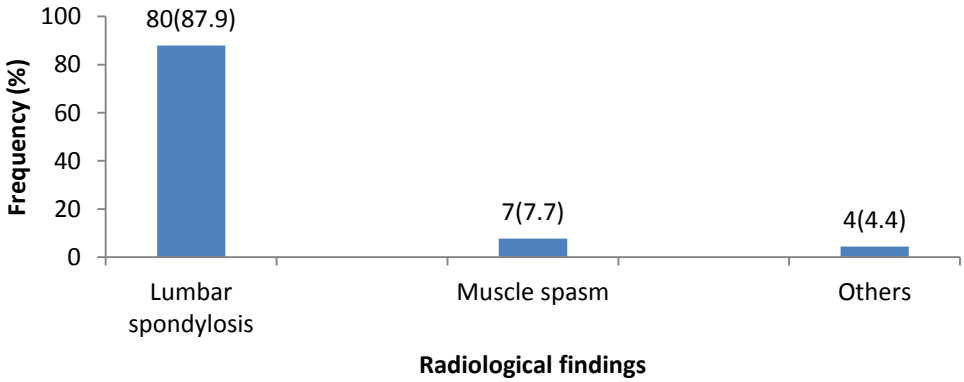

Figure 3: Radiological findings in respondents

Figure 3 shows the radiological findings of the patients. Majority of the respondents (87.9%) had lumbar spondylosis, (7.7%) patients had muscle spasm while (4.4%) of the respondents had radiological findings of spondylolisthesis, discitis or both (others)

Table 2: Prevalence of low back pain

Month of Presentation	Population (N=7,838)	No of Patients (n=245)	Prevalence Rate (/100)
May	1,429	47	3.3
June	1,440	43	3.0
July	1,689	51	3.0
August	1,033	35	3.4
September	1,488	41	2.8
October	753	28	3.9
Total	7,838	245	3.1

Prevalence = Number of cases of disease present in a population during a specific time / Number of persons at risk of having the disease at the specified time

The above ratio is multiplied by 1,000 or 10,000 to yield statistics that are more readily interpretable (Rajvir, 2008).

Prevalence of Low back pain for the period (May-October) = $\frac{\text{Number of cases of LBP (May}-\text{ Oct)}}{\text{Entire population of patients (May}-\text{ Oct)}}$

$= \frac{245}{7,838} X\ 1000 = 31.3$

31.3 Per 1000 population or 3.1 per 100 population.

Prevalence of Low back pain for the 6 month period (May-October) among adult patients attending outpatient clinic $= \frac{\text{Number of cases of LBP (May}-\text{ Oct)}}{\text{Total no.of adult patients (May}-\text{ Oct)}}$

$= \frac{245}{7,838} X\ 1000 = 31.3$

31.3 Per 1000 population or 3.1 per 100 population.

Discussion

In this study more respondents were in the age group 51-60 years representing 29% followed by those in age group 41-50 years which was 24.5%. Ogunbode *et al.* (2013) in their study found age group 50-60 years as age of highest prevalence of LBP. Their peak incidence of LBP within the age group 50-60 years was however at variance to that of Omokhodion and Sanya (2003) in which the peak incidence of LBP occurred within the age group of 34-40 years. Omokhodion and Sanya's study corroborated that of Birabi *et al.* in which the peak incidence was within the age group 31-40 years (Birabi *et al.*, 2012). This study therefore reflect the effect of age degenerative changes on the structures of the Lower back as well as the fact that the cumulative effect of activities associated with the productive years of life when individuals are engaged in various occupational and daily activities may present as low back pain in the later part of life (51 – 60 years).

Majority of the respondents were married (67.8%) with a high proportion being females (68.6%) compared to males (31.4%). This could probably be because this locality is agrarian, females compared to males engage in activities like farming which was shown to be the prevalent occupational activity of the area. In a study done by Birabi et al among rural farmers in South- South Nigeria, LBP was higher among females compared to males because of sociocultural factors where women are primarily responsible for farming to provide food for the family (Birabi *et al.*, 2012). Galukande *et al.* (2005) also found a higher prevalence of LBP among females in an orthopaedic center in Uganda probably because women seek more medical attention in their setting. This is at variance to the study by Ogunbode *et al.* in South-West Nigeria in which males had a higher prevalence of LBP compared to females (Ogunbode, *et al.*, 2013). Similarly, Punnett *et al.* (2005) in their study on the estimate of the global burden of LBP also found a higher prevalence of LBP in men compared to women. The higher prevalence in males was alluded to the fact that men usually engaged in occupations associated with heavy physical workload and whole-body-vibration compared to females (Fabunnmi, et al., 2005; Ogunbode *et al.*, 2013).

The principal occupation of the respondents was farming (28.6%), which describes the occupational and income characteristic of rural dwellers. Civil servants, traders, and students represented 22.1%, 16.7%

and 9.8% respectively which may be a reflection of the presence of institutions like the Local Government Secretariat, Ambrose Alli University in Ekpoma and the Federal Polytechnic in Auchi around the locality of the Teaching Hospital.
Over eighty percent (80.4%) of the respondents had formal education as opposed to only 19.6% who did not have any formal education. Of those who had formal education, most of them (42.4%) had tertiary education. This could be due to a positive health seeking behavior amongst educated patients as well as the fact that this study area is a rural one where the inhabitants combine educational pursuit with other activities like farming and trading.

Prolonged sitting (48.6%), prolonged bending (33.9%) and prolonged standing (16. 3%) are important postural patterns associated with farming and trading activities of the respondents. In a study done in a rural hospital in South-West Nigeria, prolonged sitting and standing as well as poor posture were among the activities that predisposed the workers to LBP (Omokhodion and Sanya, 2003). Similarly in another study done among farmers in South-West Nigeria, prolonged bending, prolonged sitting, wrong body posture combined with awkward posture in which these activities were carried out also accounted for LBP in them (Ogunbode *et al.*, 2013).Therefore prolonged sitting, prolonged bending and prolonged standing can be assumed to be predisposing factors for LBP in this study group.

Majority of the patients were hypertensive (59.9%), 19% had peptic ulcer disease (PUD) as a co-morbid condition. 7% had other forms of musculoskeletal disorder. Caution should then be exercised in the use of NSAID in hypertensive patients presenting with LBP. Peptic ulcer disease is also known to be caused or aggravated by NSAID. The prevalence of LBP was found to be 3.1% in Family Medicine clinics of Irrua Specialist Teaching Hospital. This means for every 100 patients seen in the clinics, 3 will have LBP. This prevalence differs from occupational prevalence ranging from 20% in office workers to 72.4% in farmers (Birabi *et al*., 2012; Fabunmi *et al*., 2005) and hospital-based prevalence of 20.6% and 46.8% (Galukande *et al.*, 2005; Punnette *et al*., 2005). The reason for this difference might be due to the study population, while this study referred to a total population of patients seen in the family medicine clinic during the period May and October, the earlier highlighted studies targeted distinct occupational groups. The risk for LBP is expectedly higher in certain occupational groups when compared to the general population of patients in the adult outpatient clinic (Guo, 2002; Taechasubamorn *et al.*, 2011; Nagasu *et al.*, 2007).

Conclusions

The period prevalence of LBP was found to be 3.1% in the Family medicine clinics of ISTH.
The age group 51-60 years had the highest number of patients with LBP followed by those within the age group of 41-50 years making these age ranges probably more prone to LBP. Females were more compared to males with a ratio of 1:2.2. Majority of the patients were farmers, civil servants and traders forming the predominant occupations that are known for high risk for LBP. Prolonged sitting, standing as well as bending were predominant occupational activities of these patients and are also known predisposing factors for LBP.

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